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ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

**PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS,
EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO
PROVINCE**

FINAL BASIC ASSESSMENT REPORT

DMRE REFERENCE: LP30/5/1/2/3/2/1 (0182) EM

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mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT
And
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

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FILE REFERENCE NUMBER: LP30/5/1/2/3/2/1 (0182) EM



1 IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.



2 OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process—

- (a) Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) Identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) Describe the need and desirability of the proposed alternatives,
- (d) Through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) The degree to which these impacts—
 - (aa) Can be reversed;
 - (bb) May cause irreplaceable loss of resources; and
 - (cc) Can be managed, avoided or mitigated;
- (e) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) Identify and motivate a preferred site, activity and technology alternative;
 - (ii) Identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) Identify residual risks that need to be managed and monitored.



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LIST OF ACRONYMS

AAP	Anglo American Platinum
BA	Basic Assessment
BAR	Basic Assessment Report
BBE	Bluhm Burton Engineering
BP	Buisness Plan
CES	CES Environmental and Social Advisory Services
DFFE	Department of Forestry, Fisheries and the Environment
DEA	Department of Environmental Affairs
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water & Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EI	Ecological Importance
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ES	Ecological Sensitivity
FGTLM	Fetakgomo Greater Tubatse Local Muncioality
IDP	Integrated Development Plan
LEDET	Limpopo Economic Development, Environment and Tourism
LM	Local Municipality
LP	Limpopo Province
MP	Mpumalanga Province
MRA	Mining Rights Area
NEMA	National Environmental Management Act
NDCR	National Dust Control Regulations
NAAQS	National Ambient Air Quality Standards
NFEPA	National Freshwater Ecosystem Priority Areas
NGI	National Geo-spatial Information
NPAES	National Protected Areas Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
PGM	Platinum Group Minerals
PES	Present Ecological State
PWT	Process Water Tank
PPP	Public Participation Process
PMF	Probably Maximum Flood
PSDF	Provincial Spatial Development Framework



SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
ToR	Terms of Reference
TBC	To be confirmed
UG2	Upper Group 2
VIA	Visual Impact Assessment
WMA	Water Management Area
WUL	Water Use License



PART A - SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3 CONTACT PERSON AND CORRESPONDENCE ADDRESS

(a) DETAILS OF

i) DETAILS OF THE EAP

Name of The Practitioner: Mr Corrie Retief
Tel No.: 087 549 1642
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ii) EXPERTISE OF THE EAP

(1) THE QUALIFICATIONS OF THE EAP (WITH EVIDENCE)

Qualifications:

- BA (Honours), University of South Africa, 2007,
- BA, University of South Africa, 2007.

Professional Affiliations:

- SACNASP: South African Council for Natural Scientific Profession
- EAPSA: Environmental Assessment Practitioner Southern Africa

Copies of qualifications and professional registrations of the EAP can be viewed in Appendix 1.

(2) SUMMARY OF THE EAP'S PAST EXPERIENCE (IN CARRYING OUT THE ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURE)

CES was established in 1990 as a specialist environmental consulting company based in Grahamstown, with branches in East London, Cape Town, Port Elizabeth and Centurion. CES has considerable experience in terrestrial, marine and freshwater ecology, the Social Impact Assessment (SIA) process, and state of environment reporting (SOER), Integrated Waste Management Plans (IWMP), Spatial Development Frameworks (SDF), public participation, as well as the management and co-ordination of all aspects of the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) processes. CES has been active in all of the above fields, and in so doing have made a positive contribution to towards environmental management and sustainable development in the Eastern Cape, South Africa and many other African countries.

Corrie Retief is a SACNASP registered Environmental Scientist and an EAPASA Registered EAP with a Bachelor degree specialising in environmental management and an Honours Bachelors in Geography. Corrie has more than 16 years of experience in Environmental and Waste Management for mining, local government, and private sector.

Corrie's main area of expertise is Waste management, and he has conducted waste licensing and



compliance projects for Local Government and Mining. Corrie has also conducted several waste classification and assessments to determine the disposal options of a number of waste materials including waste rock, tailings and sewage sludge. Corrie has done numerous environmental authorisation and compliance projects for the mining industry. His mining experience includes projects for Samancor, Eastplats, AngloPlatinum, Glencore, Harmony, ENRC, Tronox and several small-scale sand mining operations. Corrie has also provided independent environmental control officer (ECO) services to various companies throughout South Africa this includes being part of the Independent Environmental Consultant (IEC) team for the Gautrain Rapid Rail system from 2015-2018

(b) LOCATION OF THE OVERALL ACTIVITY

Table 3.1: Location of the overall activity

GEOGRAPHICAL ENTITY	DESCRIPTION
Farm Name:	The project is proposed on the following properties: <ul style="list-style-type: none"> • Remainder of Farm Malokela 370 KT • Remainder of Farm Thornccliffe 374KT • Portion 0 of the farm Malokela 370KT • Portion 7 of the farm Thornccliffe 374KT
Application area (Ha)	5.93
Magisterial district:	Sekhukhune District Municipality
Distance and direction from nearest town	Anglo American Mines is situated approximately 32 km south of Steelpoort and approximately 65 km north-west of the town of Mashishing (Lydenburg) in the Limpopo province.
21 digit Surveyor General Code for each farm portion	TOKT00000000037000000 TOKT00000000037400000 TOKT00000000037400007

(c) LOCALITY MAP

(Show nearest town, scale not smaller than 1:250000).

The project locality map is provided in Figure 3.1 below.

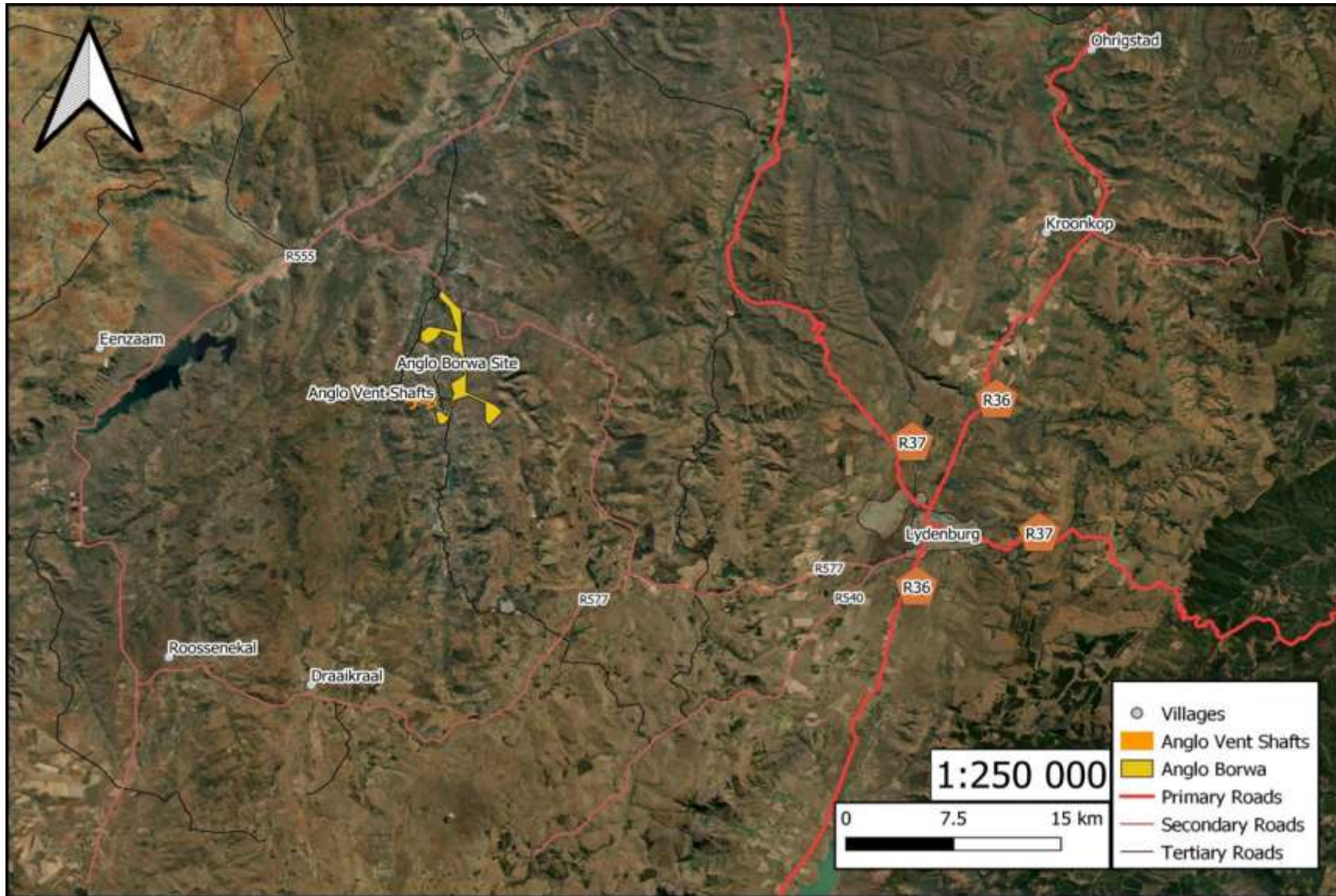


Figure 3.1: Regional locality map of the proposed development site



(d) DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

(Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site)

The proposed site plan maps are provided in Figure 3.2 – Figure 3.8 below.

i) LISTED AND SPECIFIED ACTIVITIES

The regulation and protection of the environment within South Africa, occurs mainly through the application of various items of legislation, within the regulatory framework of the Constitution, 1996 (Act No. 108 of 1996). The primary legislation regulating Environmental Impact Assessment (EIA) within South Africa is the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). NEMA makes provision for the Minister of Environmental Affairs to identify activities which may not commence prior to authorisation from either the Minister or the provincial Member of the Executive Council (“the MEC”). In addition to this, NEMA also provides for the formulation of regulations in respect of such authorisations.

The EIA Regulations (2014) (as amended) allow for a Basic Assessment (BA) process for activities with limited environmental impact (listed in GN R 983 & 985, 2014, as amended) and a more rigorous two-tiered approach to activities with potentially greater environmental impact (listed in GN R 984, 2014, as amended). This two-tiered approach includes both a Scoping and EIA process. In terms of the Environmental Impact Assessment (EIA) regulations of 2014 (as amended), the proposed development Park project requires Environmental Authorisation, from the Department of Mineral Resources and Energy (DMRE). The triggered activities are listed under Listing Notices 1 & 3 (published in Government Notices No. R 983 and No. R 985 respectively), and as such, the BA Process needs to be followed. The listed activities that have been applied for are provided in Table 3.2 below.



Table 3.2: Listed Activities triggered in the 2014 NEMA EIA Regulations (as amended)

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	RELEVANCE
The development of facilities or infrastructure for the transmission and distribution of electricity— (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	Total footprint of pylons: 27.37 m ² . Total length of powerlines: 5 800 m.	11	GNR 983, Listing 1	The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including: <ul style="list-style-type: none"> • The Ventilation Line South (Borwa-South), 2 600 m in length; • The Ventilation Line North (Borwa-North), 2 000 m in length; and • The Downcast Line, 1200 m in length (Figure 3.2).
The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	Total storage capacity of 42.3 m ³	14	GNR 983, Listing 1	The development will require the storage and handling of up to 42.3 cubic metres of hydrocarbons during the construction phase.
Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including — (a) Associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource;	Total footprint of borrow pits: 2.69 ha.	21	GNR 983, Listing 1	Construction materials will be sourced from six borrow pits, namely: <ul style="list-style-type: none"> • Borrow pit 01, which will encompass an area of 10 086 m²; • Borrow pit 02, which will encompass an area of 4 444 m²; • Borrow pit 03, which will encompass an area of 3 167 m²;



NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	RELEVANCE
(b) The primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing.				<ul style="list-style-type: none"> Borrow pit 04 and borrow pit 05, which will encompass areas of 2 037 m² and 3 135 m², respectively; and Borrow pit 06, which will encompass an area of 4 044 m².
The decommissioning of any activity requiring (i) A closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Total footprint of borrow pits: 2.69 ha.	22	GNR 983, Listing 1	The proposed development will require a mining permit in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for the mining of two borrow pits for construction materials. A closure certificate will be required for the decommissioning of these borrow pits.
The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.	Total footprint: 5.93 ha.	27	GNR 983, Listing 1	The proposed development will require the clearance of 5.93 ha of indigenous vegetation for the construction of the three ventilation shafts, the emulsion borehole, the access roads and powerlines.
The development of a road wider than 4 metres with a reserve less than 13.5 metres. e. Limpopo i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;	Width: 5.5 m. Total footprint: 2.365 ha.	4(e)(i) (bb)(cc)(ee)	GNR 985, Listing 3	The proposed development will require the upgrading of the existing access roads on site. The development will include the construction of the 5.5 m wide access roads, including Route 1, Route 2, Route 3, Route 4, Route 5 and 6 (Figure 3.2) within the following sensitive areas: (bb) Mpumalanga Mesic Grasslands NPAES, (cc) Zone B (Highveld to Bushveld Transition), in terms of the OLEMF, and (ee) CBA 1, CBA 2 and ESA 1 areas, in terms of the Limpopo CPlan.



NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	RELEVANCE
(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;				
The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. e. Limpopo i. All areas.	Total storage capacity of 42.3 m ³	10(e)(i)	GNR 985, Listing 3	The development will require the storage and handling of up to 42.3 cubic metres of hydrocarbons during the construction phase.
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 i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans.	Total footprint: 5.93 ha.	12(e)(i)(ii)	GNR 985, Listing 3	The proposed development will require the clearance of 5.93 ha of indigenous vegetation for the construction of the three ventilation shafts, the emulsion borehole, the access roads and powerlines within the following sensitive areas: i. The Endangered Sekkhune Mountainlands Ecosystem in terms of the National Spatial Biodiversity Assessment, and ii. CBA 1, CBA 2 and ESA 1 areas, in terms of the Limpopo CPlan.
The development of—	Total footprint across watercourses: 318 m ² .	14(ii)(a)(c)(e)(i)(bb)(dd)(ff)	GNR 985, Listing 3	The development will require the construction of temporary or permanent infrastructure (e.g.



NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	RELEVANCE
<p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs—</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>e. Limpopo</p> <p>i. Outside urban areas:</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</p>				<p>bridges, support structures and culverts) with a physical footprint of more than 10 square metres within at least 32 m of watercourses within the following sensitive areas:</p> <p>(bb) Mpumalanga Mesic Grasslands NPAES,</p> <p>(dd) Zone B (Highveld to Bushveld Transition), in terms of the OLEMF, and</p> <p>(ff) CBA 1, CBA 2 and ESA 1 areas, in terms of the Limpopo CPlan.</p>



ii) DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga) (Figure 3.2).

Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method. Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and -pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³/s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is sub-optimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and associated infrastructure, including the establishment of six borrow pits for material sourcing and the upgrading of access roads and powerlines.

(1) VENTILATION SHAFTS AND EMULSION BOREHOLE

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole. The following details are currently available for the proposed ventilation shafts and emulsion borehole.

The proposed **Downcast Shaft** will be located at the western extent of the project area, approximately 2.2 km west of the main Borwa Shaft (Figure 3.3). The technical report from Bluhm Burton Engineering Pty Ltd estimated the position of the downcast shaft to be at the bottom of current excavations below South Strike 17. This shaft needs to be moved into the laterals to lessen the impact on the mine operation and traffic management plan and to get the most favourable position on surface to make the drilling operation safer and easier. The following additional requirements are noted for the Downcast Shaft:

- All power will be supplied via Diesel generator, due to it only being a downcast shaft no permanent power is required.
- Polluted water control processes will need to be established.
- Preparation of underground site for access control and removing of chips while reaming.
- Site establishment by Raise bore drilling contractor and start drilling.
 - Area must be bunded where drill will be positioned.



- Drill pilot hole for raise bore.
- Drill hole for communication to underground.

The proposed **North Exhaust (Upcast) Shaft** will be located to the north-east of the Downcast Shaft, approximately 1.4 km west of the main Borwa Shaft (Figure 3.4). After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Exhaust shaft. The whole process will be the same as for the downcast shaft but after completion of the drilling operation, ventilation structures will be erected with ventilation fans over the excavation. After completion the ventilation fans will be commissioned. The proposed **South Exhaust (Upcast) Shaft** will be located to the south-east of the Downcast Shaft, approximately 2.1 km south-west of the main Borwa Shaft (Figure 3.5). After the completion of the raise boring at the North Exhaust shaft, raise boring will move over to the Southern Exhaust shaft. After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Upcast Shaft, then to the Southern Upcast Shaft.

The proposed **Emulsion Borehole** will be located en route to the Downcast Shaft, approximately 1.5 km west of the main Borwa Shaft (Figure 3.6). This point will be required to be accessed by a SASOL Emulsion tanker every 2 -3 days. Emulsion will be gravity fed down a hole at this point into the workings below. It will also be constructed at the same time as the access roads to ventilations shafts.

An **existing ventilation shaft** occurs within the project area, located approximately 1.1 km south-west of the main Borwa Shaft (Figure 3.7).

(2) BORROW PITS

Construction materials will be sourced from six borrow pits, namely:

- **Borrow pit 01**, located near the entrance to the project area, immediately to the south of the main Borwa Shaft mining area, which will encompass an area of 10 086 m² (Figure 3.8);
- **Borrow pit 02**, located near the Northern Upcast Vent Shaft (Figure 3.4), which will encompass an area of 4 444 m²;
- **Borrow pit 03**, located near the emulsion borehole, which will encompass an area of 3 168 m² (Figure 3.6);
- **Borrow pit 04 and borrow pit 05**, located en route to the Southern Upcast Vent Shaft (Figure 3.9), which will encompass areas of 2 037 m² and 3 135 m², respectively; and
- **Borrow pit 06**, located near the Southern Upcast Vent Shaft (Figure 3.5), which will encompass an area of 4 045 m².

(3) ACCESS ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole and will be included in the applications (Figure 3.2). Access will be required to enable construction of the ventilation shaft and for future inspections. Road will need to be designed to accommodate environmental and physical vehicle



requirements to lessen effect on the environment and enable safe use of the road by vehicles. The proposed upgrades need to accommodate the following:

- The raise bore drill and ancillary equipment need to go up and down on the road;
- The roads are to be used by water trucks and diesel tankers to supply water for drilling operations and diesel for power generator requirements, respectively;
- Concrete trucks need to use the road to supply concrete for civil work;
- Other materials required for drilling operation and construction need to be to the sites via the proposed roads; and
- Although not a direct requirement for the project, but for cost savings, the road needs to accommodate the emulsion tanker and allow pumping of emulsion directly underground to a new transfer station underground through a planned hole on surface.

Route 1 runs westwards from the site entrance, splitting towards each of the proposed ventilation shafts and emulsion borehole sites. Access to the Downcast Shaft will be achieved via the proposed upgrade of **Routes 3 and 5-1**. The designs for **Route 2, 4 and 5-2** will include the road to the finalised position of the Northern Upcast shaft, Southern Upcast shaft and Emulsion borehole, respectively. All access roads will be built at the same time.

(4) POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including:

- The Ventilation Line South (Borwa-South), 2 600 m in length;
- The Ventilation Line North (Borwa-North), 2 000 m in length; and
- The Downcast Line, 1200 m in length (Figure 3.2).

(5) CONSTRUCTION SITE CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination, etc.

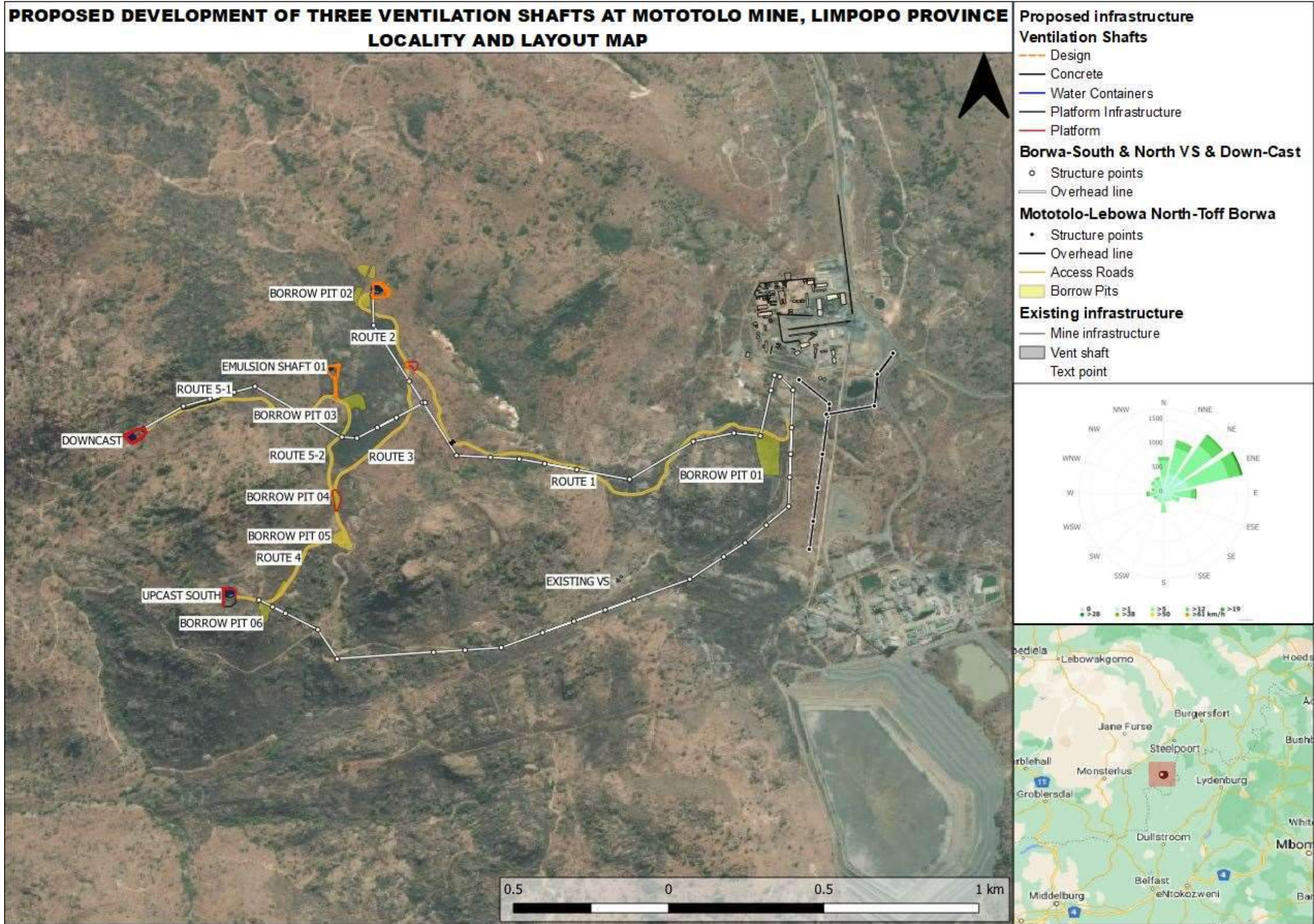


Figure 3.2: Locality and layout map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 3.3: Layout map of the proposed downcast ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

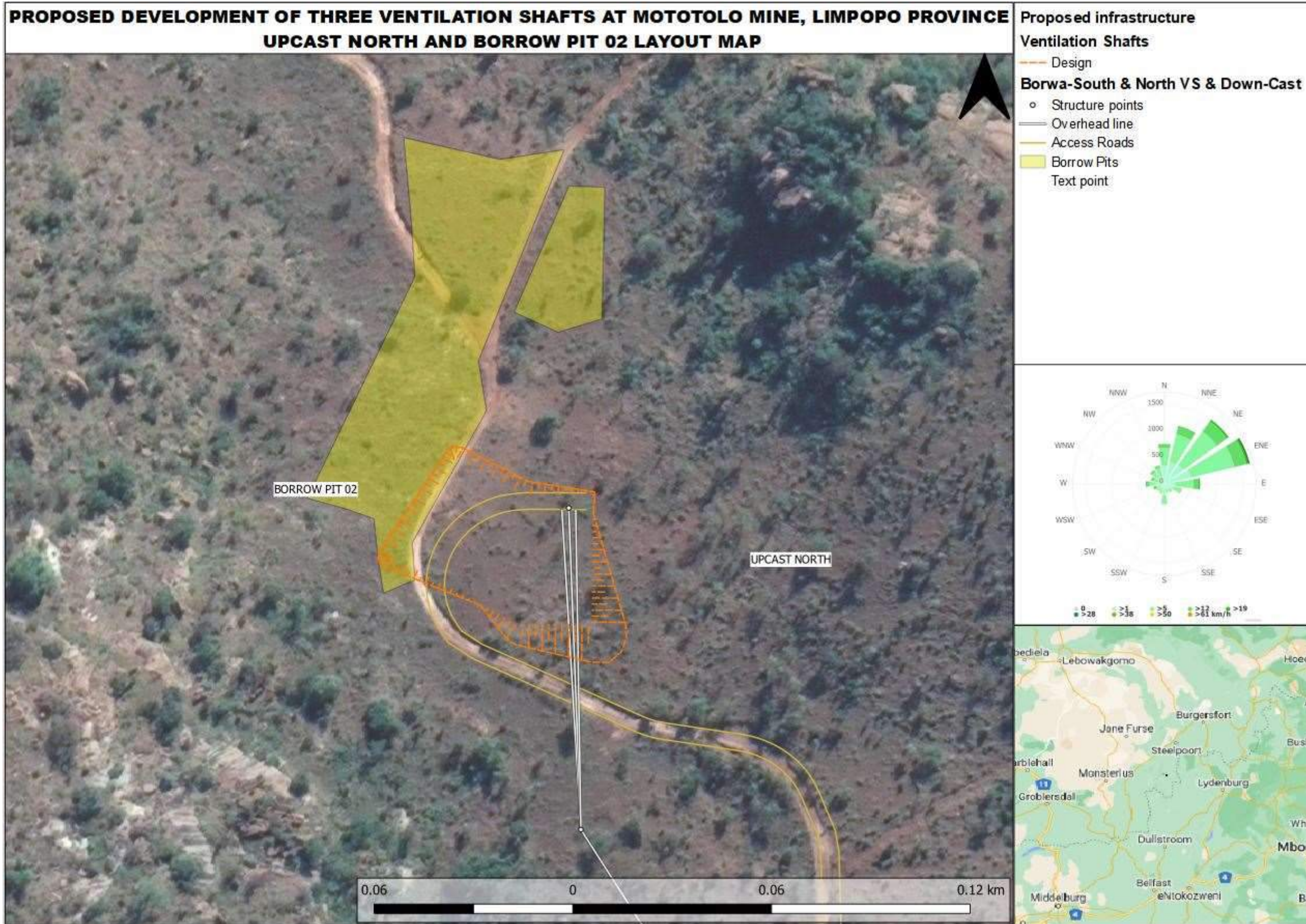


Figure 3.4: Layout map of the proposed upcast north ventilation shaft and borrow pit 02 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 3.5: Layout map of the proposed upcast south ventilation shaft and borrow pit 06 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

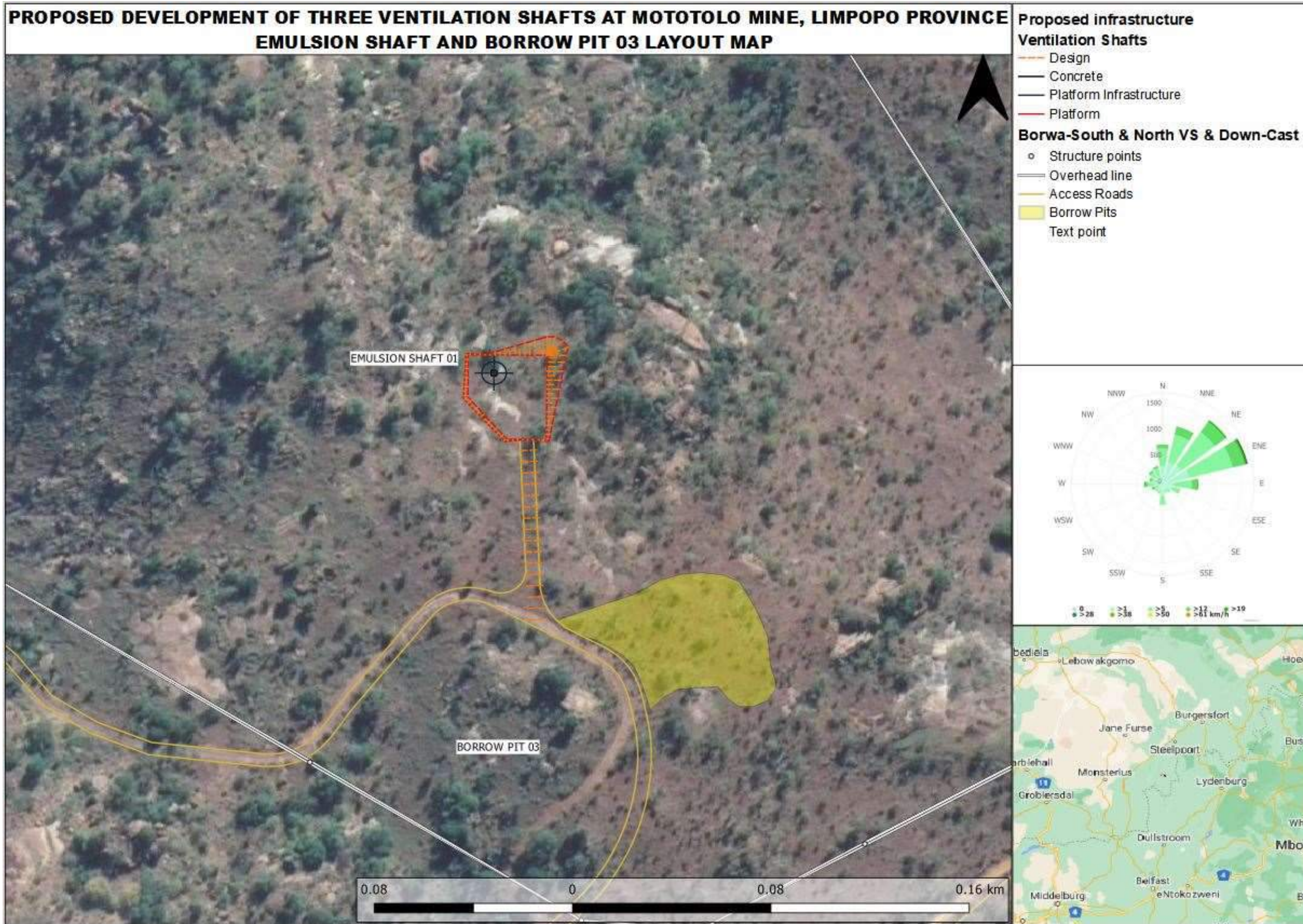


Figure 3.6: Layout map of the proposed emulsion shaft and borrow pit 03 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 3.7: Layout map of the existing ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

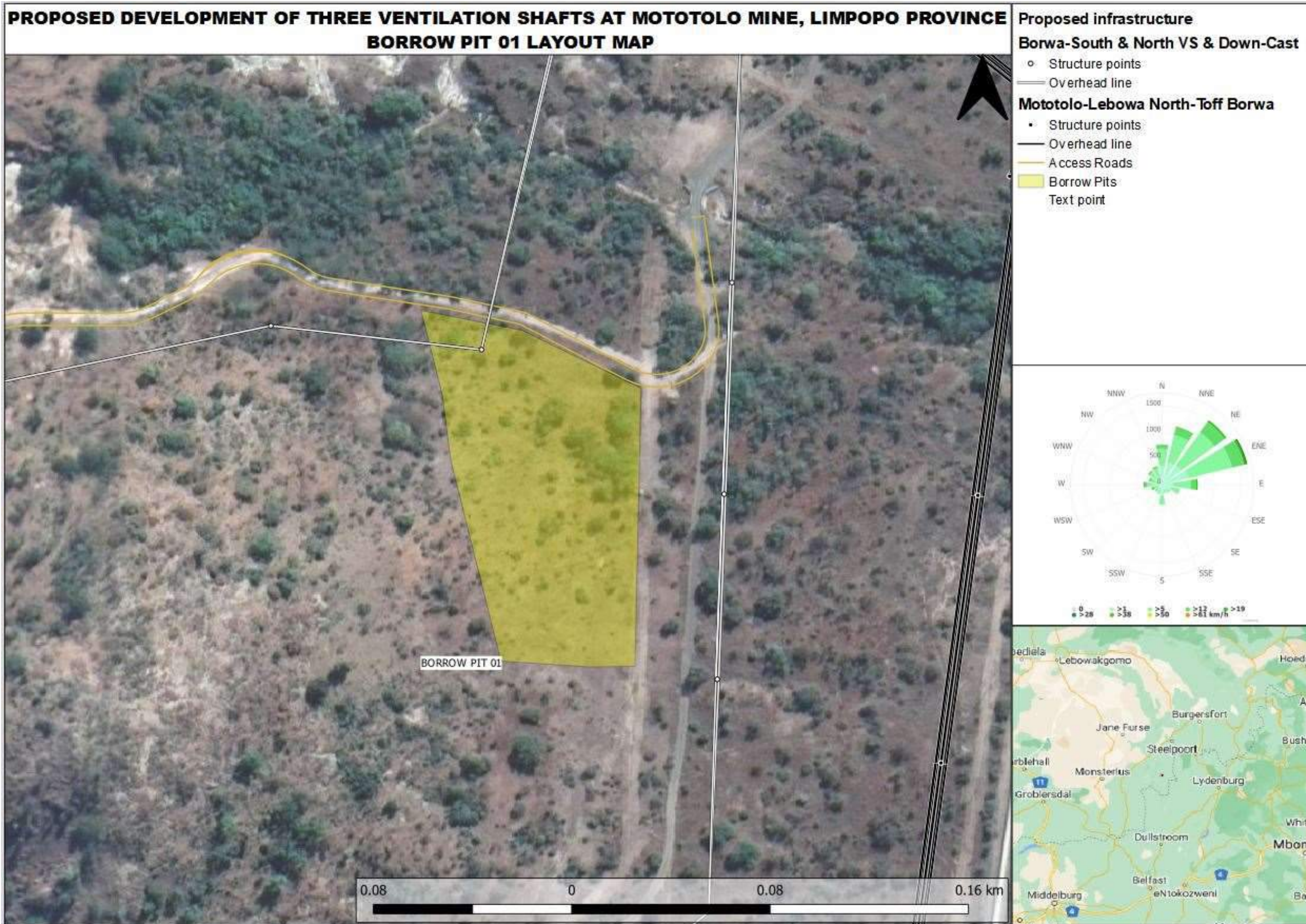


Figure 3.8: Layout map of the proposed borrow pit 01 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

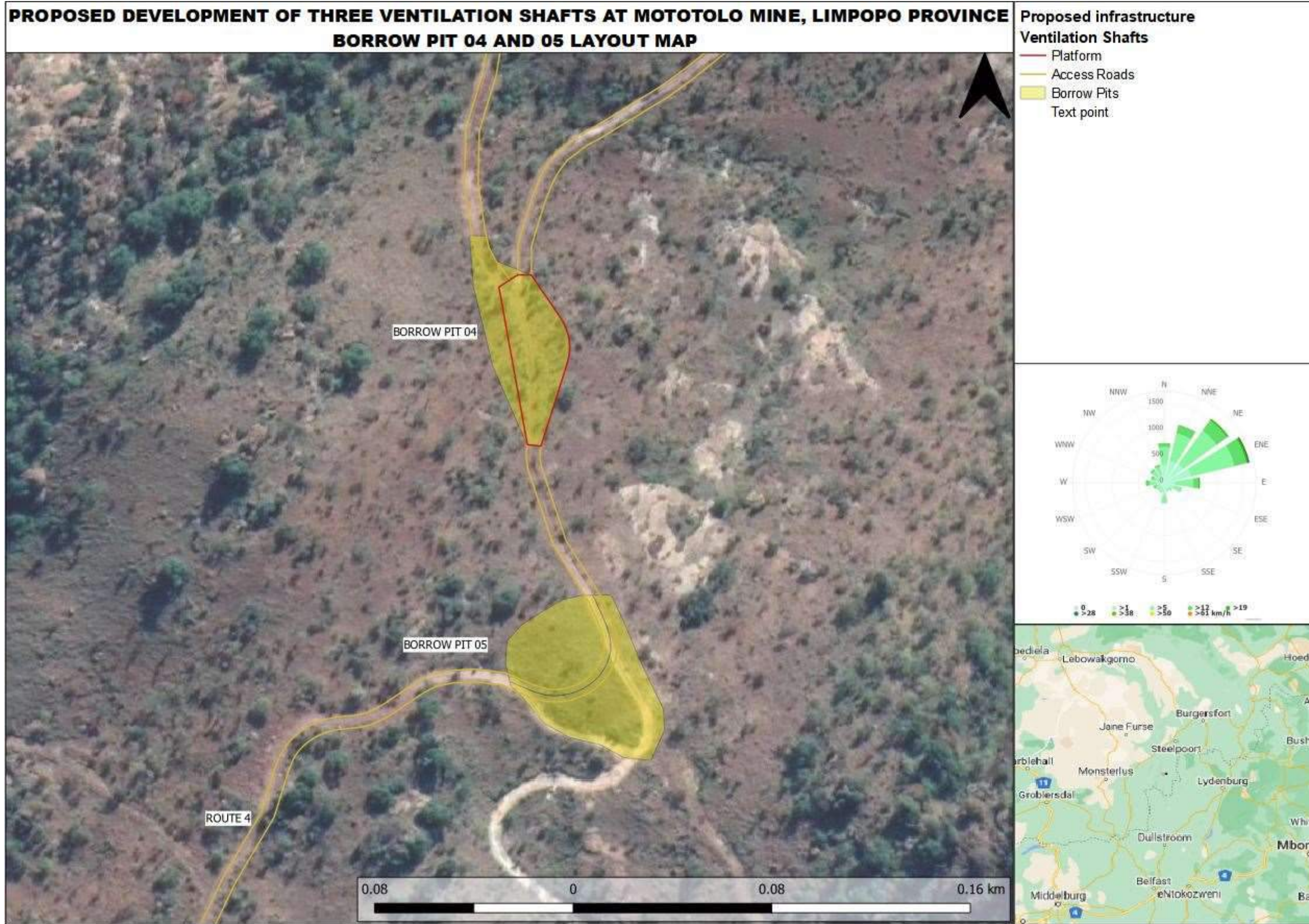


Figure 3.9: Layout map of the proposed borrow pits 04 and 05 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



(e) POLICY AND LEGISLATIVE CONTEXT

This section describes the South African (national), provincial and municipal legislation considered during the Basic Assessment process of the proposed development (Table 3.3).

Table 3.3: Environmental legislation considered in the preparation of this report

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
<p>Constitution of the Republic of South Africa (108 of 1966). The Constitution of the Republic of South Africa is the supreme law of the land. As a result, all laws, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right:</p> <p><i>a) To an environment that is not harmful to their health or well-being; and</i> <i>b) To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:</i></p> <p><i>i. Prevent pollution and ecological degradation;</i> <i>ii. Promote conservation; and</i> <i>Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</i></p>	<p>Chapter 2 of the Constitution includes an environmental right (Section 24).</p> <p>Obligation to ensure that the proposed development will not result in pollution and ecological degradation; and</p> <p>Obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.</p>	<p>The developer has an obligation to ensure that the proposed activity will not result in pollution and ecological degradation.</p> <p>The developer has an obligation to ensure that the proposed activity is ecologically sustainable, while demonstrating economic and social development.</p>
<p>National Environmental Management Act, (Act 107 of 1998); with subsequent amendments; and Environmental Impact Assessment Regulations 2014 (and as amended 07 April 2017). Relevant Sections of the Act: Section 2, 23, 24, 28-33</p> <ul style="list-style-type: none"> • Application of the NEMA principles (e.g. need to avoid or minimise impacts, use of the precautionary principle, polluter pays principle, etc.) • Application of fair decision-making and conflict management procedures are provided for in NEMA. 	<p>In terms of Section 28, every person who causes; has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent pollution or rectify the damage caused.</p>	<p>An application for Environmental Authorisation (as triggered by the EIA Regulations 2014 (as amended) will be required. In terms of Section 28, every person who causes, has caused, or may cause significant pollution or degradation of the environment, must take reasonable measures to</p>



<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.</p>
<ul style="list-style-type: none"> Application of the principles of Integrated Environmental Management and the consideration, investigation and assessment of the potential impact of existing and planned activities on the environment; socio-economic conditions; and the cultural heritage. <p>NEMA introduces the duty of care concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of managers or directors of companies for the conduct of the legal persons.</p> <p>In addition NEMA introduced a framework for environmental impact assessments that aim to avoid detrimental environmental impacts through the regulation of specific activities that cannot commence without prior environmental authorisation. Authorisation either requires a Basic Assessment or a Full Scoping and Environmental Impact Assessment, depending on the type of activity. These assessments specify mitigation and management guidelines to minimise negative environmental impacts and optimise positive impacts.</p>	<p>The developer must apply the NEMA principles, the fair decision-making and conflict management procedures that are provided for in NEMA.</p> <p>The developer must apply the principles of Integrated Environmental Management and consider, investigate and assess the potential impact of existing and planned activities on the environment, socio-economic conditions and the cultural heritage.</p> <p>Listed activities relating to mining are found in Government Notice (GNR.) 983 and GNR. 985 (as amended), as outlined above.</p>	<p>prevent pollution or rectify the damage caused. The undertaking of various specialist studies, in order to identify potential impacts on the environment and to recommend mitigation measures to minimise these impacts, complies with Section 28 of NEMA. The developer must apply the NEMA principles, the fair decision-making and conflict management procedures that are provided for in NEMA. The developer must apply the principles of Integrated Environmental Management and consider, investigate and assess the potential impact of existing and planned activities on the environment, socio-economic conditions and the cultural heritage.</p> <p>In terms of the EIA regulations, the proposed development will trigger the need for a Basic Assessment process under the NEMA EIA Regulations of 2014 (as amended) in Listing Notice 3..</p>



<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.</p>
<p>National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); and Alien Invasive Species Regulations, 2014.</p> <p>The National Environmental Management: Biodiversity Act (NEM:BA), No. 10 of 2004, aims to assist with the management and conservation of South Africa’s biological diversity through the use of legislated planning tools. These planning tools include the declaration of bioregions and the associated bioregional plans as well as other mechanisms for managing and conserving biodiversity.</p> <p>The objectives of the Act include inter alia:</p> <ul style="list-style-type: none"> • The management and conservation of biological diversity within the Republic and of the components of such biological diversity; • The use of indigenous biological resources in a suitable manner; • The fair and equitable sharing of benefits arising from bio-prospecting of genetic material derived from indigenous biological resources; • To give effect to ratified international agreements relating to biodiversity which are binding on the Republic. • To provide for co-operative governance in biodiversity management and conservation; and • To provide for a South African National Biodiversity Institute to assist in achieving the objectives of the Act. <p>In addition to this, Sections 50-62 of the Act provide details relating to the protection of threatened or protected ecosystems and species, while Sections 63-77 of the Act provide details relating to alien and invasive species with the purpose of preventing their introduction and spread, managing, controlling and eradicating of alien and invasive species.</p>	<p>The proposed development must conserve endangered ecosystems and protect and promote biodiversity.</p> <p>Activities may not be carried out in threatened or protected ecosystems without first gaining authorisation for such activities. The development site is not located within an ecosystem listed as in terms of NEMBA (refer to Figure 3 included below).</p> <p>No protected species may be removed or damaged without a permit.</p> <p>An invasive species monitoring, control and eradication plan for land/activities under the control of the proponent should be developed, as part of their environmental plans in accordance with Section 11 of NEMA.</p>	<p>The developer must not cause a threat to any endangered ecosystems and must protect and promote biodiversity.</p> <p>The developer must assess the impacts of the proposed development on endangered ecosystems.</p> <p>The developer may not remove or damage any protected species without a permit.</p> <p>The developer must ensure that the site is cleared of alien vegetation using appropriate means.</p> <p>Alien Invasive Species (AIS) Regulations, Government Notice R. 598 of 1st April 2014 are applicable.</p>



APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
<p>The NEM:BA Alien and Invasive Species List (Government Notice 599 of 2014) lists Alien and Invasive species that are regulated by the NEM:BA Alien and Invasive Species Regulations (Government Notice 98 of 2014).</p>		
<p>National Environmental Management: Air Quality Act (Act 39 of 2004) with subsequent amendments and Regulations. As with the Atmospheric Pollution Prevention Act 45 of 1965, the objective of the NEM: Air Quality Act is to protect the environment by providing the necessary legislation for the prevention of air pollution. <i>“To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.”</i></p>	<p>The “best practicable means” for the abatement of dust during prospecting if approved have to be taken.</p> <p>All appliances used for preventing or reducing to a minimum the escape into the atmosphere of noxious or offensive gases have to be properly operated and maintained and the best practice means for achieving this implemented.</p>	<p>Crushing activities and moving vehicles may increase dust. With adequate mitigation measures this will not be significant. The proposed development <u>does not</u> require an Atmospheric Emissions Licence according to the NEM: Air Quality Act (Act 39 of 2004).</p> <p>Although no major air quality issues are expected, the developer needs to be mindful of the Act as it also relates to potential dust generation during construction, etc.</p>
<p>National Heritage Resources Act, (Act 25 of 1999). The protection of archaeological and paleontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, paleontological material and meteorites are the property of the State. <i>“Any person who discovers archaeological or paleontological objects or material or a meteorite in the course of development must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority”.</i></p>	<p>No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or paleontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority.</p> <p>No person may, without a permit issued by the responsible heritage resources authority destroy,</p>	<p>An Archaeological Impact Assessment has been conducted for the project. A number of recommendations were made to limit the impact on archaeological resources, in particular with reference to resources that could potentially be encountered in the vicinity of the Anglo Ventilation Shaft Sites.</p>



APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
	damage, excavate, alter or deface archaeological or historically significant sites.	
<p>National Water Act (Act No 36 of 1998) [NWA]</p> <p>In terms of the NWA, the national government, acting through the Minister of Water and Environmental Affairs (previously the Minister of Water Affairs and Forestry), is the public trustee of South Africa’s water resources, and must ensure that water is protected, used, development, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons (section 3(1)).</p> <p>In terms of the NWA a person may only use water without a license under certain circumstances. All other use, provided that such use qualify as a use listed in section 21 of the Act, require a water use license. A person may only use water without a license if such water use is permissible under Schedule 1 (generally domestic type use) if that water use constitutes a continuation of an existing lawful water use (water uses being undertaken prior to the commencement of the NWA, generally in terms of the Water Act of 1956), or if that water use is permissible in terms of a general authorisation issued under section 39 (general authorisations allow for the use of certain section 21 uses provided that the criteria and thresholds described in the general authorisation is met). Permissible water use furthermore includes water use authorised by a license issued in terms of the NWA.</p> <p>Section 21 of the NWA indicates that “water use” includes:</p> <ul style="list-style-type: none"> • taking water from a water resource (section 21(a)); • storing water (section 21(b)); 	<p>Appropriate measures must be taken to prevent the pollution of water courses and other water resources.</p> <p>Riparian zones must be protected.</p> <p>Construction/operations within a river, within the regulated area of a watercourse (100 m from the centre line) and within 500 m of a wetland is a water use defined under section 21 (c) & (i) of the NWA.</p> <p>Engaging in a controlled activity, including Irrigation of any land with waste or water containing waste generated through any industrial activity or by a waterwork resource is a water use defined under section 21(e) of the NWA.</p> <p>Discharge of waste or water containing waste wastewater directly into a water resource is a water use defined under section 21(f) of the NWA and entails the discharge of waste or.</p> <p>Disposal of waste which may detrimentally impact on a water resource is a water use defined under section 21(g) of the NWA and entails the disposal of waste or water containing waste.</p> <p>Disposal of waste which may detrimentally impact on a water resource is a water use defined under</p>	<p>The project will entail the undertaking of water uses as listed in section 21 of the National Water Act (Act 36 of 1998) (“NWA”) for 21(c) and 21(i) water uses. A risk assessment will however be undertaken and should the risk class of the proposed ventilation shaft be low, it will be motivated for a general authorisation registration in terms of Government Notice Regulation (GN R 509 of 26 August 2016) for the water uses. This motivation and supporting documentation will be submitted to the Department of Water and Sanitation (“DWS”).</p>



<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.</p>
<ul style="list-style-type: none"> • impeding or diverting the flow of water in a water course (section 21(c)); • engaging in a stream flow reduction activity contemplated in section 36 (section 21(d)); • engaging in a controlled activity which has either been declared as such or is identified in section 37(1) (section 21(e)); • discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit (section 21(f)); • disposing of waste in a manner which may detrimentally impact on a water resource (section 21(g)); • disposing in any manner of water which contains waste from, or which has heated in, any industrial or power generation process (section 21 (h)); • altering the bed, banks, course or characteristics of a water course (section 21(i)); • removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people (section 21(j)); and • using water for recreational purposes (section 21(k)). <p>In addition to the above and in terms of section 26 of the NWA, Regulations on the Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources were published in GN R. 704 of 4 June 1999 (GN R. 704). The aforesaid GN R. 704 provides for inter alia the capacity requirements of clean and dirty water systems (regulation 6), the protection of water resources by a person in control of a mine (regulation 7), security and addition</p>	<p>section 21(g) of the NWA and entails the disposal of waste or water containing waste.</p> <p>Removing, discharging or disposing of water found underground for the continuation of an activity or for the safety of persons is a water use defined under section 21(j) of the NWA and entails the disposal of waste or water containing waste.</p> <p>Manage the use of water as well as runoff in such a manner that it has limited pollution impacts.</p> <p>Prevent the unauthorised use of water by abstraction and in close proximity to drainage lines and waterbodies.</p> <p>Use water sparingly</p>	



<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</p>	<p>REFERENCE WHERE APPLIED</p>	<p>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.</p>
<p>measures (regulation 8) and temporary or permanent cessation of a mine or activity (regulation 9).</p> <p>According to GN R. 704 “no person in charge of a mine may carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest”. Insofar as the undertaking of section 21 water uses is concerned, it is anticipated that application for registration under general authorisation will be undertaken.</p>		
<p>National Forest Act (Act 84 of 1998) and its subsequent amendments and 1976 List of Protected Trees (Government Gazette No. 9542 Schedule A) in the 1998 National Forest Act (NFA) as amended in December 2016.</p> <p>The NFA provides the legal framework for the protection and sustainable use of South Africa’s indigenous forests. Any area that has vegetation which is characterised by a closed and contiguous canopy and under storey plant establishment is defined as a ‘forest’ and as a result falls under the authority of the Department of Agriculture, Forestry and Fisheries (DAFF): Forestry sector. A clause in Chapter 3, Part 1 covers:</p> <p><u>Prohibition on destruction of trees in natural forests</u> Section 7 (1) No person may cut, disturb, damage or destroy any indigenous living tree in, or remove or receive any such tree from, a natural forest except in terms of (a) a licence issued under subsection (4) or section 23.</p> <p><u>Prohibition on destruction of protected trees</u></p>	<p>No forest patches or protected trees that form part of a forest or forest association may be damaged or destroyed without a permit.</p> <p>Development that comes within 50 metres of a forest must be closely monitored.</p>	<p>Based on available literature describing the historic vegetation cover, no forest patches were identified within the development footprint.</p> <p>The Specialist Biodiversity Assessment (CES, 2022) (Appendix 8.1) confirmed that there are no protected trees located on the site.</p>



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<p>Section 15 (1) No person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate, or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.</p> <p><u>Effect of setting aside protected areas</u></p> <p>Section 10 (1) No person may cut, disturb, damage or destroy any forest product in, or remove or receive any forest product from, a protected area, except—</p> <ul style="list-style-type: none"> (a) In terms of the rules made for the proper management of the area in terms of Section 11(2)(b); (b) In the course of the management of the protected area by the responsible organ of State or person; (c) In terms of a right of servitude; (d) In terms of the authority of a licence granted under section 7(4) or 23; (e) In terms of an exemption under section 7(1)(b) or 24(6); or <p>In the case of a protected area on land outside a State forest, with the consent of the registered owner or by reason of another right which allows the person concerned to do so, subject to the prohibition in section 7(1).</p>		
<p>National Environmental Management: Protected Areas Amendment Act (No. 31 of 2004).</p> <p>The purpose of this Act is to provide for the protection and conservation of ecologically viable areas representative of South Africa’s biological diversity and its natural landscapes and seascapes. The objectives of this Act are -</p>	<p>Development within protected areas or within close proximity to protected areas require Authorisation.</p>	<p>The proposed activity is not situated within any National, Provincial or Local Protected areas.</p>



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<ul style="list-style-type: none"> • To provide, within the framework of national legislation, including the National Environmental Management Act, for the declaration and management of protected areas; • To provide for co-operative governance in the declaration and management of protected areas; • To effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity; • To provide for a representative network of protected areas on state land, private land and communal land; • To promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas; • To promote participation of local communities in the management of protected areas, where appropriate; and • To provide for the continued existence of South African National Parks. <p>In terms of Section 50 (1)(a)(ii) of this Act, the management authority of a national park, nature reserve and world heritage site may, despite any regulation or by-law referred to in section 49, but subject to the management plan of the park, reserve or site - <i>“carry out or allow an activity in the park, reserve or site aimed at raising revenue”</i>. However, Section 50 (2) states that such activity <i>“may not negatively affect the survival of any species in or significantly disrupt the integrity of the ecological systems of the national park, nature reserve or world heritage site”</i>. Furthermore, in terms Section 51 (a), the Minister or MEC is responsible for the regulations or restrictions of the development and other activities in a protected environment, <i>“which</i></p>		<p>The site falls within the Mpumalanga Mesic Grassland NPAES Focus Area. The nearest nature reserve is located 15 km to the north and the nearest protected area, as identified by the South African Protected Areas Database (SAPAD, 2020), is located approximately 25 km to the north of the project area.</p>



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<p><i>may be inappropriate for the area, given the purpose for which the area was declared”.</i></p>		
<p>National Environmental Management: Waste Act (NEM:WA) (Act 59 of 2008) and its subsequent amendments.</p> <p>This legislation aims to enforce an integrated approach to waste management, with emphasis on prevention and reduction of waste at source and, where this is not possible, to encourage reuse and recycling in preference to disposal.</p> <p>Section 16 (Chapter 4) of this Act deals with the general duty in respect to waste management and emphasises that, <i>“A holder of waste must, within the holder’s power, take all reasonable measures to:- avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated; reduce, re-use, recycle and recover waste; where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner; manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts; prevent any employee or any person under his or her supervision from contravening this Act; and prevent the waste from being used for an unauthorised purpose”.</i></p> <p>Chapter 4, Part 3 of this Act deals with reduction re-use and recovery of waste, Part 4 deals with waste management activities, Part 5 covers storage collection and transportation of waste, Part 6 deals with treatment, processing and disposal of waste, Part 7 covers industry waste management plans and Part 8 deals with contaminated land. Chapter 5 covers all issues regarding the licensing of waste management activities.</p>	<p>The proposed infrastructure is classified as the expansion of a waste management activity, which is listed under Category A, Activity 13 of NEMWA. All reasonable measures must be taken to avoid the generation of waste and where such generation cannot be avoided, minimise the toxicity and amounts of waste that are generated; reduce, re-use, recycle and recover waste; where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner.</p> <p>Manage the waste in such a manner that it does not endanger human health or the environment or cause a nuisance through noise, odour or visual impacts.</p> <p>Prevent any employee or any person from contravening this Act; and prevent the waste from being used for an unauthorised purpose.</p>	<p>The developer must ensure that all activities associated with the project address waste related matters in compliance with the requirements of the Act.</p> <p>The developer must consult with the local municipalities to ensure that waste is disposed of at a registered landfill site.</p>



APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
<p>Occupational Health and Safety Act, (Act 85 of 1993). The objective of this Act is to provide for the health and safety of persons at work. In addition, the Act requires that, “<i>as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards</i>” (Glazewski, 2005: 575). The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed development. These cover, among other issues, noise and lighting.</p>	<p>To ensure H&S aspects are adhered to on site.</p>	<p>The developer must be mindful of the principles and broad liability and implications contained in the OHS Act and mitigate any potential impacts.</p> <p>No Authorisation required only implementation.</p>
<p>Noise Regulations: The proposed project would need to adhere to the following noise regulations:</p> <ul style="list-style-type: none"> • South Africa - GNR.154 of January 1992: Noise control regulations in terms of section 25 of the Environment Conservation Act (ECA), 1989 (Act No. 73 of 1989). • South Africa - GNR.155 of 10 January 1992: Application of noise control regulations made under section 25 of the Environment Conservation Act, 1989 (Act No. 73 of 1989). • South Africa - SANS 10103:2008 Version 6 - The measurement and rating of environmental noise with respect to annoyance and to speech communication. • South Africa - SANS 10210:2004 Edition 2.2 – Calculating and predicting road traffic noise. • South Africa - SANS 10357:2004 Version 2.1 - The calculation of sound propagation by the Concave method. <p>The ambient <u>outdoor</u> noise levels guidelines in SANS 10103:2008 is between 45dBA and 50dBA during the day and between 35dBA and 40dBA at night in rural and suburban districts respectively.</p>	<p>A specialist noise impact assessment has been undertaken in order to identify noise receptors and impacts thereon.</p> <p>The following Rating Levels was selected for receptors:</p> <ul style="list-style-type: none"> • Suburban Rating for all receptors (R2 – R7); and • Urban Rating for receptor R1 Waterkloof community; • It should be noted that analysed measurements, desktop studies and onsite investigations indicated that R2 – R7 receptors could warrant a higher rating (busy transportation networks, industrial areas within proximity. A worst-case scenario was adhered to (lowest Rating selected for the area). • Development should have noise levels that do not exceed the required levels as outlined in the adjacent table. 	<p>The developer must be mindful of the principles and broad liability and implications contained in the Noise Regulations and mitigate any potential impacts.</p> <p>No Authorisation required.</p>



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<p>Furthermore, the South African noise control regulations describe a disturbing noise as any noise that exceeds the ambient noise by more than 7dB. This difference is usually measured at the complainant's location should a noise complaint arise. Therefore, if a new noise source is introduced into the environment, irrespective of the current noise levels, and the new source is louder than the existing ambient environmental noise by more than 7dB, the complainant will have a legitimate complaint.</p>		
<p>The Hazardous Substances Act (HSA) (Act 15 of 1973) The Act aims to manage hazardous substances. It is the principal national legislation that controls the transportation, and manufacturing, storage, handling, treatment or processing facilities for any substance that is dangerous or hazardous (Groups I-IV).</p>	<p>Manage hazardous substances in such a manner that it does not endanger human health or the environment.</p> <p>Prevent hazardous substances from being used for an unauthorised purpose.</p>	<p>The developer must be mindful of the principles and broad liability and implications contained in the HSA and mitigate any potential impacts.</p> <p>No Authorisation required.</p>
<p>Conservation of Agricultural Resources Act, (Act 43 of 1983) The Conservation of Agricultural Resources Act, No. 43 of 1983 aims to control over-utilisation of the natural agricultural resources to promote the conservation of soil, water sources and vegetation through the combat of weeds and invader plants. Regulations 15 and 16 under this Act, which relate to problem plants were amended in March 2001.</p> <p>This is achieved by:</p> <ul style="list-style-type: none"> • Production potential of land is maintained, • Preventing and combating erosion, • Preventing and combating weakening or destruction of the water sources, and • Protecting vegetation and combating of weeds and invader plants. 	<p>An invasive species monitoring, control and eradication plan for land/activities under the control of the proponent should be developed as part of the environmental plans in accordance with CARA.</p>	<p>The developer must be mindful of the principles and broad liability and implications contained in CARA and mitigate any potential impacts.</p> <p>No authorisation required, only implementation.</p>



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<p>The Act provides a list of declared weeds and invader plants as well as indicators of bush encroachment. In terms of weeds and invader plants:</p> <ul style="list-style-type: none"> • A land user shall control any category 1 plants that occur on any land or inland water surface. • No person shall, except in or for purposes of a biological control reserve <ul style="list-style-type: none"> ○ Establish, plant, maintain, multiply or propagate weeds and invader plants; ○ Import or sell propagating material of category weeds and invader plants; and ○ Acquire propagating material of weeds and invader plants <p>These lists include:</p> <ul style="list-style-type: none"> • Combating of category 1 plants (Section 15A) according to CARA (Act No 43 of 1983) • Combating of category 2 plants (Section 15B) according to CARA (Act No 43 of 1983) <p>The executive officer may, on good cause shown in writing by the land user, grant written exemption from compliance with one or more of the requirements of sub-regulations (1), (3), (5), (6), (8) and (9) on such conditions as the executive officer may determine in each case.</p> <p>In order to give meaning to mechanisms aimed at maintaining production potential of land provided for in CARA, The Minister of Agriculture published regulations under CARA (CARA Regulations) which prescribes control</p>		



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<p>measures which all land users have to comply, in respect of a number of matters, including the:</p> <ul style="list-style-type: none"> • Cultivation of virgin soil. • Protection of cultivated land. • Utilisation and protection of the veld. • Control of weed and invader plants. • Prevention and control of veld fires and the restoration and reclamation of eroded land. <p><i>It should be noted that the CARA regulations for the legal obligations regarding alien invasive plants in South Africa have been superseded by the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) – Alien and Invasive Species (AIS) Regulations which was promulgated on 1 October 2014. However, CARA has not been repealed and is still included as a reference point to use in terms of the management of AIS where certain species may not be included in the NEM:BA AIS list.</i></p>		



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<p>Sekhukhune District Municipality Integrated Development Plan (2021/2022)</p> <p>Legislation was enacted to guide the establishment of and functions of metropolitan, district and local municipalities, including the promulgation of integrated development planning as a tool for development in district and local municipal IDP reports. Section 25 of the Municipal System Act requires that an IDP must be compatible with national and provincial development plans and planning requirements.</p> <p>The main economic sector in the district is mining which makes up 30-35%. It is therefore delineated as a priority sector for the municipality. The municipality endorses and promote communication and partnerships in the mining industry. It is widely recognised that investment within the mining industry is paramount for the creation of social and economic upliftment within the district.</p>	<p>The proposed development falls under the jurisdiction of the Sekhukhune District Municipality. The need and desirability of the project is in line with the municipality's IDP.</p>	<p>No Authorisation required.</p>



(f) NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

The need and desirability section has been compiled in line with the DEA (2017) Guideline on Need and Desirability.

i) NEED

The Bushveld Igneous Complex, which extends for 400 kilometres in the Limpopo Province, contains the world's largest known deposits of platinum group metals (PGMs) - platinum, palladium, rhodium, ruthenium, iridium and osmium. The Bushveld Igneous Complex consists of the Merensky and UG2 Reefs as well as the Platreef in the northern extension. The Merensky Reef accounts for over 80% of the platinum mined in South Africa, with the highest PGM values being associated with the UG2 Reef which lies about 200 m to 300 m below the Merensky Reef.

For underground mining operations, the development and implementation of an efficient ventilation shaft system will circulate air to and/or from the underground mining area, regulate the temperature and ensure employee safety and health. Should the proposed ventilation shaft developments not be undertaken, the underground mining operations at the Anglo Borwa will come to a complete halt as the ventilation that is required to ensure the safety of the underground employees will not be achieved. The cessation of mining activities will potentially leave un-mined economic resources in the ore body and result in the closure of the mine before its potential end-of-life. If mining ceases, the positive socio-economic impacts associated with mining at the Anglo Borwa Mine i.e. retaining the current jobs of the employees and the mine's contribution to the economic growth of South Africa would also not be realised.

Should the access roads to the proposed ventilation shafts not be constructed; maintenance and monitoring of the ventilation shaft would not be possible.

Overall, without the implementation of this project, the mentioned benefits would not be realised. The realisation of the outcome the Mining Charter (2004), within the context of the MPRDA (2002), would therefore also not be reached and this has potentially significant negative impacts on national economic growth and social well-being. The Mining Charter's main objectives, which Anglo Mine will assist to reach, are:

- To promote equitable access to South Africa's Mineral Resources for all South Africans;
- To substantially and meaningfully expand opportunities for historically disadvantaged South Africans (HDSAs);
- To utilise the existing skills base for the empowerment of HDSAs (Refer to the Social and Labour Plan (SLP) as part of the Mining Right);
- To expand the skills base of HDSAs to serve the community; (Refer to the SLP conducted according to the MPRDA);
- To promote employment and advance the social and economic welfare of mining communities and areas supplying mining labour; (Refer to the SLP as part of the Mining Right); and



- To promote beneficiation of South Africa's mineral commodities beyond mining and processing, including the production of consumer products.

ii) DESIRABILITY

(1) NATIONAL

According to the National Development Plan (2030), South Africa possesses large global shares in platinum group metals, gold, diamonds, manganese, coal, iron ore, and uranium. However, due to poor infrastructure, domestic mining has failed to match the global growth trend in mineral exports. Improving infrastructure, such as that proposed for the Anglo Borwa Mine, will ensure continued mining production and a better chance at matching global growth trends in mineral exports. This will have compounding effects on employment generation and will allow government to raise more tax revenue, which will positively impact the South African economy.

(2) PROVINCIAL

Mining contributes more than a quarter to the provincial Gross Value Added (GVA) and employs approximately 25% of the Limpopo provinces working populations. The mining sector accounts for 29.4% of provincial GDP, making Limpopo the most mining reliant province after Northwest.

The Provincial Development Plan (2025) recognises the mining sector as the driving force behind the economy of the Limpopo Province. It emphasises that in order to sustain and achieve employment and economic growth in the Limpopo Province, it is necessary to prioritise certain economic sectors that will lead the overall economy in building on their comparative advantage and diversifying their structures. The mining sector is recognised as having a comparative advantage in the Limpopo Province. However, in order to sustain/increase the provinces GVA and employment, the mining sector accounts for 29.4% of provincial GDP, making Limpopo the most mining reliant province after Northwest. The Anglo Borwa Mine generates over billions per annum and provides approximately 8 644 jobs. Should the new proposed infrastructure for the Anglo Borwa Mine not be realised, the revenue and jobs associated with the operation of the mine will be lost which will severely impact the ability of the province to reach the employment and GVA targets.

(3) LOCAL

The Sekhukhune District Municipality is compelled by legislation to ensure the development of the district which will enable better livelihoods for the people. Although it is the responsibility of national government to create jobs, it is important that the district municipality collaborates with other provincial and national roles players to ensure a conducive environment for business to invest in the district which will promote job creation and other economic spin-offs.

Fetakgomo Greater Tubatse Local Municipality (FGTLM) has significant mining and manufacturing (ferrochrome Limpopo has rich mineral resources, making mining a critical sector of the economy of the province, contributing 22% to its GDP. Unemployment in the region is high with an estimated 42%



of the economically active population in the Fetakgomo Greater Tubatse Local Municipality (FGTLM) being unemployed.

Although there are several mines in the area, the existing resources remain unexploited. Investment in this sector is important as it brings with it investment in infrastructure, results in creation of job opportunities and generates many other economic spin-offs. The lack of economic growth in the region warrants special attention and support to optimize the available opportunities. However, cognisance should be taken of the outflow of money from the mines in FGTLM to other regions.

Information from different sources suggests that the new mining developments that have already been around could reduce unemployment from 73% (expanded unemployment rate definition) in 2001 to 44% in 2010 and 23% in 2015. Further reduction in the unemployment rate will depend on effective intervention by public sector institutions to facilitate economic sector diversification through competitive cluster value-chain development. This implies upstream development in the manufacturing and trade sector to provide essential items in the mining supply chain by local entrepreneurs. It also implies side-stream development in the form of construction and Urban renewal. This approach is consistent with the Limpopo Employment Growth and Development Plan (Greater Tubatse IDP 2020/2021).

(g) MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE.

The Department of Forestry, Fisheries and the Environment (DFFE) guidelines for Integrated Environmental Management (IEM) procedure requires that an environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, the EIA Regulations 2014 (as amended) require that a number of possible proposals or alternatives for accomplishing the same objectives should be considered.

Various alternatives have been assessed for the project by means of specialist, client and engineering team interactions.

In the case of the proposed development, possible alternatives were identified through discussions with the project specialists, the Anglo engineers, environmental team and the design team. Alternatives relevant to this development can be categorized into the following:

i) PREFERRED ACTIVITY

Anglo American Mine is responsible for a large portion of the regions GVA and the generation of approximately over 600 employment opportunities. Borwa shaft currently produces 200 ktpm from the UG2 reef horizon using the board-and -pillar mining method. Production will increase to 240 ktpm from 2021 and remain constant for life of mine. Currently the mine is ventilated with 320 m³ /s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is suboptimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full



interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA3D for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times. As such, the new proposed Ventilation Shafts is required for continued production. Should the new infrastructure not be realised, the estimated life of the mine will be significantly reduced and approximately 8 644 jobs will be lost. Mining operations will need to be scaled back concurrently with production to the point where mining will cease, potentially leaving un-mined economic resources in the ore body and the subsequent closure of the mine before its estimated end-of-life. Based on the aforementioned reasons, the development of the proposed Anglo Borwa Ventilation Shafts is the only preferred activity assessed in this report.

PGMs are currently being disposed of as waste in the form of tailings produced in the primary chrome mining operation. Reuse of the waste also reduces the footprint area for waste disposal. Platinum is a valuable resource that if utilised will increase the profitability of the mine. Platinum is mostly traded on the New York Mercantile Exchange, the Tokyo Commodity Exchange and the London Bullion Market. Platinum is among the world's scarcest metals and is used primarily in the production of automotive catalytic converters, in petroleum refineries and in the chemical and electrical industry. South Africa accounts for 80% of global platinum production.

ii) PREFERRED TECHNOLOGY OF THE ACTIVITY

The applicant is committed to utilising the best and most efficient technology currently available. The technology that has been chosen will ensure the most effective and cost-saving operation of the proposed facility and reduced CO₂ emissions.

iii) NO-GO ALTERNATIVE

It is mandatory to consider the “no-go” option in the BA process. The “no-go” alternative refers to the current status quo and the risks and impacts associated with it. Some existing activities may carry risks and may be undesirable (e.g. an existing contaminated site earmarked for a development). The no-go is the continuation of the existing land use, i.e. maintain the status quo.

(h) FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

i) DETAILS OF THE DEVELOPMENT FOOTPRINT ALTERNATIVES CONSIDERED

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect 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.

The ventilation shaft placement is predominantly based on the Underground Mining plan. The ventilation shaft needs to be positioned so maximum air reaches the underground mining areas. The location of the ventilation shafts was further optimised/evaluated by positioning it as far as possible away from drainage lines or streams and steep slopes, as well as by considering low points in the landscape that will not require an excessively deep ventilation shaft to be developed

(1) THE TYPE OF ACTIVITY TO BE UNDERTAKEN

The Anglo American Mine is responsible for a large portion of the regions GVA and the generation of approximately over 600 employment opportunities. Anglo Borwa currently produces 200 ktpm from the UG2 reef horizon using the board-and -pillar mining method. Production will increase to 240 ktpm from 2021 and remain constant for life of mine. Currently the mine is ventilated with 320 m³ /s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is suboptimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA3D for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times. As such, the new proposed Ventilation Shafts is required for continued production. Should the new infrastructure not be realised, the estimated life of the mine will be significantly reduced and approximately 8 644 jobs will be lost. Mining operations will need to be scaled back concurrently with production to the point where mining will cease, potentially leaving un-mined economic resources in the ore body and the subsequent closure of the mine before its estimated end-of-life. Based on the aforementioned reasons, the development of the proposed Anglo Borwa Ventilation Shafts is the only preferred activity assessed in this report.

PGMs are currently being disposed of as waste in the form of tailings produced in the primary chrome mining operation. Reuse of the waste also reduces the footprint area for waste disposal. Platinum is a valuable resource that if utilised will increase the profitability of the mine. Platinum is mostly traded on the New York Mercantile Exchange, the Tokyo Commodity Exchange and the London Bullion Market. Platinum is among the world's scarcest metals and is used primarily in the production of automotive catalytic converters, in petroleum refineries and in the chemical and electrical industry. South Africa accounts for 80% of global platinum production.

(2) THE DESIGN / LAYOUT OF THE ACTIVITY

The preferred design and layout of the proposed Anglo Borwa Ventilation Shafts was determined by Bluhm Burton Engineering Pty Ltd (BEE) and Scientists and is based on a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA3D for the medium to long-term (BP).

- *Downcast Shaft*



- The technical report from BBE estimate position of the downcast shaft to be at the bottom of current excavations below South Strike 17. This shaft needs to be moved into the laterals to lessen impact on the mine operation and traffic management plan and to get the most favourable position on surface to make the drilling operation safer and easier.
- Decide on route for access to enable construction of the ventilation shaft and for future inspections. Road to be designed to accommodate environmental and physical vehicle requirements to lessen effect on the environment and enable safe use of the road by vehicles.
- *North Exhaust*
 - The road design will include the road to the finalised position of the North Exhaust shaft. It will be constructed at the same time as the road to the downcast shaft. After the completion of the raise boring at the Downcast shaft, raise boring will move over to the Northern Exhaust shaft. The whole process will be the same as for the downcast shaft but after completion of the drilling operation, ventilation structures will be erected with ventilation fans over the excavation. After completion the ventilation fans will be commissioned.
- *Emulsion borehole*
 - The road design will include the road to the finalised position of the Emulsion hole. It will also be constructed at the same time as the road to the downcast and North Exhaust and South Exhaust shafts. This point will be required to be accessed by a ENAEX emulsion tanker every 2 -3 days. Emulsion will be gravity fed down a hole at this point into the workings.

The preferred design and layout of the proposed Anglo Borwa Ventilation Shafts and associated infrastructure is the only alternative assessed in this report.

(3) THE TECHNOLOGY TO BE USED IN THE ACTIVITY

The applicant is committed to utilising the best and most efficient technology currently available. The technology that has been chosen will ensure the most effective and cost-saving operation of the proposed facility and reduced CO2 emissions.

(4) THE OPERATIONAL ASPECTS OF THE ACTIVITY

The preferred operational aspects of the activity entails that the mine is ventilated with 320 m³ /s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is suboptimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA3D for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times. The continued production of the Mine



will ensure sustained employment for approximately over 600 employees and continued contributions to the country's GVA and GDP. Based on the aforementioned reasons, the Ventilation Shafts at Anglo Borwa is the preferred operational alternative assessed in this report.

(5) THE OPTION OF NOT IMPLEMENTING THE ACTIVITY

The assessment of the "no-go" alternative is a legal requirement according to NEMA and the EIA Regulations. In this scenario no development would take place. The environment would be left as is and the impact on the area and potential benefits would remain unchanged.

The development and implementation of an efficient ventilation shaft system will circulate air to and/or from the underground mining area, regulate the temperature and ensure employee safety and health. Should the proposed ventilation shaft developments not be undertaken, the underground mining operations at the Anglo Borwa Mine will come to a complete halt as the ventilation that is required to ensure the safety of the underground employees will not be achieved. The cessation of mining activities will potentially leave un-mined economic resources in the ore body and result in the closure of the mine before its potential end-of-life. If mining ceases, the positive socio-economic impacts associated with mining at the Mototolo Mine (i.e. retaining the current jobs of the employees and the mines contribution to the economic growth of South Africa would also not be realised. Furthermore, Should the access roads to the proposed ventilation shafts not be constructed; maintenance and monitoring of the ventilation shaft would not be possible.

The realization of the outcome of the Mining Charter (2004), within the context of the MPRDA (2002), would therefore also not be reached and this has potentially significant negative impacts on national economic growth and social well-being. The Mining Charters main objectives, which the proposed project will assist to reach, are:

- to promote equitable access to South Africa's Mineral Resources for all South Africans;
- to substantially and meaningfully expand opportunities for historically disadvantaged South Africans (HDSAs);
- to utilize the existing skills base for the empowerment of HDSAs;
- to expand the skills base of HDSAs to serve the community;
- to promote employment and advance the social and economic welfare of mining communities and areas supplying mining labour; and
- to promote beneficiation of South Africa's mineral commodities beyond mining and processing, including the production of consumer products.

The no-go alternative has been assessed taking onto account the following categories, *inter alia*:

- Fauna and Flora Impacts,
- Heritage Impacts, and
- Socio Economic Impacts

ii) DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

(Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public



meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.)

Public consultation is a legal requirement throughout the Basic Assessment (BA) process. Developers are required to conduct public consultation throughout the BA process. Formal BA documents are required to be made available for public review, which include the project brief, Draft Basic Assessment Report (BAR), Draft Environmental Management Programme (EMPr), and the decision of the Competent Authority.

According to Regulation 41(2) of the NEMA EIA Regulations 2014 (as amended 2017) “*The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act. . .*”, including:

- The 2012 Public Participation Guidelines (General Notice 807 of 2012), which provides information and guidance for applicants, I&APs and EAPS on the public participation requirements of the BA process; and
- The Promotion of Access to Information Act (PAIA), 2000 (Act No. 2 of 2000), which allows citizens access to any information held by the State, and any information held by private bodies that is required for the exercise and protection of any rights.

“*. . . and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by:*

(1) SITE NOTICES

- (a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of—*
- (i) the site where the activity to which the application or proposed application relates is or is to be undertaken; and*
 - (ii) any alternative site.*

In order to inform surrounding communities and adjacent landowners of the proposed development, notice boards (in accordance with regulation 41(2) (a) of the EIA Regulations 2014 (as amended) were erected at key locations surrounding the project site and within the project area. Site notices were placed at the entrance to the Mototolo Mine (-25.00008, 30.11211) and the entrance to the site (-25.00053, 30.11092) by the applicant on 21 April 2022.

(2) I&AP AND STAKEHOLDER NOTIFICATIONS

- (b) giving written notice, in any of the manners provided for in section 47 D of the Act, to—*
- (i) the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, and to any alternative site where the activity is to be undertaken;*
 - (ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;*



- (iii) the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;*
- (iv) the municipality which has jurisdiction in the area;*
- (v) any organ of state having jurisdiction in respect of any aspect of the activity; and*
- (vi) any other party as required by the competent authority;*

Formal notifications were sent out via email and postal mail to notify potential Interested and Affected Parties (I&APs) of the inception of the proposed development and invite them to register to be added to the I&APs database and provide initial comments. All registered I&APs were notified via email and postal mail of the availability of the Draft BAR and EMPr for public review. All notification proofs are provided in Appendix 9.

(3) NEWSPAPER ADVERTISEMENT

- (c) placing an advertisement in—*
 - (i) one local newspaper; or*
 - (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;*
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii);*

Newspaper advertisements were placed in the Steelburger News, Sekhukhune Times and Platinum News, in order to notify the general public of the proposed development and availability of the Draft BAR for public review. Proof of publication is provided in Appendix 9.

(4) REGISTER OF STAKEHOLDERS AND I&APS

According to Regulation 42 of the NEMA EIA Regulations 2014 (as amended 2017) “A proponent or applicant must ensure the opening and maintenance of a register of interested and affected parties and submit such a register to the competent authority, which register must contain the names, contact details and addresses of—

- (a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;*
- (b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and*
- (c) all organs of state which have jurisdiction in respect of the activity to which the application relates.*

A comprehensive I&AP register was compiled (Appendix 9). This register includes the following parties, among others:



- Immediate neighbours,
- The Department of Mineral Resources and Energy (DMRE) Limpopo Region;
- The Department of Human Settlement, Water and Sanitation (DHSWS);
- Limpopo Department of Economic Development, Environment and Tourism (LEDET);
- The Limpopo Provincial Heritage Resources Authority (PHRA);
- Sekhukhune District Municipality and Greater Tubatse Local Municipality, including the Municipal Ward councillor(s); and
- Parastatals, including Eskom, SANRAL and Transnet.

(5) PUBLIC REVIEW OF DRAFT BASIC ASSESSMENT REPORT

The Draft BAR and EMP_r were subject to a 30-day public review period. The draft reports were made available electronically on the CES website. Letters of notification were emailed and posted to the registered I&APs, notifying them of the commencement of the public review period and the availability of the draft reports (including the link to the CES website), as well as providing the contact details (telephone and email) of the EAP. I&APs were invited to provide comment on the draft reports via a number of contact options, namely telephone, post and email. Additionally, I&APs were provided the option of receiving a hardcopy version of the executive summary of the draft reports via registered post, upon request, in cases where they are unable to access the electronic version. The medium of correspondence is noted in the I&APs register. The public online session (meeting) was also held with the I&APs to better understand their issues and concerns, proof of the meeting minutes is provided in Appendix 9.



iii) SUMMARY OF ISSUES RAISED BY I&APS

(Complete the table summarising comments and issues raised, and reaction to those responses)

The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans, and that such written comments, including responses, are attached to the reports and plans that are submitted to the competent authority in terms of these regulations.”

A full record of the issues raised by the I&APs, as well as the response by the applicant and EAP, will be kept throughout the duration of the project. A full Issues and Response Trail (IRT) and summary of responses is provided in Appendix 9.

Refer to Appendix 9 for the summary of issues raised by the I&APs.



iv) THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) BASELINE ENVIRONMENT

This section provides a description of the affected environment within the vicinity of the proposed development. This information is provided to assist the reader in understanding the possible effects of the project on the environment within which it is proposed to be developed.

(a) TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

(Its current geographical, physical, biological, socio- economic, and cultural character).

CLIMATE

The proposed development is adjacent to Mototolo Mine’s Borwa Shaft, Limpopo Province. The region is characterised by a strongly seasonal summer rainfall, with very dry winters (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). The Mean Annual Precipitation (MAP) and Mean Annual Potential Evaporation (MAPE) of the area is 609 mm and 2 043 mm, respectively (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). The Annual Precipitation Coefficient of Variation (APCV) of the area is recorded at 28 % (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018), with the highest average rainfall occurring in December (122 mm) and lowest in July (3 mm) (Meteoblue, 2022). The Mean Annual Temperature (MAT) of the area is 17.5 °C (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018), with the highest mean daily temperatures occurring in December and January (29 °C), and lowest occurring in July (7 °C) (Meteoblue, 2022). An average of 5 days of frost is recorded in the area per year (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). A summary of the climate at Mototolo Mine is provided in Figure 3.10 below.

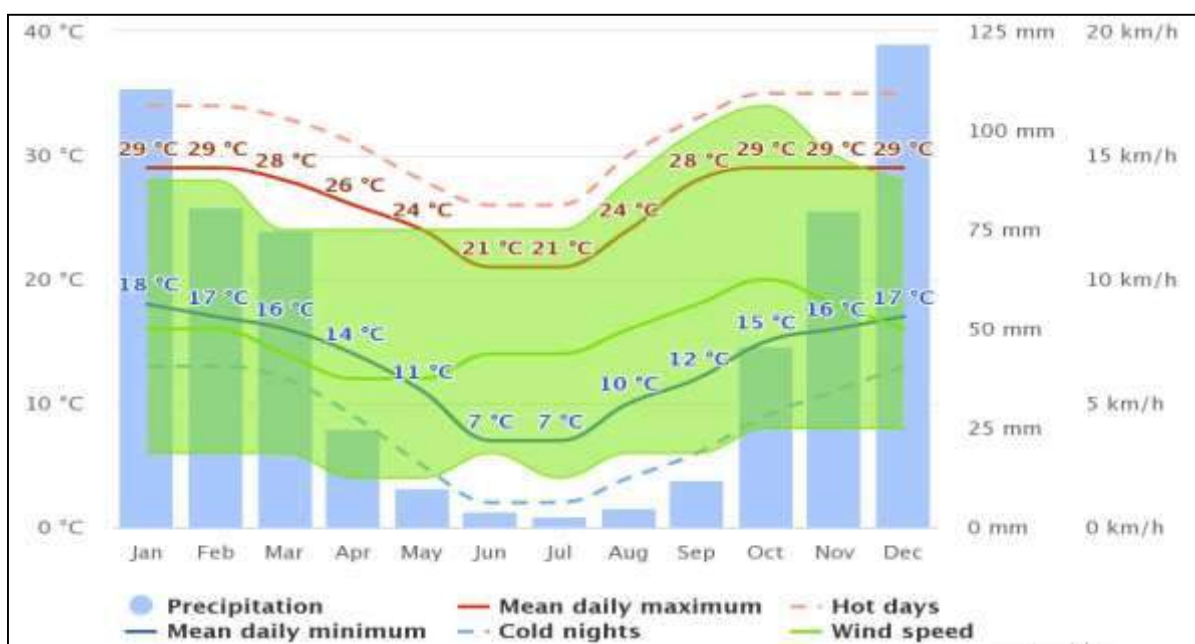




Figure 3.10: Climatic data for Mototolo Mine, Limpopo (Meteoblue, 2022).

TOPOGRAPHY

The topography of the area is characterised by rugged terrain, with steep slopes and incised valleys (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). The topographic gradient is steep, averaging 18-29 %, and reaching maximum slopes of 60 % in areas. Elevations ranging from 978-1 394 m above mean sea level (mamsl). The topographical profile and map of the site is provided in Figure 3.11.

GEOLOGY AND SOILS

The geology of the area consists of the “ultramafic intrusives of the lower, critical and main zones of the eastern Rustenburg Layered Suite of the Bushveld Igneous Complex (Vaalian)” (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018, p. 481). More specifically the proposed development falls across the Dsjante and Dwarsrivier subsuites (Figure 3.12), comprised of Gabbro, Norite, Pyroxenite and Anorthosite lithologies. The soils are generally shallow, rocky and clayey, varying between soils of a colluvial nature i.e., Glenrosa, Family Dumisa to Mispah form, Family Myhill, with lime occurring in low-lying areas (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018, p. 481). Rocky areas often lack soil, especially in steep slopes (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018, p. 481). According to the SOTER soil association map, the area is dominated by G1 type soils (Figure 3.12), namely “rock with limited soils (association of Leptosols, Regosols, Durisols, Calcisols and Plinthosols)”.

TERRESTRIAL BIODIVERSITY AND ECOLOGY

NATIONAL VEGETATION MAP

According to the SANBI Vegetation Map of South Africa (Mucina & Rutherford, 2018), the project area falls entirely within the Sekhukune Mountain Bushveld (SMB) vegetation type (Figure 3.13). Its range includes the Limpopo and Mpumalanga Provinces, distributed along the mountains, undulating hills and steep slopes of the Leolo Mountains, Dwars River Mountains, Thaba Sekhukune and isolated smaller mountains, as well as the small hills of the Steelpoort River valley (Mucina & Rutherford, 2018).

The vegetation structure of the Sekhukune Mountain Bushveld varies from a dry, woody layer comprised of several microphyllous species and broad-leaf savanna species (e.g. *Senegalia nigrescens*, *Senegalia senegal* var. *leiorhachis*, *Combretum apiculatum*, *Kirkia wilmsii*, *Terminalia prunioides*, *Vitex obovata* subsp. *wilmsii* and *Ziziphus mucronata*), to a closed to open grass layer, comprised of several species (e.g. *Aristida canescens*, *Heteropogon contortus*, *Panicum maximum*, *Setaria lindenbergiana* and *Themeda triandra*). Other species include woody shrubs, such as *Dichrostachys cinerea*, *Euclea crispa* subsp. *crispa*, *Elephantorrhiza praetermissa* and *Grewia vernicosa*; succulent shrubs, such as *Aloe castanea* and *Aloe cryptopoda*; and herbaceous species, such as *Berkheya insignis* and *Commelina africana*. In terms of the conservation status, Mucina and Rutherford (2018) classify the SMB as a **LEAST THREATENED** vegetation type. The NSBA Conservation Target for this vegetation type is 24 %. More than 15 % of SMB vegetation has been transformed for cultivation and urban/built up



areas, with an increase in mining activities. The vegetation type is frequently invaded by syringa (*Melia azedarach*).

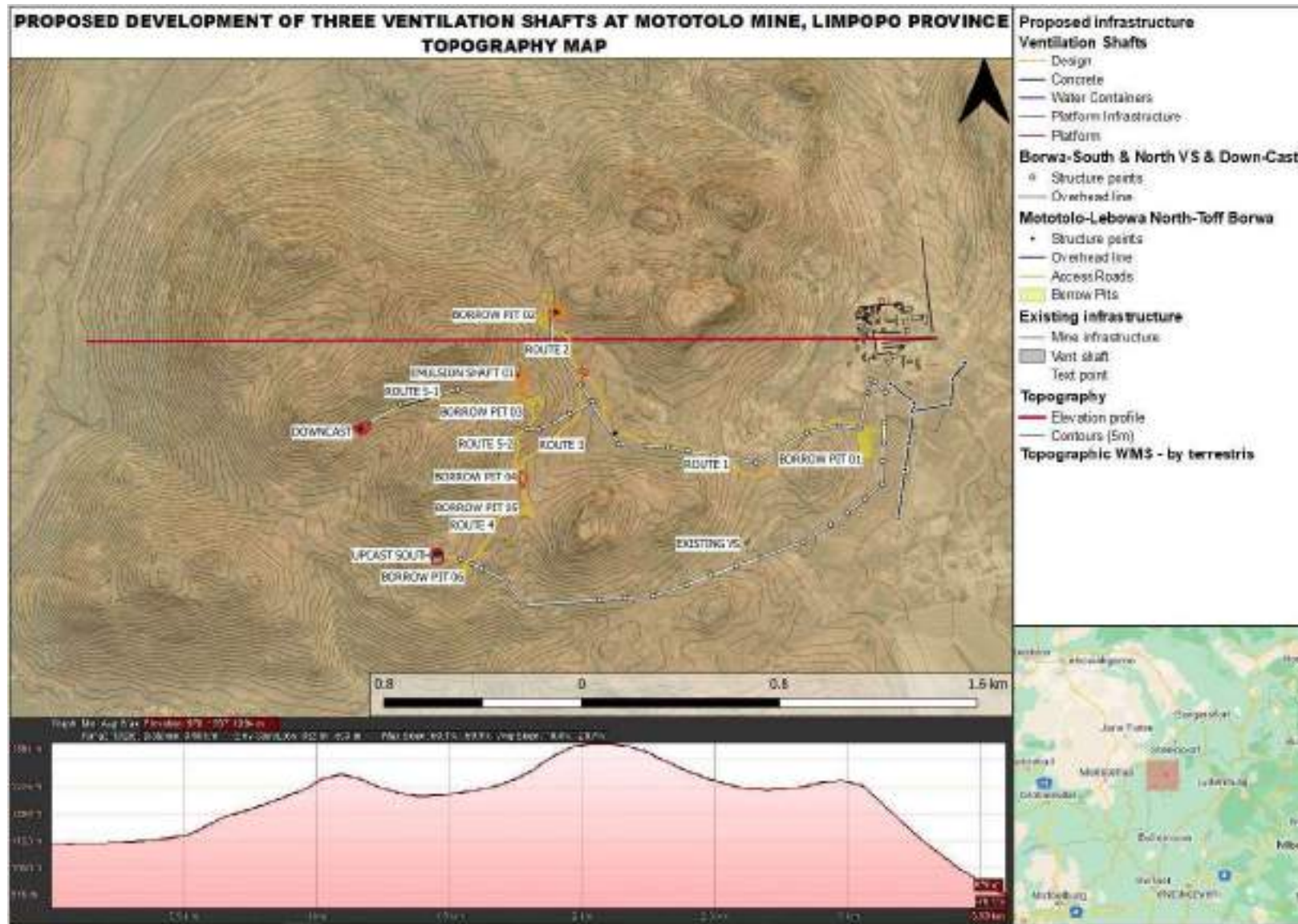


Figure 3.11: Topographic map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province

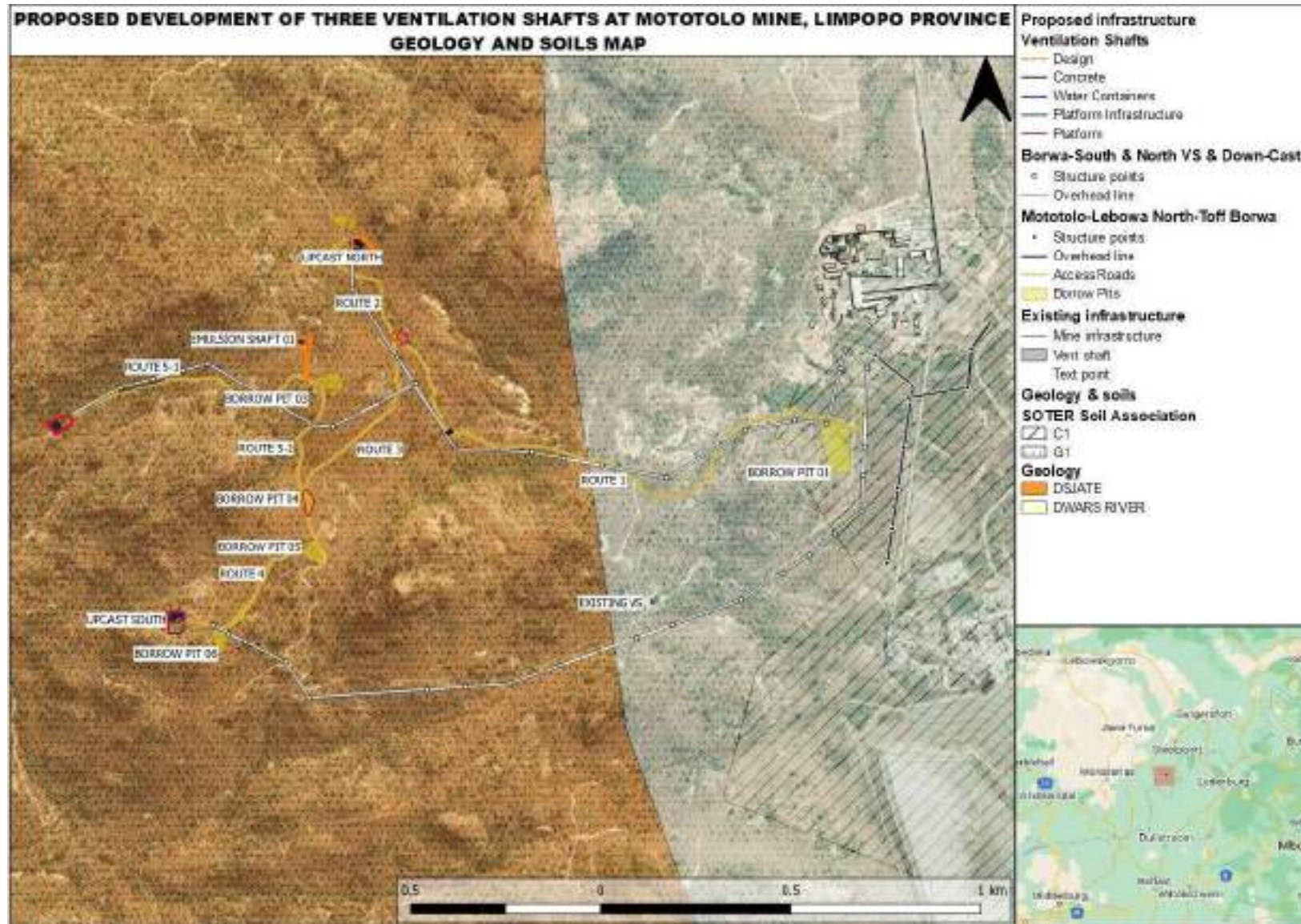


Figure 3.12: Geology and soil map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

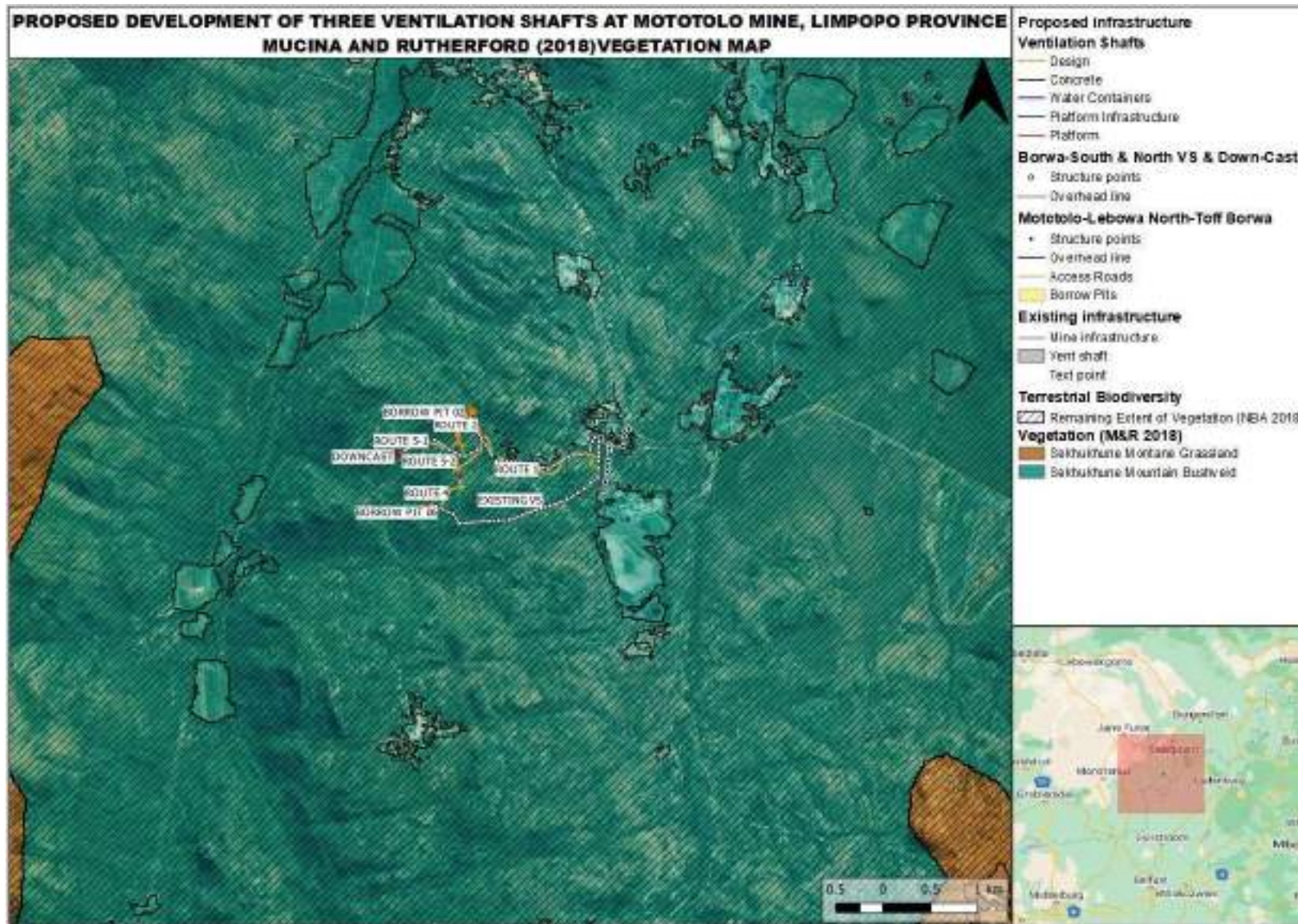


Figure 3.13: Mucina & Rutherford Vegetation map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



THREATENED ECOSYSTEMS

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) provides a National List of Ecosystems that are threatened and in need of protection – GN 1002 of 2011. According to the NEMBA List of threatened ecosystems, the proposed development site falls within an Endangered ecosystem, namely the Sekhukune Mountainlands (Figure 3.14).

LIMPOPO CONSERVATION PLAN (CPLAN)

The purpose of the Limpopo Conservation Plan (LCP, 2013) was to develop a map of Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA), the spatial component to provincial bioregional plan. In alignment with the principles of NEMA and NEMBA, the LCP (v2) was designed to support integrated development planning and sustainable development by identifying an efficient set of CBAs that are required to meet national and provincial biodiversity objectives, in a configuration that is least conflicting with other land uses and activities. In general, CBAs are described as natural or near-natural areas that are important for preserving both biodiversity pattern and ecological process, whereas ESAs are semi-natural or transformed areas that at least retain some ecological function. Almost three-quarters of the province is covered by CBAs (40%), ESAs (23%) and Protected Areas (11%) collectively, with the remainder comprised of Other Natural Areas (ONA) (20%) and areas with No Natural Remaining (NNR) habitat (6%).

The assessment footprint falls across a CBA 1, CBA 2 and ESA 1 in terms of the LCP (Figure 3.15). The management objective of these areas are as follows:

- CBA 1 – To maintain in a natural state with limited or no biodiversity loss. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation (Desmet, Holness, Skowno, & Egan, 2013, p. 52);
- CBA 2 – To maintain in a natural state with limited or no biodiversity loss. Maintain current agricultural activities. Ensure that land use is not intensified and that activities are managed to minimize impact on threatened species (Desmet, Holness, Skowno, & Egan, 2013); and
- ESA 1 – To maintain ecosystem functionality and connectivity allowing for limited loss of biodiversity pattern (Desmet, Holness, Skowno, & Egan, 2013, p. 53).

PROTECTED AND PRIORITY AREAS

The National Protected Areas Expansion Strategy (NPAES, 2008) was developed to “achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change.” The NPAES originated as Government recognised the importance of protected areas in maintaining biodiversity and critical ecological process. The NPAES sets targets for expanding South Africa’s protected area network, placing emphasis on those ecosystems that are least protected. The site is located within the Mpumalanga Mesic Grasslands NPAES Focus Area (Figure 3.16). The nearest nature reserve is located 15 km to the north and the nearest protected area, as identified by the South African Protected Areas Database (SAPAD, 2020), is located approximately 25 km to the north of the project area (Figure 3.16).

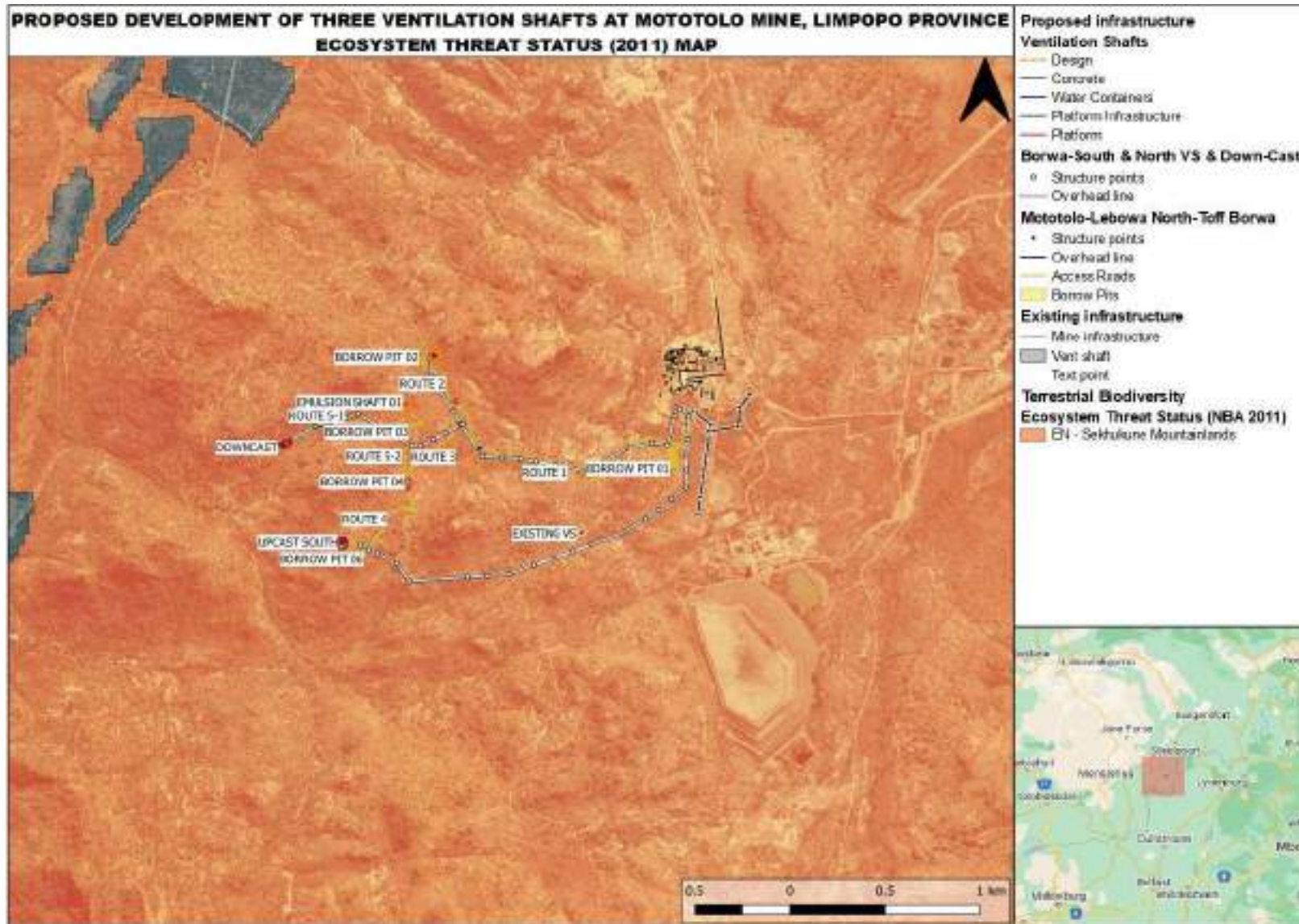


Figure 3.14: Ecosystem threat status map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

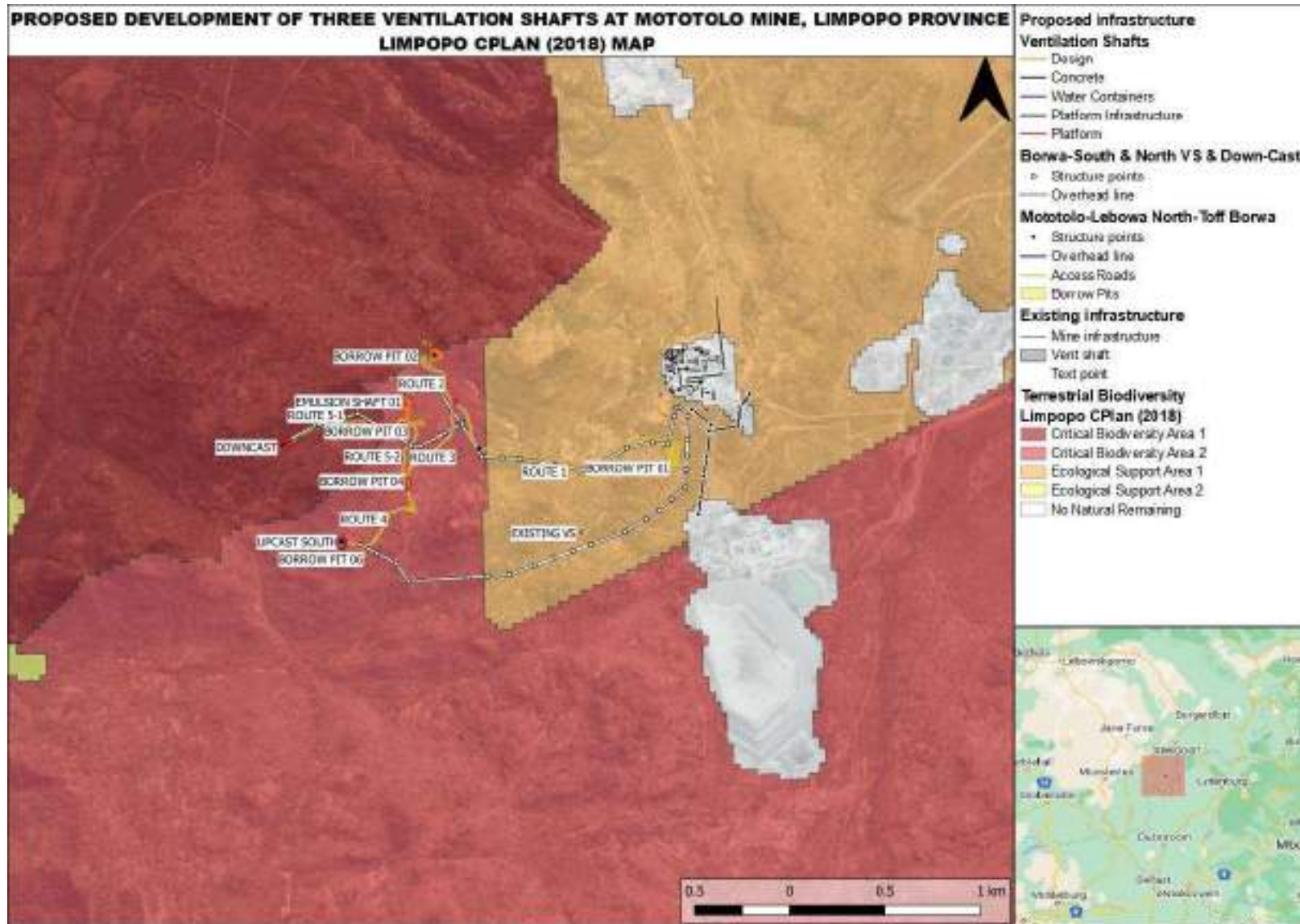


Figure 3.15: Terrestrial CBAs and ESAs map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

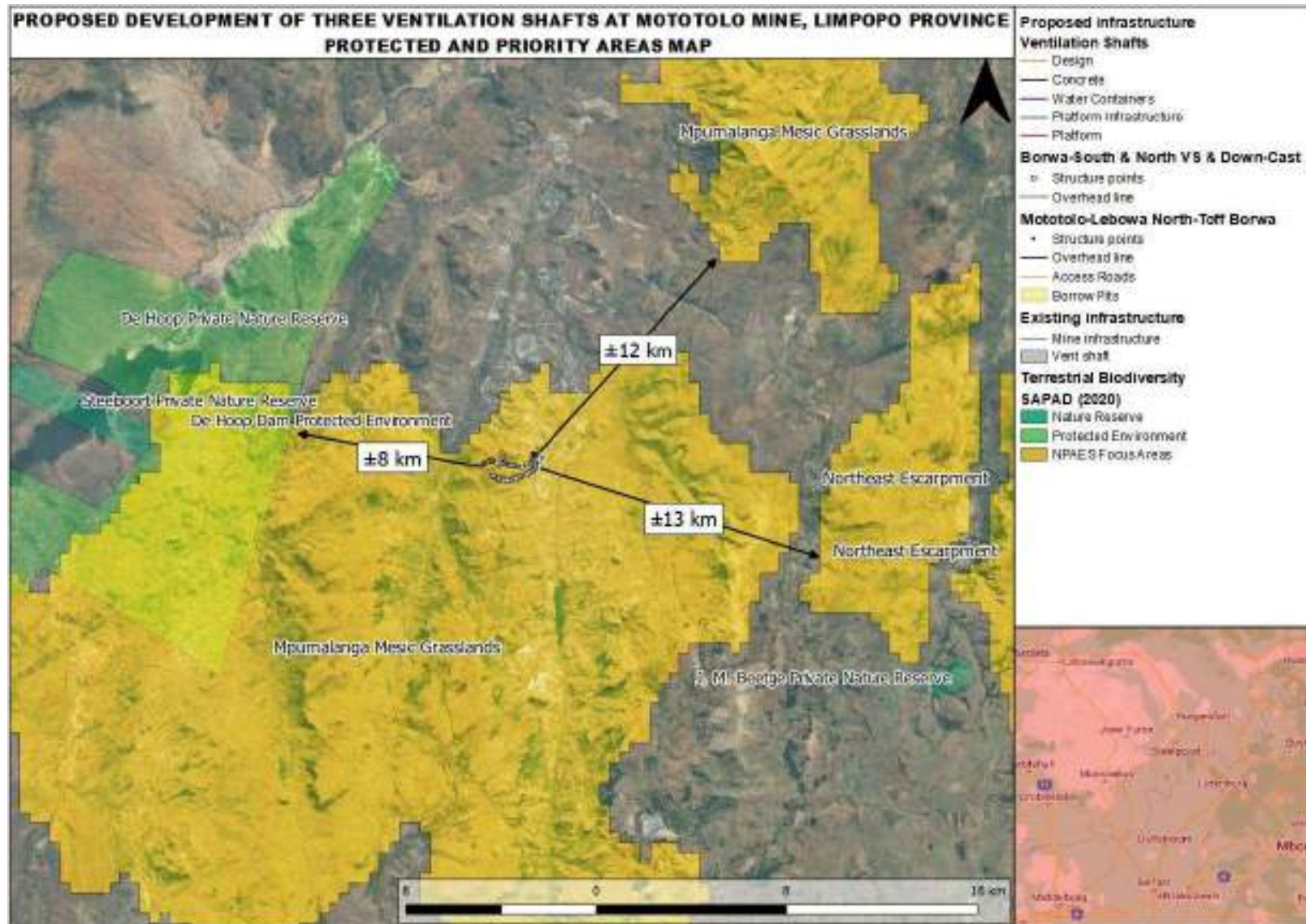


Figure 3.16: Protected and Priority Areas map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



SEKHUKHUNELAND CENTRE OF ENDEMISM (SCOE)

The site forms part of the Sekhukhuneland Centre of Endemism (SCOE). Of the over 2 200 indigenous plant species occurring within the SCOE, 58 are considered endemic and an additional 70 are considered near-endemic to the area. The endemic plants of this area are primarily edaphic specialists that are derived from a unique ecology. Endemics are both herbaceous and woody with endemism high in the Anacardiaceae, Euphorbiaceae, Liliaceae and Lamiaceae. The site lies inside the Sekhukhuneland Centre of Endemism and the shallow, rocky areas of the development site can be considered especially sensitive as part of the centre of endemism and will almost certainly show similar vegetation patterns to the endemic regions, especially since the vegetation is still natural.

SPECIES OF CONSERVATION CONCERN

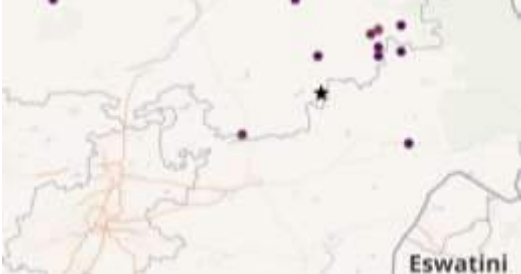

Plant species of conservation concern (SCC) comprise those species that are either threatened (Critically Endangered, Endangered, Vulnerable), rare or declining. The South African National Biodiversity Institute (SANBI) Plants of Southern Africa (POSA) plant database (<http://posa.sanbi.org>) was consulted (Figure 3.17), along with the categories indicated in the SANBI Threatened Species Programme website (<http://redlist.sanbi.org/index.php>) to identify potential SCCs within the proposed study area. In addition to SANBI, the international IUCN Red Data list, the Threatened or Protected Species (TOPS) list and Convention on International Trade in Endangered Species (CITES), was consulted to compile a list of plant SCCs that may potentially be found within the study area. According to POSA, eight plant SCCs could potentially occur within the project area and surroundings, including four vulnerable and four rare species in terms of the Red List (Table 3.4). A full list of the potential species found within the study area is included in Terrestrial Biodiversity Report.






Figure 3.17: POSA search area highlighting botanical records (red).






Table 3.4: Plant SCCs observations (orange squares – iNaturalist 2021, pink squares – GBIF 2021) in relation to the project area (black star)

SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Combretum petrophilum</i>	Rare	Rocky outcrops in mountain bushveld (Lötter, McMurtry, & Raimondo, Combretum petrophilum Retief. National Assessment: Red List of South African Plants version 2020.1., 2006).	 <p><i>Combretum petrophilum</i> has an extent of occurrence (EOO) of 1.48 km² (SANBI, 2020) and is known from less than 10 subpopulations (Lötter, McMurtry, & Raimondo, Combretum petrophilum Retief. National Assessment: Red List of South African Plants version 2020.1., 2006). Parts of the study area (namely rocky outcrops) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high within natural SMB and rocky outcrop habitats.</p>
<i>Eucomis vandermerwei</i>	VU	Short, sour montane grassland on sandy, low-pH soils derived from quartzitic rocky outcrops. In rock crevices or under overhanging rocks, confined to outcrops on slopes and plateaus of higher peaks, predominantly on north-facing slopes, 200-2 500 m (Lötter, Burrows, & Von Staden, Eucomis vandermerwei I.Verd. National Assessment: Red List of South African Plants version 2020.1, 2018).	 <p><i>Eucomis vandermerwei</i> has an EOO of 14.17 km² (SANBI, 2020) and is known from eight locations (Lötter, Burrows, & Von Staden, Eucomis vandermerwei I.Verd. National Assessment: Red List of South African Plants version 2020.1, 2018). This species is largely confined to higher elevations (> 2 000 mamsl). Given that the elevation of the site ranges from 978-1 394 mamsl, the likelihood of this species occurring on site is considered low.</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Khadia alticola</i>	Rare	A high altitude habitat specialist. Montane grassland in shallow, sandy, humus-rich soil pockets and crevices between rock plates above 2000 m (Victor, Khadia alticola Chess. & H.E.K.Hartmann. National Assessment: Red List of South African Plants version 2020.1, 2005).	 <p><i>Khadia alticola</i> has an EOO of 9.40 km² (SANBI, 2020). This species is largely confined to higher elevations (> 2 000 mamsl). Given that the elevation of the site ranges from 978-1 394 mamsl, the likelihood of this species occurring on site is considered low.</p>
<i>Ledebouria dolomiticola</i>	VU	Steep dolomite slopes and cliffs in the Pong Dolomite Mountain Bushveld (Victor & Hankey, Ledebouria dolomiticola S.Venter. National Assessment: Red List of South African Plants version 2020.1. , 2005)	 <p><i>Ledebouria dolomiticola</i> is known from a single site in the Strydpoort mountains where there are fewer than 1 000 mature individuals (Victor & Hankey, Ledebouria dolomiticola S.Venter. National Assessment: Red List of South African Plants version 2020.1. , 2005). Given that the species primarily occurs on dolomitic substrates, the likelihood of it occurring on site is considered low.</p>
<i>Polygala sekhukhuniensis</i>	VU	Sparsely vegetated heavy metal rich soils on lower slopes and valley bottoms of the Sekhukhune Mountain Bushveld and Sekhukhune Plains Bushveld (Von Staden, 2012).	 <p><i>Polygala sekhukhuniensis</i> has an EOO of 1 313 km² (Von Staden, 2012). Parts of the study area (namely the lower slopes and valley bottoms) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high.</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Searsia sekhukhuniensis</i>	Rare	Rocky hillsides in bushveld, on pyroxenitic substrates of the eastern rim of Bushveld Igneous Complex (Victor & Van Wyk, <i>Searsia sekhukhuniensis</i> (Moffett) Moffett. National Assessment: Red List of South African Plants version 2020.1, 2014).	 <p><i>Searsia sekhukhuniensis</i> is a habitat specialist, restricted to the Sekhukhuneland centre of endemism. Parts of the study area (namely rocky hillsides, with pyroxenitic substrates) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high.</p>
Sensitive species A	VU	Rocky hillsides of the Sekhukhune Mountain Bushveld, Steenkampsberg Montane Grassland and Sekhukhune Montane Grassland (Victor & Siebert, Sensitive Species A. National Assessment: Red List of South African Plants version 2020.1, 2006).	 <p>Sensitive species A has an EOO of 0.98 km² (SANBI, 2020). Subpopulations are small and severely fragmented and there is a continuing decline as a result of mining and harvesting for horticultural purposes. Parts of the study area (namely rocky hillsides) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high.</p>
Sensitive species B	Rare	Closed woodland and thicket, in shallow norite soils on rocky outcrops among large boulders, 900-1300 m of the Sekhukhuneland, Steelpoort River Valley and along the summit of the Leolo Mountains as far as the Olifants River Valley (Winter, Victor, & Von Staden, 2008).	 <p>Sensitive species B has an EOO of 2 300 km² (SANBI, 2020). Subpopulations are small and severely fragmented and there is a continuing decline as a result of mining and harvesting for horticultural purposes. Parts of the study area (closed woodlands with shallow norite soils on rocky outcrops) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high.</p>



ALIEN INVASIVE SPECIES

The SANBI POSA plant database (<http://posa.sanbi.org>) was consulted along with the categories indicated in NEMBA's Alien Invasive Species (AIS) Regulations (2014) to identify potential non-indigenous and invasive species within the proposed study area. According to POSA, none of the species recorded within the project area or surroundings. However, according to Mucina and Rutherford (2018), the Sekhukune Mountain Bushveld is frequently invaded by syringa (*Melia azedarach*), a Category 1b invader in terms of NEMBA's AIS Regulations (2014). Species listed as 1b under the regulations require compulsory control as part of an invasive species control programme. This means that no permits are issued for the use of this species and they must be removed and destroyed by the landowner in conjunction with a government sponsored invasive species management programme.

DISTRIBUTION OF FAUNA

South Africa is a faunally diverse country, with approximately 1 663 terrestrial vertebrate faunal species of which 850 species are birds, 343 species are mammals, 350 species are reptiles and 120 species are amphibians spread across seven biomes and 122 million km². The Limpopo Province is home to approximately 234 reptile species, 63 amphibian species, 299 mammal species and 675 bird species (ADU, 2022; Lepage, 2021).

AMPHIBIANS


Of the 63 amphibian species in Limpopo Province, 27 species have a distribution range which includes the proposed development site (ADU, 2022; iNaturalist, 2022; IUCN, 2022). No SCCs are likely to be found on site and species likely to occur on site are all listed as of least concern. A full list of amphibian species with a distribution range which includes the development area is provided in the Terrestrial Biodiversity Report (CES, 2022).

REPTILES

The Limpopo Province is home to 234 reptile species (ADU, 2022), 61 of which have a distribution which includes the proposed development site (ADU, 2022; iNaturalist, 2022; IUCN, 2022). Approximately 47 reptile species have been recorded within a 30 km radius of the site (ADU, 2022). Only one reptile SCC is likely to occur on site (Table 3.5), with all other species listed as of least concern. A full list of reptile species with a distribution range which includes the development area is provided in the Terrestrial Biodiversity Report (CES, 2022).




Table 3.5: Reptilian SCC distributional ranges (pink area) and observations (orange squares – iNaturalist 2021, pink squares – GBIF 2021) in relation to the project area (black star).

SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
Sensitive Species C	VU	Sensitive animal species A is near-endemic to South Africa, inhabiting the rocky hillsides of mixed Acacia / Combretum woodlands, tropical Bushveld and Thornveld, ranging from dense, short shrubland to open tree savanna (Hofmeyr & Boycott, 2017).	 <p>The proposed development site falls approximately 10 km from the closest edge of this species’ known range. However, parts of the study area (namely rocky hillsides) provide a suitable habitat for the species, therefore likelihood of this species on site is considered moderate.</p>




MAMMALS

Of the 299 mammal species which occur in the Limpopo Province, 151 have a distribution which includes the proposed development site (ADU, 2022; iNaturalist, 2022; IUCN, 2022). Nine of the 118 species with distribution ranges which include the site are considered SCCs, including one critically-endangered, one endangered and seven vulnerable species (Table 3.6). A full list of mammal species with a distribution range which includes the development area is provided in the Terrestrial Biodiversity Report (CES, 2022).




Table 3.6: Mammalian SCC distributional ranges (pink area) and observations (orange squares – iNaturalist 2021, pink squares – GBIF 2021) in relation to the project area (black star).

SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Amblysomus robustus</i> (Robust Golden Mole)	VU	Occurs in montane grasslands and marshes in Moist Sandy Highveld Grassland. Prefers friable soils, from sands to quite heavy clays. Avoid shallow substrates along rocky ridges (which may act as dispersal barriers) and waterlogged areas (Rampartab, 2015).	 <p>The Robust Golden Mole has an EOO of 0.47 km² (SANBI, 2020). Given the lack of suitable habitat and that the site falls outside of the known range of the species, the likelihood of it occurring on site is considered low.</p>






SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<p><i>Chrysofalax villosus</i> (Rough-haired Golden Mole)</p>	<p>VU</p>	<p>The Rough-haired Golden Mole is found on sandy soils in grasslands, meadows and along edges of marshes in Savanna and Grassland biomes of South Africa. It has also been found in gardens, parklands, dense stands of kikuyu grass and marginally on golf courses adjoining natural grasslands (Bronner, 2015).</p>	 <p>The Rough-haired Golden Mole has an EOO of 1.05 km² (SANBI, 2020). Although the site falls within the known range of the species, there is limited suitable habitat available for the species in the rocky terrain, which makes up much of the project area. It is possible that the species could be found in lower lying grassland areas surrounding the site. The likelihood of the species occurring on site is therefore considered moderate.</p>
<p><i>Cloeotis percivali</i> (Percival's Trident Bat)</p>	<p>EN</p>	<p>Percival's Trident Bat occurs in savanna areas where there is sufficient cover in the form of caves and mine tunnels for day roosting. It feeds exclusively on moths, and appears to be very sensitive to disturbance (Monadjem, et al., 2017).</p>	 <p>Percival's Trident Bat has an EOO of 9.81 km² (SANBI, 2020). Given that its distribution range includes the site, as well as the availability of suitable habitats on site with sufficient cover for roosting (such as caves and mine tunnels), the likelihood of the species occurring within the project area is considered high.</p>
<p><i>Crocidura maquassiensis</i> (Makwassie musk shrew)</p>	<p>VU</p>	<p>The Makwassie musk shrew is generally found in rocky, mountain habitats, but may tolerate a wider range of habitats, with some individuals found in gardens and mixed bracken/grassland riversides in KwaZulu-Natal (Cassola, 2016).</p>	 <p>The Makwassie musk shrew has an EOO of 0.72 km² (SANBI, 2020). Given that its distribution range includes the site, as well as the availability of suitable habitats on site (namely rocky, mountain habitats),</p>




SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Diceros bicornis</i> (Black Rhino)	CR	The Black Rhino occurs in a wide variety of habitats from desert areas in Namibia to wetter wooded areas. The highest densities of rhinos are found in savannas on nutrient-rich soils and in succulent Valley Bushveld areas. Black Rhino are browsers and favour small acacia's and other palatable woody species (Grewia's, Euphorbiaceae species, etc.) as well as palatable herbs and succulents. Apart from plant species composition and size structure, Black Rhino carrying capacity is related to rainfall, soil nutrient status, fire histories, levels of grass interference, extent of frost and densities of other large browsers (Emslie, 2020).	<p>the likelihood of the species occurring within the project area is considered high.</p>  <p>Due to its critically endangered status, the Black Rhino is primarily confined to fenced-off reserves in South Africa, such as the Kruger National Park. The likelihood of the species occurring within the project area is therefore considered low.</p>
<i>Felis nigripes</i> (Black-footed Cat)	VU	The Black-footed Cat can be found in dry savannas, subtropical grasslands and the Karoo semi-desert with sparse shrub and tree cover. Predominantly ground-dwellers and during the day use dens in termite mounds or made by other animals (Sliwa, Wilson, Küsters,, & Tordiffe, 2016).	 <p>The Black-footed Cat has an EOO of 122.03 km² (SANBI, 2020). Given that its distribution range includes the site, well as the availability of suitable habitats on site, the likelihood of the species occurring within the project area is considered high.</p>
<i>Giraffa camelopardalis giraffe</i> (South African Giraffe)	VU	Giraffes are most often found in savanna/ woodland habitats, but range widely throughout Africa. They are browsers that subsist on a variable diet that includes leaves, stems, flowers, and fruits. They do not need to drink on a daily basis. Acacia is fed on in high proportions wherever Giraffes are found, but during the dry season, the preferred plant species varies	 <p>The distribution range of the South African Giraffe includes the site and an observation of the species was recorded within 5 km to the south of the site</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
		<p>by location. Faidherbia, Boscia, Grewia, and Kigelia have all been identified as the most common plant species in the diet of giraffes in the dry season in different locations (Muller, et al., 2018).</p>	<p>(iNaturalist, 2022). However, given the rugged terrain and relatively restricted access of the site, the likelihood of the species occurring within the project area is only considered moderate.</p>
<p><i>Lycaon pictus</i> (African wild dog)</p>	<p>EN</p>	<p>African Wild Dogs are generalist predators, occupying a range of habitats including short-grass plains, semi-desert, bushy savannas and upland forest. It appears that their current distribution is limited primarily by human activities and the availability of prey, rather than by the loss of a specific habitat type (Woodroffe & Sillero-Zubiri, 2020).</p>	 <p>The African Wild Dog has an EOO of 403.62 km² (SANBI, 2020). Although its distribution range includes the site, the species is typically found in grassland and savanna plains, rather than in rugged mountainous areas such as the project area. The likelihood of the species occurring within the project area is therefore only considered moderate.</p>
<p><i>Ourebia ourebi</i> (Oribi)</p>	<p>EN</p>	<p>Oribi inhabit savanna woodlands, floodplains and other open grasslands, reaching their highest density on floodplains and moist tropical grasslands, especially in association with large grazers (IUCN SSC Antelope Specialist Group, 2016).</p>	 <p>The Oribi has an EOO of 158.61 km² (SANBI, 2020). The site falls outside of its known distribution range, with the closest recorded occurrence noted south of Dullstroom. The likelihood of the species occurring within the project area is therefore considered low.</p>
<p><i>Panthera pardus pardus</i> (Leopard)</p>	<p>VU</p>	<p>Leopards have a wide habitat tolerance and highly varied diet. Their habitats include woodland, grassland savanna and mountain habitats but they also occur widely in coastal scrub, shrubland and semi-desert (Swanepoel, et al., 2016).</p>	



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
			<p>The distribution of the African Leopards includes the site. Given the availability of suitable habitats on site (namely mountain habitats), the likelihood of the species occurring within the project area is considered high.</p>
<p><i>Rhinolophus cohenae</i> (Cohen's Horseshoe Bat)</p>	<p>VU</p>	<p>The species mainly occurs in the Mesic Highveld Grassland Bioregion but also occurs in the Lowveld Bioregion and the Central Bushveld Bioregion. Key roosting sites include subterranean habitats like caves and old mine adits. They have been recorded day-roosting in rock crevices and fissures, and are occasionally observed in old buildings. Regions with rock habitats that form cavities are of utmost importance for the survival of this species. Artificially created habitat such as abandoned mine or prospecting shafts/tunnels within various vegetation types also serve as important/essential habitat sanctuaries (Cohen, et al., 2017).</p>	 <p>Cohen's Horseshoe Bat has an EOO of 13.49 km² (SANBI, 2020). Although its distribution range does not include the site, suitable habitats are available on site with sufficient cover for roosting (such as caves, rock faces and mine tunnels), the likelihood of the species occurring within the project area is therefore considered moderate.</p>

SURFACE WATER FEATURES

ECOREGIONS

Ecoregional classification allows the grouping of aquatic environments according to similarities based on a top-down nested hierarchy. The principle of river and wetland typing is that these are grouped together at a particular level of the typing hierarchy will be more similar to one another than rivers and wetlands in other groups. Ecological regions are regions within which there is relative similarity in the mosaic of ecosystems and ecosystem components (biotic and abiotic, aquatic and terrestrial). All of the rivers and wetlands in the area fall within Level 1 Ecoregion 9: Eastern Bankenveld (Figure 3.18). The Level 1 Ecoregion has the following attributes:

- Mean annual precipitation: Moderate to moderately high;
- Coefficient of variation of annual precipitation: Low to moderate;
- Drainage density: Predominantly medium;
- Stream frequency: Medium/high but low/medium in limited areas;
- Slopes <5 %: <20 %, 20-50 % in limited areas;
- Median annual simulated runoff: Mostly moderate but moderately high in areas; and



- Mean annual temperature: Mostly moderate.

Within the Level 1 Ecoregion, the rivers and wetlands fall within Level 2 Ecoregion 9.03 (Figure 3.18). Table 3.7 provides attributes of the Level 2 Ecoregion.

Table 3.7: Attributes of the Level 2 Ecoregion 9.03

MAIN ATTRIBUTES	9.03
Terrain Morphology	<ul style="list-style-type: none"> • Open Hills, Lowlands, Mountains; moderate to high relief • Hills and Lowlands; Parallel hills and lowlands; Low mountains
Vegetation type	<ul style="list-style-type: none"> • Mixed Bushveld, Clay Thorn Bushveld
Altitude (mamsl.)	500 – 2 300
MAP (mm)	400 – 700
Coefficient of variation (% of annual precipitation)	20 – 34
Rainfall concentration index	55 – 64
Rainfall seasonality	Early summer
Mean annual temp (°C)	14 – 22
Mean daily max temp (°C) Feb	20 – 30
Mean daily max temp (°C) Jul	16 – 20
Mean daily min temp (°C) Feb	12 – 19
Mean daily min temp (°C) Jul	2 – 7
Median annual simulated runoff (mm) for quaternary catchment	20 – 150

DRAINAGE AND RIVER ECOSYSTEM CONTEXT

The proposed development falls entirely within Quaternary Catchment B41G, which drains the Groot- and Klein-Dwars Rivers, tributaries of the Steelpoort River within the Olifants Water Management Area (WMA) (Figure 3.19). The Groot- and Klein-Dwars Rivers main channels flow in a northerly direction, approximately 1.3-1.5 km to the east and west of the site, respectively (Figure 3.19). Several smaller drainage lines fall within the project area, crossing the proposed access roads and powerlines.

The Groot- and Klein-Dwars Rivers have been assigned an ‘Endangered’ to ‘Critically Endangered’ ecosystem threat status in terms of the National Biodiversity Assessment (NBA, 2018). Critically Endangered ecosystems are ecosystem types that have very little of their original extent (measured as area, length or volume) left in natural or near-natural condition. Most of the ecosystem type has been heavily, severely or critically modified from its natural state. Any further loss of natural habitat or deterioration in condition of the remaining healthy examples of these ecosystem types must be avoided, and the remaining healthy examples should be the focus of urgent conservation action (Nel & Driver, 2012). According to the NBA (2018), the Present Ecological State (PES) of the Groot- and Klein-Dwars Rivers range from “B: Largely Natural” to “D: Largely Modified”, with a few areas classified as “F: Critically Modified”, i.e. a slight to critical change in ecosystem processes and loss of natural habitat and biota and has occurred. The Groot- and Klein-Dwars Rivers are categorised as River FEPAs in terms of the National Freshwater Ecosystem Priority Areas (NFEPA) project (2014).



WETLAND ECOSYSTEM CONTEXT

Wetlands in South Africa have been mapped on a broad-scale by various stakeholders and have been included in the NFEPA (2011-2014) and NBA (2018). Due to the broad-scale nature of the NFEPA map it is not spatially accurate and, therefore, some error is expected. All wetlands are classified as either 'natural' or 'artificial' water bodies. The NFEPA and NBA wetland maps identify important or sensitive wetlands and wetland clusters. A wetland cluster is a group of wetlands all within 1 km of each other and which are surrounded by relatively natural vegetation. Wetland clusters allow for important ecological processes such as the migration of insects and frogs between the wetlands.

According to the National Wetland Map Version 5 (2018), no natural wetlands occur within 500 m of the proposed development area (Figure 3.19). Only one artificial wetland, an open reservoir, within 500 m of the proposed development area (Figure 3.19). Numerous natural and artificial wetlands occur within the quaternary catchment. No NFEPA wetland clusters fall within the quaternary catchment.

Please refer to the River and Wetland Ecosystem Assessment Report (CES, 2022) in Appendix 8.2 for further detail.

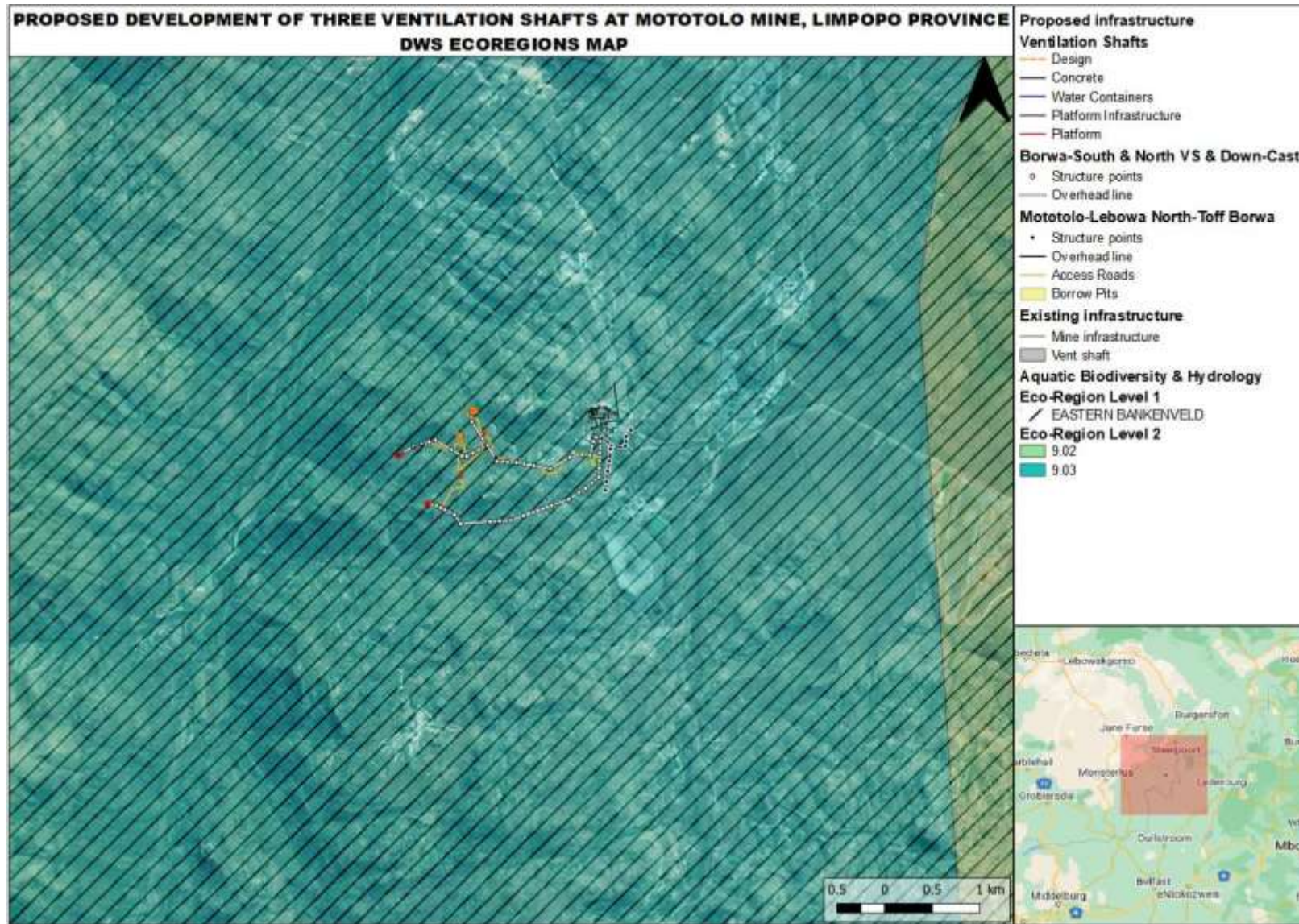


Figure 3.18: Ecoregion map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

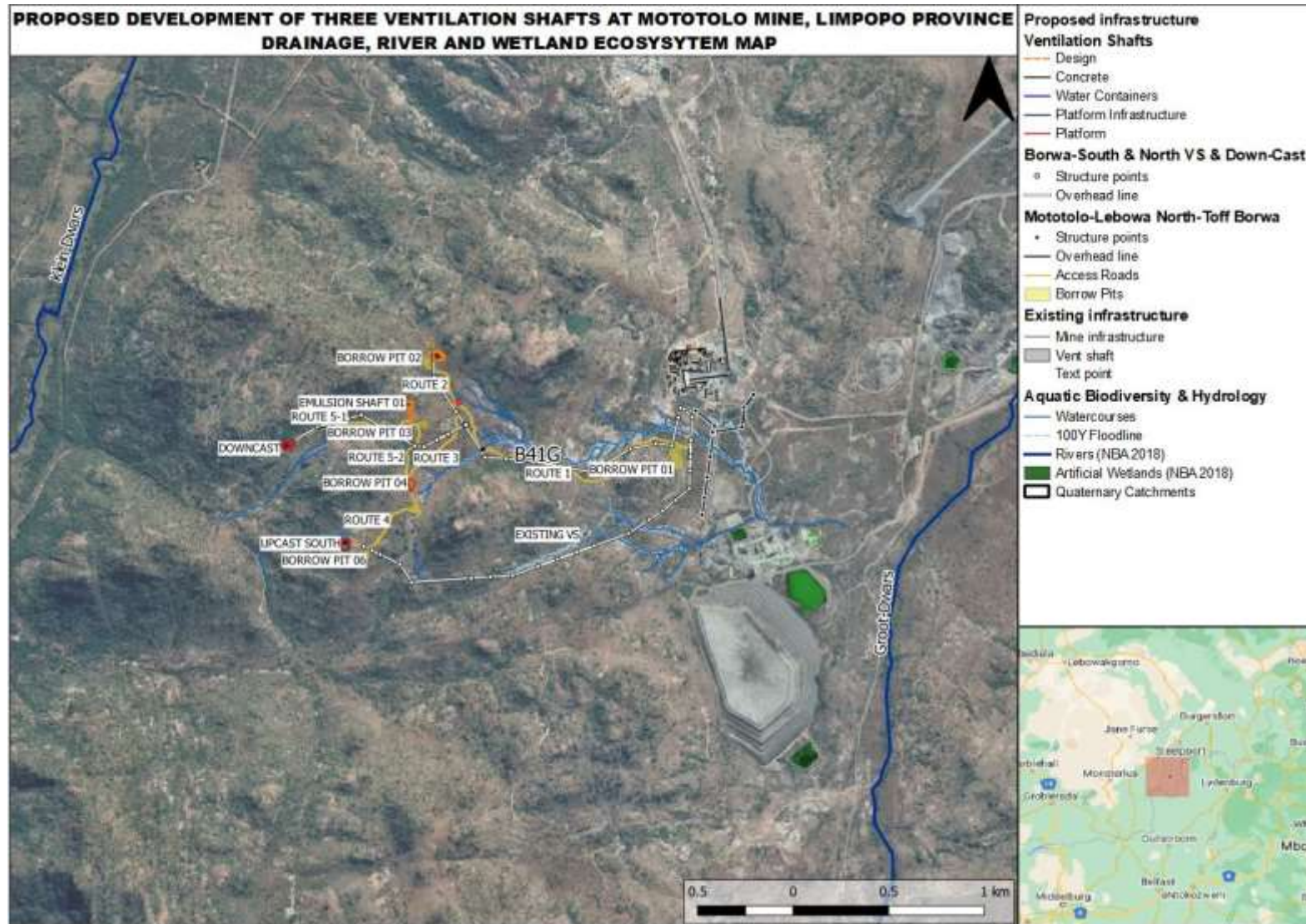


Figure 3.19: Drainage, River and Wetland Ecosystem map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province (NBA, 2018).



ENVIRONMENTAL MANAGEMENT FRAMEWORK FOR THE OLIFANTS AND LETABA RIVERS CATCHMENT AREAS (OLEMF) (2009)

In terms of the OLEMF, the proposed development falls within Zone B, the Highveld to Bushveld Transition Area Environmental Management Zone (EMZ). This area comprises mostly of the *“hilly areas between the Highveld and the flat areas on the Bushveld Igneous Complex. It is a relatively unspoilt natural environment with good opportunities for conservation, recreation and tourism. Mineral economic significance occurs in places but is not dominant in the area”* (Environomics and MetroGIS, 2009, p. 47). The following apply to this zone.

CONSTRAINTS

Over-allocation of the water resources is a constraint. Drought is a possible risk in this zone. There are some areas containing critically endangered and endangered vegetation, which currently do not fall within in a protected area, statutory or private. Thus there is a risk of further loss of this vegetation from encroaching developments. Excessive medicinal plant harvesting is a risk in this zone, which may damage the ecosystem balance. Pollution of the water resource from human activities in this zone is a definite concern. Poorly functioning municipal sewage treatment plants contribute to the degradation of water quality and river health.

OPPORTUNITIES

Mining of coal, silica and various elements such as chrome, platinum and vanadium take place in this zone. This zone is rich in platinum. Part of the platinum belt occurs here, thus the potential for future mining operations exists. Part of the Sekhukhuneland Centre of Endemism falls within this zone. This zone has a relatively unspoilt natural environment. There are large areas that have been identified as possible conservation areas by the National Protected Areas Expansion Strategy, some of which cover areas containing endangered vegetation. This creates good opportunities for conservation, recreation and tourism. There are already large established statutory protected areas that create ecotourism opportunities, for example, in the Loskop Dam area. The development of cultural activities also has some potential. Management Zone B contains some areas with highly arable land. Irrigated agriculture also takes place in this zone.

POTENTIAL CONFLICTS BETWEEN OPPORTUNITIES

The Sekhukhune land Centre of Endemism, areas identified by the National Protected Areas Expansion Strategy and the platinum belt overlap. This implies that an opportunity cost analysis will have to be done, as engaging in one course of action or opportunity, will then affect the viability of the other opportunity. For example, exploring the platinum mining opportunity to its full extent will then impact the viability of the conservation opportunity, which lies within the same area. The main conflict anticipated is tourism versus other activities.

EMF GUIDELINES FOR ZONE B

The table below outlines the guidelines for activities within Zone B.



Table 3.8: Guidelines for Zone B: Highveld to Bushveld Transition Area

CATEGORIES	GUIDELINES	RESPONSIBILITY
Water allocation	Water allocation in this zone may not have a further negative impact on the ecological reserve of any part of the river system in the EMF area.	DHSWS
	Additional water allocations must come from savings from existing allocations that are reallocated. The methods of achieving the savings and facilitating the transfers must be negotiated until DWA develops a policy in this regard.	DHSWS and water users
	Illegal use of water must be investigated, followed up and the perpetrators should be prosecuted.	DHSWS
Water quality	Water users must ensure that water that is released back into the system from their activities comply with the relevant quality standards. It is their responsibility to find out what standards are applicable to them.	Water use licence holders
	Water release quality standards must be applied strictly and transgressors should be prosecuted.	DHSWS
	Municipalities should be capacitated (personnel and funding) to upgrade and manage sewage works to acceptable standards.	DHSWS
	Municipalities that fail to manage sewage work effectively should be prosecuted.	DHSWS
Conservation	All natural wetlands, riparian areas and river systems that occur in the zone as depicted on Spot 5 satellite images dated on or before 30 November 2009 must be maintained in at least the area and condition as at 30 November 2009.	Land owners and users
	Conservation and associated tourism is the preferred land-use in the area and any other land-use that is allowed should not have significant detrimental long term impact on the conservation land-use focus.	DFFE, District Municipality, LEDET and DARDLEA
Air pollution	The Air Quality Management Plan (AQMP) (currently being compiled) that will apply to the zone should be implemented.	Local authorities
	The implementation of the AQMP should be monitored and where it fails corrective action must be taken.	DFFE
Mining	A strategic mining plan should be developed for this zone that limits the unrehabilitated surface area of mines to the minimum possible	District Municipality
Cooperative government	Government instructions at all levels should coordinate their activities in such a way that authorisations, licences and permits issued does not conflict with one another. All government institutions	All government institutions
	Government should focus on implementation of legislation and policies especially in respect to compliance monitoring and enforcement.	All government institutions
EMF principles	The EMF principles should be used as guiding norms in the evaluation and decision-making processes of activities that requires an authorisation, licence or permit from government	All government institutions



HERITAGE RESOURCES

A number of academic archaeological and historical studies have been conducted in this section of the Limpopo Province and these studies all infer a rich and diverse archaeological landscape, representative of most phases of human and cultural development in Southern Africa. The cultural landscape of the Sekhukhune region encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. Sekhukhune is rich in archaeological sites, dating from the Early Iron Age (800AD) to the Pedi occupation of the area. This is most probably due to the safety the valley offered from outside attacks, but also as a result of the deep and rich sedimentary soils of the low-lying area. It is also of historical importance due to the activities of the Berlin Missionary Society who entered the area in the time of Chief Sekwati.

SOCIO-ECONOMIC ENVIRONMENT

The proposed site falls within the Fetakgomo-Greater Tubatse Local Municipality (FGTLM) area which forms part of the Sekhukhune District Municipality. FGTLM has a council that consists of a total of 77 councillors. Of these, 39 are ward councillors while 38 were proportionally elected. The Executive Committee of the municipality is led the Mayor while the municipal Speaker presides over the Council in terms of Section 49 and 37 of the Local Government: Municipal Structures Act 117 of 1998 respectively. This large municipality comprises of 39 wards and 297 villages. The municipality is largely dominated by rural landscape with only 06 (six) proclaimed townships. The area of jurisdiction of FGTLM is approximately 4 550 km² (2016/17 Draft Consolidated IDP for Fetakgomo Greater Tubatse Municipality). According to the FGTLM the northern part has inferior social and engineering infrastructure which impacts on the stability of the economy in this area. This may be attributed to the rural nature of the area. As such, upliftment in the area is of critical importance. There is also virtually no economic base in the northern part of the area and the area is solely dependent on government handouts and migrant labour income for survival.

POPULATION PROFILE

According to the 2011 Statistics South Africa (StatsSA) information; the total population of the former FGTLM combined is approximately 429 471 with 106 050 households while the current community survey (2016) noted a total population of 125 361. In 2016 a community survey was undertaken for FGTLM, making it the most highly populated municipality within the Sekhukhune district. It also appears from in the current 2016 Community Survey as compared to the 2011 STASA results that the Fetakgomo Tubatse Local Municipality there has been a population of 490 381 with household increase of 125 454. As per the current community survey 2016 the former Greater Tubatse local Municipality increased with 0.037% and the former Fetakgomo local municipality increase slightly with 0.007. The total percentages of FGTLM as combined increased with 0.043% which put the municipality as the highest in the District. The population in the district per genders is shown below in Table 3.9.

**Table 3.9: Sekhukhune District Population group by gender (FGTLM IDP, 2016/17).**

Sekhukhune	2011 STATSSA			2016 COMMUNITY SURVEY			
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	GROWTH
	497 648	579 191	1 076 840	548 463	621 299	1 169 762	0.019

The table above indicates the total number of Households for Fetakgomo and Tubatse Municipality in 2011 as combined was 106 050 and 125 454 in 2016; which makes the municipality the biggest municipality in the District. The municipality has shown a growth of 8% growth in 2016; this might be due to the mining activities taking place in the area.

LANGUAGES

The languages that are spoken within the GTLM include Sepedi (94%) and isiZulu (1.2%). Other languages make up the remaining 4.8% (StatsSA, 2011) (Table 3.10).

Table 3.10: Frequently spoken languages in households in FGTLM (StatsSA, 2011).

Afrikaans	English	IsiXhosa	IsiZulu	Sepedi	Sesotho	SiSwati	Xitsonga	Tshivenda	Others
0.5%	0.5%	0.3%	1.2%	94%	0.1%	0.4%	0.6%	0.1	0.4

GENDER AND AGE

Table 3.11 shows that the total population is dominated by young people below 18. The age categories below the age of 18 comprise 51% of the population. The ratio for females is almost equal at ages between 0-17 and then this makes a change. Male-female distribution is then dominated by females for example, from ages 19-65.

Table 3.11: Gender and age distribution within former GTLM (GTLM IDP, 2016/17).

Age	Male	Female	Grand Total
0-4	22 878	21 999	44 877
5-9	20 271	22 517	42 788
10-14	22 440	23 354	45 794
15-19	19 349	19 811	39 160
20-24	15 907	19 112	35 019
25-29	13 245	14 505	27 750
30-34	10 667	11 582	22 249
35-39	7324	8828	16 152
40-44	6076	9519	15 595
45-49	4952	7109	12 061
50-54	4180	6448	10 628
55-59	3241	3993	7234
60-64	2552	4075	6627
65-69	2256	3015	5271
70-74	1484	3086	4570
75-79	1124	2618	3742
80-84	362	1322	1684
85+	335	1911	2266



Grand Total	158 663	184 804	335 676
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EDUCATION LEVELS

Education levels in the Limpopo province lag behind those of other provinces of South Africa. While average literacy levels for South Africa were 82.2%, literacy levels for Limpopo were 73.6% in 1991. The Greater Tubatse Local Municipality has 163 primary schools, 92 secondary schools and 8 private schools with a total of 114 723 learners and 3689 educators. Bughtersfort, Ohrigstad and Steelpoort each have a primary school and Bughtersfort has additional private primary and secondary schools. Two state of the art schools have been developed by the Department of Limpopo, i.e. Nthame primary school at Riba and Batubatse primary school in Praktiseer. In rural areas, an abundance of primary schools tends to be common as many pupils leave school early in search of employment in order to support their families. Those that can afford to continue to secondary school do so within the area or in more developed towns outside the municipality (GTLM IDP, 2016/17). 22.6% of people above the age of 20 have completed matric (grade 12); while 6.6% have higher education (STATSSA, 2011). Figure 3.20 shows education levels in Greater Tubatse Local Municipality.

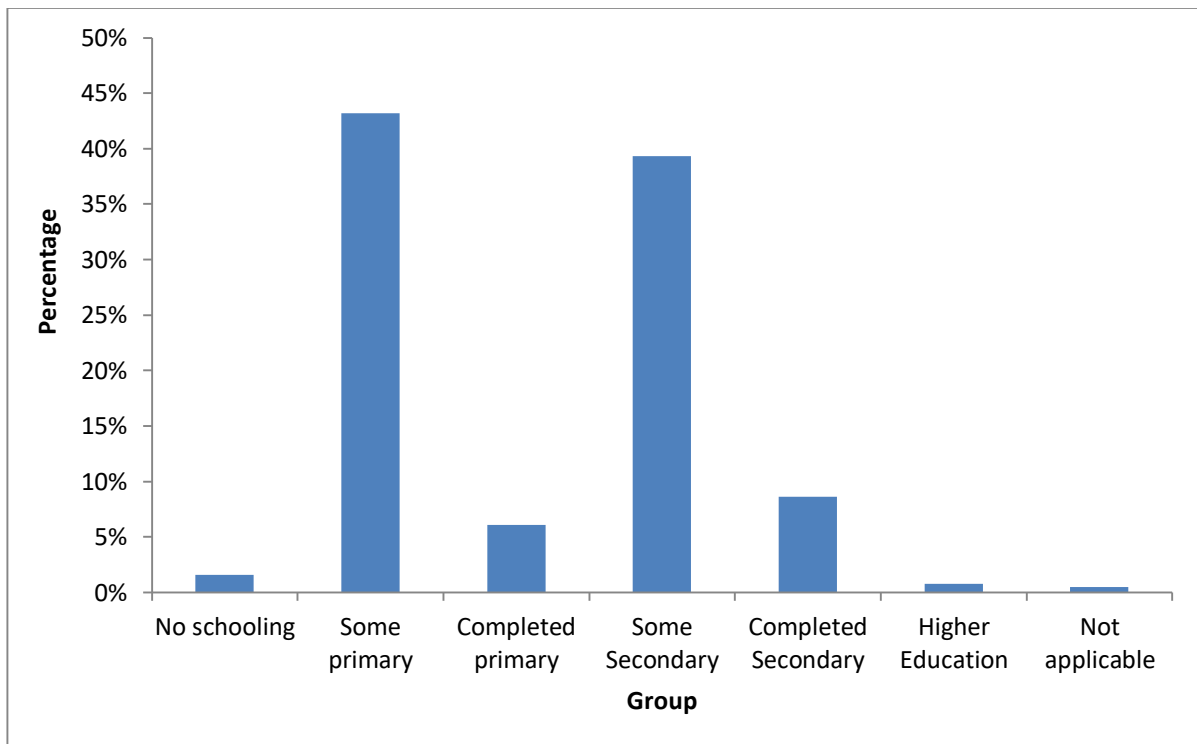


Figure 3.20: Education levels in Greater Tubatse Local Municipality (StatsSA, 2011)

EMPLOYMENT STATUS AND AVERAGE HOUSEHOLD INCOME

The Former Greater Tubatse Local Municipality has a youth unemployment rate of 59.6%. In 2009, The Greater Tubatse Local Municipality had the highest rate of unemployment at 28 022 and in 2015 it still had the highest with 22 264 people unemployed (LED, 2015). Figure 3.21 illustrates the employment status of the people of GTLM.

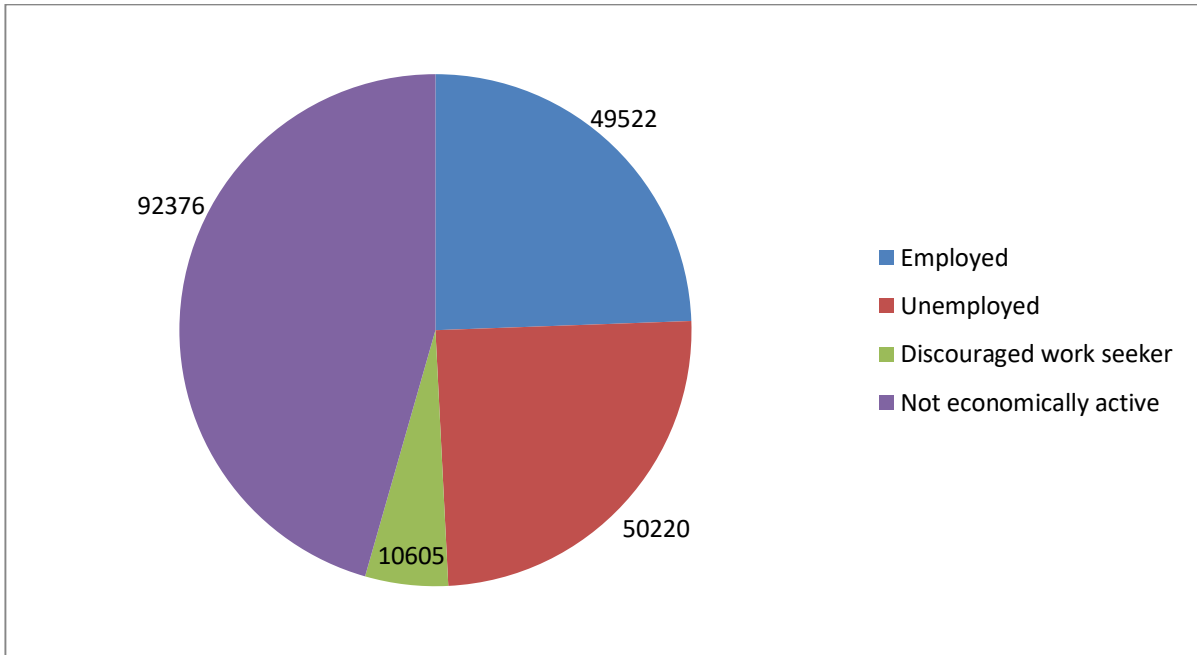


Figure 3.21: Employment status of people aged 15-64 in GTLM (StatsSA, 2011).

(b) DESCRIPTION OF THE CURRENT LAND USES.

The land cover of the area consists of primarily mountain woodland, with patches of natural grassland, sparsely wooded grasslands, rock surfaces and eroded areas. Mining and associated land uses occupy the adjacent area to the east (Figure 3.22). Scattered fallow lands and old fields occur within the broader surrounding area to the north and south-east, with commercial annual crop cultivation occurring to the west.

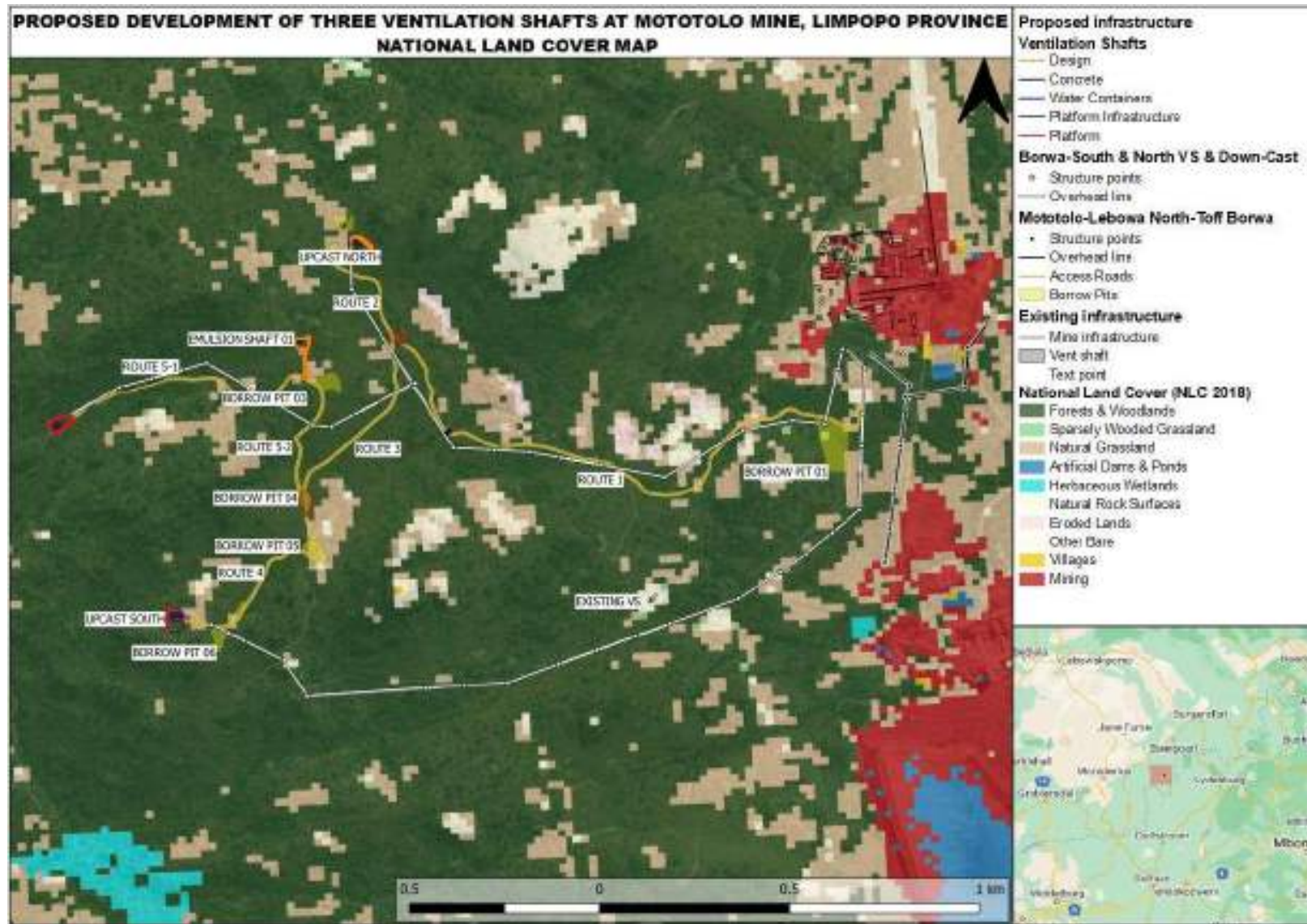


Figure 3.22: Land use and cover map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



(c) DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON THE SITE

TERRESTRIAL BIODIVERSITY SITE ASSESSMENT

The vegetation and habitat composition was assessed along eight transect lines within the project footprint (Figure 3.23). The vegetation types, land uses and species composition observed on site are presented below.

VEGETATION, HABITAT AND LAND USES OBSERVED ON SITE

The vegetation, habitat and land use types within the assessment footprint were then mapped using a combination of data from the field assessment, the Mucina and Rutherford (2018) vegetation map, the National Land Cover (NLC, 2018) map and aerial imagery from Google Earth (Figure 3.23). The vegetation, habitat and land use types recorded within the assessment footprint are described in Table 3.15 below, along with photographic examples of the site conditions and species for each category.

PLANT SPECIES IDENTIFIED ON SITE

A total of 63 plants were identified during the site visit, none of which were Species of Conservation Concern (SCC), with three “**Near-Threatened**” species (Table 3.12) and the remainder of “**Least Concern**”. Thirteen species are considered endemic (Table 3.13). Four species were categorised as non-indigenous species, of which three are Category 1b invaders in terms of the NEMBA AIS List (2016) (Table 3.14). A full list of plant species recorded within the project footprint is provided in the Terrestrial Biodiversity Report (CES, 2022).

Table 3.12: Near-threatened plant species found occurring within the project footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Celastraceae	<i>Elaeodendron</i>	<i>transvaalense</i>	Indigenous	- NT
Celastraceae	<i>Lydenburgia</i>	<i>cassinoides</i>	Indigenous; Endemic	- NT
Scrophulariaceae	<i>Jamesbrittenia</i>	<i>macrantha</i>	Indigenous; Endemic	- NT

Table 3.13: Endemic plant species found occurring within the project footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Anacardiaceae	<i>Searsia</i>	<i>keetii</i>	Indigenous; Endemic	- LC
Araliaceae	<i>Cussonia</i>	<i>transvaalensis</i>	Indigenous; Endemic	- LC
Asteraceae	<i>Berkheya</i>	<i>carlinopsis</i>	Indigenous; Endemic	- LC
Celastraceae	<i>Lydenburgia</i>	<i>cassinoides</i>	Indigenous; Endemic	- NT
Crassulaceae	<i>Crassula</i>	<i>ovata</i>	Indigenous; Endemic	- LC
Euphorbiaceae	<i>Jatropha</i>	<i>latifolia</i> var. <i>angustata</i>	Indigenous; Endemic	- LC
Fabaceae	<i>Elephantorrhiza</i>	<i>praetermissa</i>	Indigenous; Endemic	- LC
Malpighiaceae	<i>Triaspis</i>	<i>glaucophylla</i>	Indigenous; Endemic	- LC
Malvaceae	<i>Grewia</i>	<i>vernica</i>	Indigenous; Endemic	- LC



FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Oleaceae	<i>Jasminum</i>	<i>quinatum</i>	Indigenous; Endemic	- LC
Scrophulariaceae	<i>Jamesbrittenia</i>	<i>macrantha</i>	Indigenous; Endemic	- NT
Stilbaceae	<i>Nuxia</i>	<i>gracilis</i>	Indigenous; Endemic	- LC
Vitaceae	<i>Rhoicissus</i>	<i>sekhukhuniensis</i>	Indigenous; Endemic	- LC

Table 3.14: Plant AIS found occurring within the project footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Asteraceae	<i>Tagetes</i>	<i>minuta</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated
Poaceae	<i>Arunda</i>	<i>donex</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated - Cat 1b
Poaceae	<i>Pennisetum</i>	<i>setaceum</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated - Cat 1b
Verbenaceae	<i>Lantana</i>	<i>camara</i>	Not indigenous; Cultivated; Naturalised; Invasive	- Not Evaluated - Cat 1b



Figure 3.23: Site vegetation and land use map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Table 3.15: Vegetation, habitat and land use survey within the assessment footprint.









NAME	DESCRIPTION	PHOTOGRAPHS
Natural Sekhukhune Mountain Bushveld (SMB) – Rocky Outcrops	<p>The Natural Sekhukhune Mountain Bushveld (SMB) vegetation type generally occurs along the higher elevations of the study area (1 200 – 1420 mamsl) to the west of the main Borwa Shaft. It is characterised by rugged terrain, often extensive rocky outcrops and sparse to moderately-sparse pockets of vegetation cover (a & b).</p> <p>The vegetation type is comprised of scattered tree and shrub species, including <i>Elephantorrhiza praetermissa</i>, <i>Rhoicissus sekhukunensis</i> (c), <i>Rhynchosia komatiensis</i> (d), <i>Searsia keetii</i> (e), <i>Aloe marlothii subsp. marlothii</i> (f), <i>Kirkia wilmsii</i> (g) and <i>Searsia lancea</i>, as well as a low abundance of grass cover, usually <i>Eragrostis rigidior</i>, with some herbaceous species, such as <i>Berkheya insignis</i>, <i>Cyphostemma woodii</i>, <i>Hypoxis rigidula</i>, <i>Senecio microglossus</i> and <i>Zantedeschia albomaculata</i> (h).</p>	       

Plate 3.1: Natural Sekhukhune Mountain Bushveld with rocky outcrops










NAME	DESCRIPTION	PHOTOGRAPHS
Near-natural Sekhukhune Mountain Bushveld (SMB)	<p>The Near-natural Sekhukhune Mountain Bushveld (SMB) vegetation type occurs along the mid-altitude (1 150 – 1200 mamsl) hillslopes and valleys surrounding the rocky peaks to the west of the main Borwa Shaft. It differs from the natural rocky outcrops described above in that it has a well-developed basal layer of graminoids and forbs, with scattered loose boulders, rocks, shrubs and trees (a & b). The vegetation is similarly comprised of the species noted above, with the addition of the following:</p> <ul style="list-style-type: none"> • Graminoids: <i>Eragrostis curvula</i>, <i>Heteropogon contortus</i>, <i>Hyparrhenia tamba</i>, <i>Melinis repens</i> and <i>Setaria sphacelata</i>; • Herbs: <i>Berkheya carlinopsis</i>, <i>Cyphostemma woodii</i>, <i>Kalanchoe</i> sp., <i>Senecio latifolius</i> and <i>Solanum incanum</i>; • Succulent shrubs: <i>Aloe cryptopoda</i> (c) and <i>Crassula ovata</i>; • Shrubs and small trees: <i>Grewia vernicosa</i>, <i>Jatropha latifolia</i> var. <i>angustata</i> (d), <i>Rhoicissus sekhukunensis</i>, <i>Lasiosiphon capitatus</i> (e), <i>Mundulea sericea</i>, <i>Nuxia gracilis</i> and <i>Senegalia ataxacantha</i>; and, • Trees: <i>Brachylaena ilicifolia</i>, <i>Combretum</i> spp., <i>Cussonia</i> spp., <i>Dichrostachys cinerea</i>, <i>Dombeya rotundifolia</i>, <i>Elaeodendron transvaalense</i>, <i>Euclea crispa</i>, <i>Kirkia wilmsii</i>, <i>Ozoroa sphaerocarpa</i> (f), <i>Searsia</i> spp. and <i>Terminalia prunioides</i> (g). 	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-between; width: 100%;"> a  </div> <div style="display: flex; justify-content: space-between; width: 100%;"> b  </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 10px;"> <div style="display: flex; flex-direction: column; align-items: center;"> c  </div> <div style="display: flex; flex-direction: column; align-items: center;"> d  </div> <div style="display: flex; flex-direction: column; align-items: center;"> e  </div> <div style="display: flex; flex-direction: column; align-items: center;"> f  </div> <div style="display: flex; flex-direction: column; align-items: center;"> g  </div> </div> </div>

Plate 3.2: Near-natural Sekhukhune Mountain Bushveld















NAME	DESCRIPTION	PHOTOGRAPHS
Semi-natural Sekhukhune Mountain Bushveld (SMB)	<p>The Semi-natural Sekhukhune Mountain Bushveld (SMB) vegetation type occurs along the lower (1 100 – 1 150 mamsl), generally flatter parts of the study area, fringing the more degraded and fully transformed areas surrounding the main Borwa Shaft and associated mining operations.</p> <p>It is primarily vegetated by an open thornveld (a & b), dominated by <i>Dichrostachys cinerea</i>, <i>Terminalia prunioides</i>, <i>Vachellia karroo</i> (c) and <i>Ziziphus mucronata</i> (d), with a moderate to well-developed secondary grassland basal cover of <i>Eragrostis rigidior</i>, <i>Heteropogon contortus</i> (e), <i>Hyparrhenia tamba</i>, <i>Monocymbium cerasiiforme</i> and <i>Themeda triandra</i>.</p> <p>A greater diversity of species is encountered as the vegetation transitions to its near-natural and natural states, westwards of the existing ventilation shaft. A few notable species observed here include: <i>Aloe marlothii</i> subsp. <i>marlothii</i>, <i>Brachylaena ilicifolia</i>, <i>Cussonia paniculata</i> (f), <i>Dombeya rotundifolia</i>, <i>Euclea sekhukhuniensis</i>, <i>Grewia monticola</i>, <i>Grewia vernicosa</i> (f), <i>Hippobromus pauciflorus</i>, <i>Jamesbrittenia macrantha</i> (g), <i>Jasminum quinetum</i>, <i>Lydenburgia cassinoides</i> (h), <i>Mimusops zeyheri</i>, <i>Mundulea sericea</i>, <i>Nuxia gracilis</i>, <i>Ozoroa sphaerocarpa</i>, <i>Protea caffra</i> subsp. <i>caffra</i> and <i>Rhoicissus sekhukunensis</i>.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-between; width: 100%;"> a  </div> <div style="display: flex; justify-content: space-between; width: 100%;"> b  </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 10px;"> <div style="display: flex; flex-direction: column; align-items: center;"> c  </div> <div style="display: flex; flex-direction: column; align-items: center;"> d  </div> <div style="display: flex; flex-direction: column; align-items: center;"> e  </div> <div style="display: flex; flex-direction: column; align-items: center;"> f  </div> <div style="display: flex; flex-direction: column; align-items: center;"> g  </div> <div style="display: flex; flex-direction: column; align-items: center;"> h  </div> </div> </div>

Plate 3.3: Semi-natural Sekhukhune Mountain Bushveld



NAME	DESCRIPTION	PHOTOGRAPHS
Degraded Sekhukhune Mountain Bushveld (SMB)	<p>The Degraded Sekhukhune Mountain Bushveld (SMB) vegetation type occurs in patches immediately adjacent to the fully transformed areas surrounding the main Borwa Shaft and associated mining operations (a & b), as well as in smaller, isolated eroded areas along erosion gullies (c) and along the existing dirt access roads (d), winding through the semi-natural to natural areas.</p> <p>These areas are typically bare to sparsely-vegetated by patches of grass, including <i>Chloris sp.</i>, <i>Eragrostis curvula</i>, <i>Heteropogon contortus</i>, <i>Melinis repens</i>, <i>Pennisetum setaceum</i> and <i>Setaria sphacelata</i>, with a few scattered <i>Tagetes minuta</i> and <i>Vachellia karroo</i> occurring along the fringes of the more severely disturbed areas.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 5px;"> a  </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> b  </div> <div style="display: flex; justify-content: space-between; width: 100%;"> <div style="display: flex; align-items: center; margin-bottom: 5px;"> c  </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> f  </div> </div> </div> <p style="text-align: center; margin-top: 10px;">Plate 3.4: Degraded Sekhukhune Mountain Bushveld</p>



NAME	DESCRIPTION	PHOTOGRAPHS
Transformed areas	<p>Parts of the study area have been significantly transformed from their natural state as the result of the ongoing mining operations at the main Borwa Shaft and associated land uses. Consequently, little to no remaining discernible natural vegetation remains within these areas. The condition of the vegetation in the immediately adjacent areas is typically degraded to semi-natural.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> a  </div> <div> b  </div> </div> <p style="text-align: center; margin-top: 10px;">Plate 3.5: Transformed areas</p>



DRAINAGE, RIVER AND WETLAND SITE ASSESSMENT

On completion of the desktop assessment a site visit was undertaken on 16 November 2021. The purpose of the site visit was to gather data regarding the surrounding watercourses, ground truth the desktop study, delineate watercourses and wetlands, and assess the state of the aquatic and wetland environment. This included identifying any potential impacts that the development may have on the aquatic and wetland environment and the significance of those impacts.

DELINEATION, CLASSIFICATION AND HABITAT CHARACTERISATION OF WATERCOURSES

The infield sampling of soil and vegetation in conjunction with the recording of diagnostic topographical / terrain indicators and features, enabled the delineation of the following distinct watercourse units, as described below. Four watercourse units were assessed. These units are described below.

Watercourse unit W1 is a branched, mostly bare, dry ephemeral channel, with areas of deeply-incised gullies and alluvial deposition. The unit originates in the rocky, mountainous bushveld areas, approximately 1.2 – 2 km to the west and south-west of the Mototolo Borwa Shaft. The two main arms of the unit, northern and southern, converge near the Mototolo Concentrator to the south-east of the Borwa Shaft. Sampled sections of the unit (W1.1-1.11) are described below.

W1.1 is divided by an existing road crossing. Upstream of the crossing, the channel is characterised by a 2 m wide alluvial river bed, comprised of mostly sand and recent silt / clay sediment deposition (Plate 3.6). The 4 m deep, incised vertical left bank is mostly bare, with some patchy *Themeda triandra* and *Rhynchosia komatiensis* (Plate 3.6). The right bank includes a narrow flood bench, vegetated by a high abundance of *Cymbopogon caesius* and *Hyparrhenia tamba*, with a low abundance of mixed woody species. The flood bench is comprised of brown loamy silt (0-30 cm), brown sandy loam (30-40 cm), yellow brown sand (40-50 cm) and yellow brown fine sandy loam (>50 cm), with mottles absent throughout.

The channel opens to an excavated area (Plate 3.7), where an erosion gully joins from the north. The gully is sparsely vegetated by *Eragrostis rigidior* along its banks, as well as *Heteropogon contortus* and *Senecio microglossus* along its bed. The section crosses the existing gravel access road via a recently-constructed two-compartment box culvert, with extended gabion sidewalls at both the inlet and outlet (Plate 3.8).

Downstream of the crossing, the stream drops off a 3 m high vertical knick point and narrows to 1 m wide, 4-5 m deep incised bedrock channel (Plate 3.9), with a few seasonal orange brown turbid pools (Plate 3.10), shallow rock alluvium and scattered dryland vegetation. Further downstream, the stream is characterised by dry bowl deposition and a cobble stream bed, with *Hippobromus pauciflorus*, *Rhoicissus sekhukunensis* and *Searsia keetii* occurring along the banks.

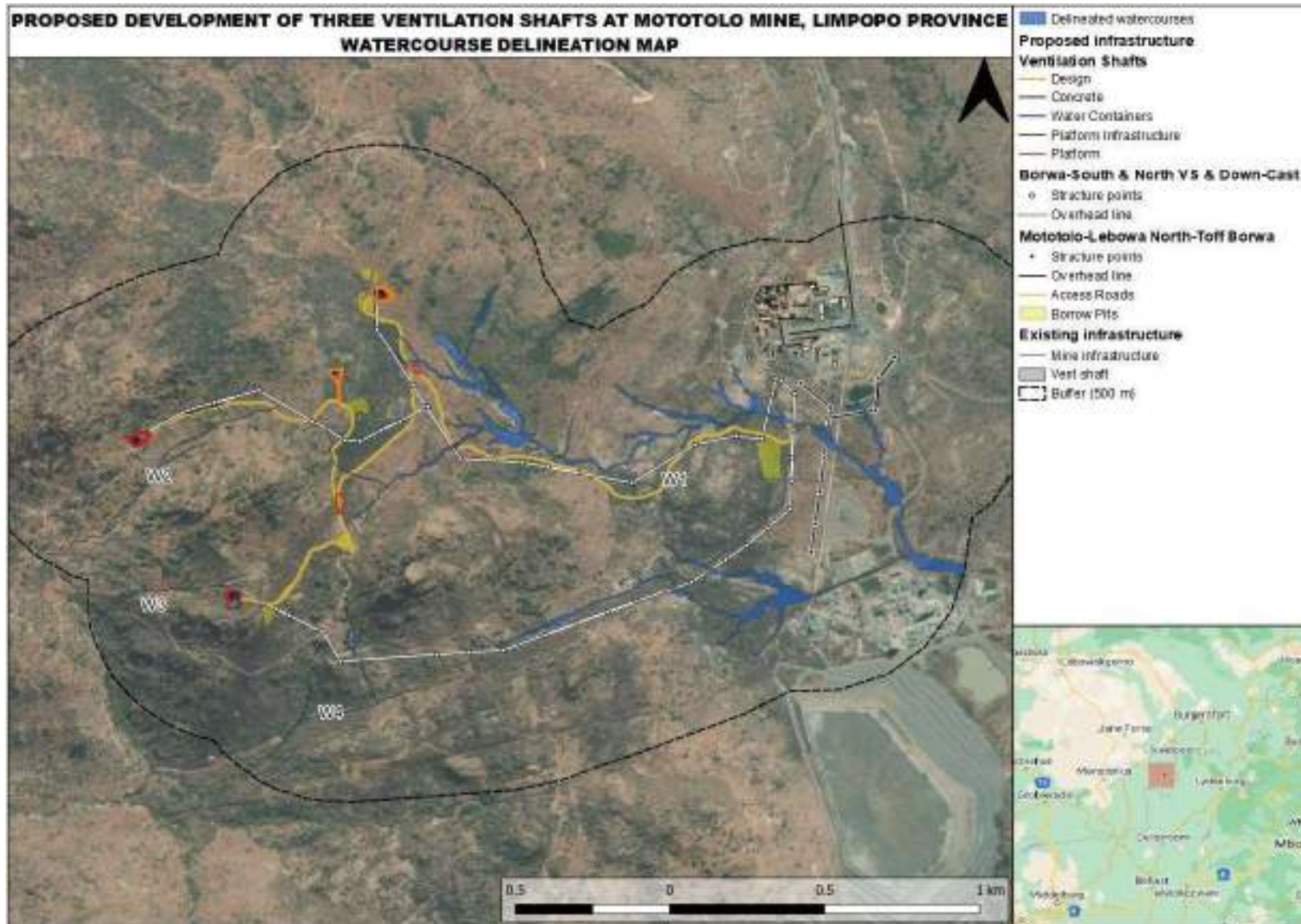


Figure 3.24: Watercourse assessment areas surveyed during the site visit to the study area.

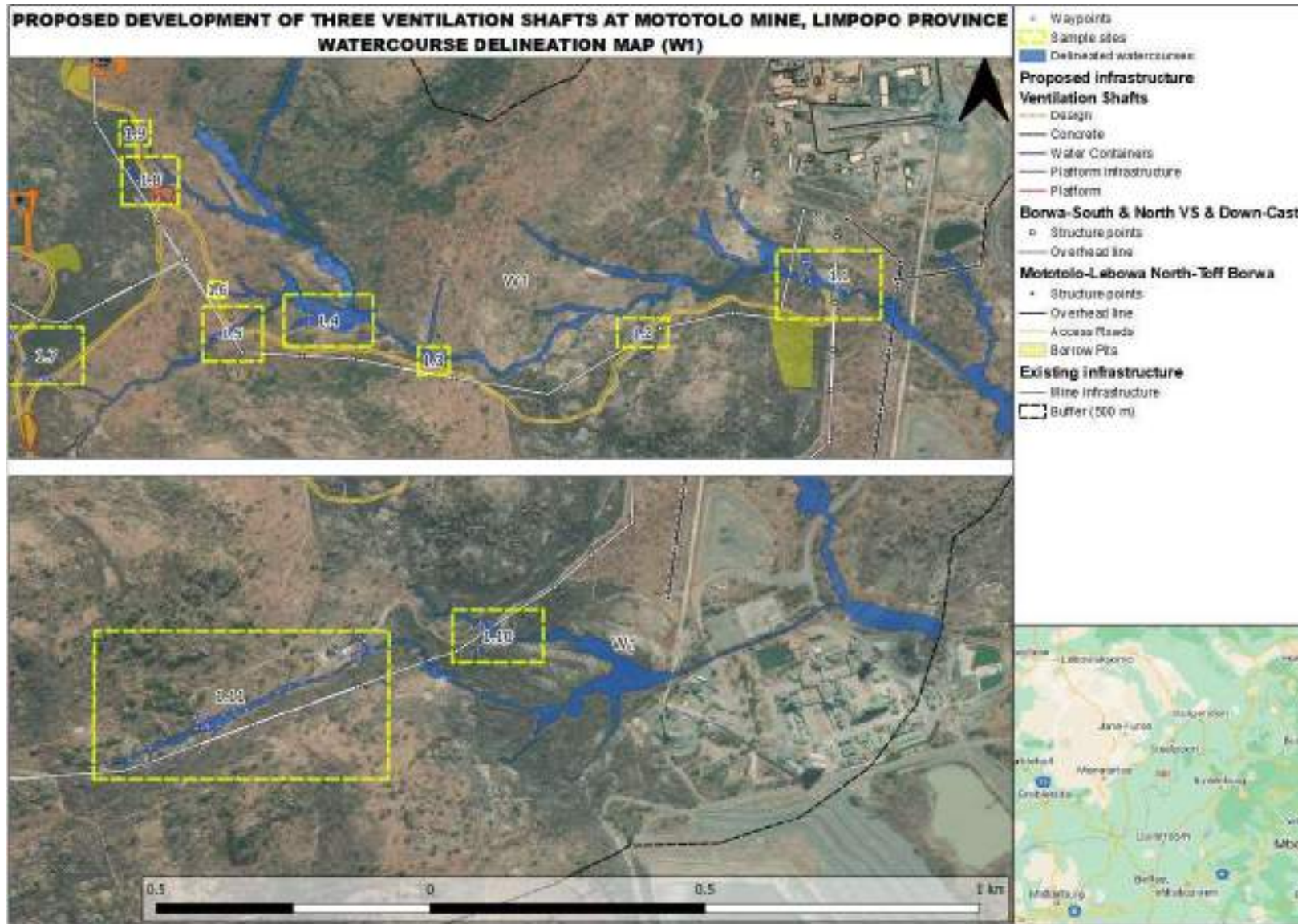


Figure 3.25: Delineation map of unit W1



Plate 3.6: Upstream alluvial section of W1.1



Plate 3.7: Excavated area within W1.1



Plate 3.8: Culvert and gabion side walls of W1.1 road crossing



Plate 3.9: Downstream bedrock section of W1.1



Plate 3.10: Bedrock turbid pools in the downstream section of W1.1



W1.2 is a small gully channel, originating from road runoff, resulting in elevated erosion and sedimentation (Plate 3.11). It is sparsely vegetated by *E. rigidior* and *Setaria sphacelata* (Plate 3.11). **W1.3** is a mixed, alternating alluvial and bedrock stream, with banks dominated by an open *E. rigidior* / *T. triandra* riparian grassland and a low abundance of *Rhynchosia komatiensis* (Plate 3.12). **W1.4** is a broad, mostly bare erosion gully, vegetated by *H. contortus* and *E. capensis* along its banks (Plate 3.13).



Plate 3.11: Road crossing and downstream gully of W1.2



Plate 3.12: Mixed, alternating alluvial and bedrock stream of W1.3



Plate 3.13: Broad, braided erosion gullies of W1.4

W1.5 is characterised by a poorly-defined ephemeral channel (Plate 3.14), with a broad alluvial flood-out area, upstream of an existing dirt road crossing. The channel banks are vegetated by a mixed grassland / woodland, with *Euclea crispa*, *Vachellia karoo* and *H. contortus*. The flood-out vegetation includes *H. tamba* and *C. caesius* in high and moderate abundances, respectively. The downstream



section is characterised by a bedrock channel with thin streaks of sediment deposition and a 1 m wide headcut immediately downstream of the road crossing. **W1.6** is a 1 m wide, well-vegetated, grassy erosion gully headcut, originating from stormwater run-off from an existing dirt road and feeding into W1.4. **W1.7** is a dry, rocky ephemeral stream, crossing two existing access roads. It originates approximately 70 m upstream of the first dirt road and runs parallel with the road for approximately 60 m before crossing (Plate 3.15). The upstream section is intersected by two smaller erosion gullies. Between the two road crossings, the stream is characterised by a small (50 cm wide by 30 cm deep) channel, which cuts through an alluvial flood-out area, generated from elevated sediment from the road. The flood-out widens as it approaches the second road crossing. Downstream of the second road crossing, the channel transitions to a wider and shallower (1.5 m x 10-20 cm) mixed alluvial and bedrock stream (Plate 3.16). The stream is primarily vegetated by *R. sekhukunensis*, *E. rigidior* and *H. contortus* along its bed and banks.



Plate 3.14: Poorly-defined ephemeral channel of W1.5



Plate 3.15: Narrow, rocky upstream section of W1.7 running parallel to the road



Plate 3.16: Wider, shallower downstream section of W1.7



W1.8 starts as a steep bedrock ephemeral stream in its upper reaches before transitioning to an alluvial flood-out, with a 50 cm wide by 30 cm deep incised channel, which shallows and widens until it reaches an existing dirt road (Plate 3.17). The flood-out and incised stream continue downstream of the crossing, reaching 50 cm wide by 30 cm deep once again, before losing confinement further downstream (Plate 3.18). The bed of the channel is sparsely vegetated by *H. tamba*, with *C. caesius*, *D. cinerea* and *T. trianda* occurring along its banks. **W1.9** is a weakly topographically-defined drainage line (), comprised of a small erosion gully and downstream depositional area, vegetated by *Paspallum* sp., *S. sphacelata* and *D. cinerea*.



Plate 3.17: Bedrock to alluvial flood-out upstream section of W1.8



Plate 3.18: Unconfined downstream section of W1.8





Plate 3.19: Weakly topographically-defined drainage line of W1.9

W1.10 is a 3 m wide, incised alluvial channel, with a narrow woody riparian zone, dominated by *Mimusops zeyheri* and a moderate abundance of *R. sekhukunensis* (Plate 3.20). This broadens out to a cleared area with material fill before crossing an existing dirt access road via a two-compartment box culvert (Plate 3.20). A narrow erosion gully, vegetated by *H. pauciflorus* and *T. prunioides*, joins the cleared area from the south. Soils are comprised of dark brown loams (0-30 cm), dark brown loamy sands (30-50 cm) and dark brown clays (>50 cm), without mottles throughout. A fill embankment occurs along the road, with an erosion gully forming downstream as a result of run-off from the road. Immediately downstream of the road, the channel is characterised by a dry alluvial bed comprised of a mixture of sand and stones, with 1.5 m high banks (Plate 3.21). Further downstream, the channel is characterised by sand, stony alluvium from the road construction and a narrow flood bench. This section is vegetated by *E. rigidior* along the bed and few woody species along the banks, including *D. cinerea* and *R. komatiensis*.



Plate 3.20: Upstream incised alluvial channel of W1.10, with cleared area, material fill and culvert crossing



Plate 3.21: Downstream dry alluvial bed of W1.10, comprised of a mixture of sand and stones

W1.11 is a mixed alluvial and bedrock ephemeral stream, narrowing and broadening, losing confinement and reforming, with adjoining side channels and gullies, running north-eastwards along the bushveld valley bottom towards and beyond the existing ventilation shaft. The main channel starts



as 1.5-2 m deep incised stream (Plate 3.22), broadening into a concave basin with an alluvial flood-out plain (Plate 3.23), dominated *T. triandra* and *H. contortus*. A mixed alternating alluvial and bedrock side channel with alluvial flood-out and a small (30 cm) incised gully join the main channel after approximately 80 m on its right and left banks, respectively.

The main channel narrows and broadens for another 100 m, with *C. caesius* and *E. rigidior* becoming dominant along its banks. It is then joined at a 90° bend by a small side channel, before briefly losing confinement and transitioning to a large concave basin with alluvial flood-out. The flood-out soils are characterised by dark grey brown loam in the 0-30 cm horizon, becoming a mixed loam with light coarse sand at 30 cm, then a dark brown grey sandy loam in the 30-40 cm horizon and finally a dark brown grey loamy sand in the 40-50 cm horizon, with few small orange mottles occurring from a depth of 10-50 cm. The unit reforms as a broad, shallow, mixed alternating alluvial and bedrock dry channel, vegetated by *T. triandra* and *E. rigidior*. A 1 m headcut occurs along the left edge of the reformed channel, vegetated by *C. caesius*, *E. rigidior* and *T. triandra*. Erosion gullies occur along the left bank of the main channel, originating from cattle tracks. The broadened main channel continues for approximately 60-70 m before starting to narrow and deepen to 1.5 m wide by 1.5 deep.

After approximately 80 m, the macro-channel becomes less confined as it runs through a broad, bedrock dominated landscape (Plate 3.24). Here, channelled streamflow occurs mainly through small cracks and crevices, with occasional season pools and thin streaks of alluvial deposition also occurring in areas (Plate 3.24). The weakly-defined, bedrock macro-channel is lined with dense *C. caesius*, *E. rigidior*, *T. triandra* and *Ziziphus mucronata* along its banks and continues for approximately 70 m before transitioning back to the mixed alluvial and bedrock stream just upstream of the existing ventilation shaft. The ventilation shaft is surrounded by a 3 m wide by 1.5 m deep concrete cut-off drain (Plate 3.25), which feeds elevated stormwater run-off, sand and concrete into the left bank of the main channel of W1.11.

The main channel continues as a narrow, mixed alluvial and bedrock stream with a woody riparian zone and open grassy patches along the footprint of the ventilation shaft for approximately 80-90 m, before widening being joined by a side channel on its left bank. The side channel crosses the existing road to the ventilation shaft via a small culvert, creating a 50 cm deep knick point and downstream erosion and sedimentation (Plate 3.26). The main channel, downstream of the adjoining side channel, is characterised by a mixed alluvial and bedrock stream, with measurable sediment deposition from the ventilation shaft and access road, with instream *S. sphacelata*, marginal *H. tamba* and *E. rigidior* on its banks, and littered with wire waste.



Plate 3.22: Upstream, incised alluvial section of W1.11



Plate 3.23: Upstream, broadened alluvial flood-out of W1.11



Plate 3.24: Bedrock-dominated, weakly-defined macrochannel of W1.11. Channelled streamflow occurring mainly through small cracks and crevices, with occasional season pools.



Plate 3.25: Concrete cut-off drain surrounding existing ventilation shaft and feeding into W1.11.



Plate 3.26: Small culvert, creating a knick point and downstream erosion and sedimentation.

Watercourse unit W2 is a dry ephemeral stream, originating approximately 10 m up-valley of the existing access road to the proposed Downcast Ventilation Shaft and running south-westwards across and between sections of exposed bedrock (Figure 3.26, Plate 3.27). It comprised of small alluvial gullies and vegetated by *Dichrostachys cinerea*, *R. komatiensis* and *Senecio sp.* **Watercourse unit W3** is a dry ephemeral stream, originating approximately 40 m down-valley of the proposed Upcast South Ventilation Shaft and running westwards across and between sections of exposed bedrock (Figure 3.27, Plate 3.28). **Watercourse unit W4** is a braided alluvial stream, characterised by a 1 m wide active channel and a 30 cm layer of alluvial sand (Figure 3.28, Plate 3.29). The banks of the channel are vegetated by *Paspallum sp.* and *C. caesius*, with *Rhoicissus sekhukunensis* occurring within the upstream riparian zone. Two small stormwater gullies enter the channel from the existing dirt road as the result of rill erosion.



Plate 3.27: Upstream view of W2



Plate 3.28: Downstream view of W3 from the proposed Upcast Shaft site.



Plate 3.29: Access road crossing and downstream braided alluvial channel of W4.

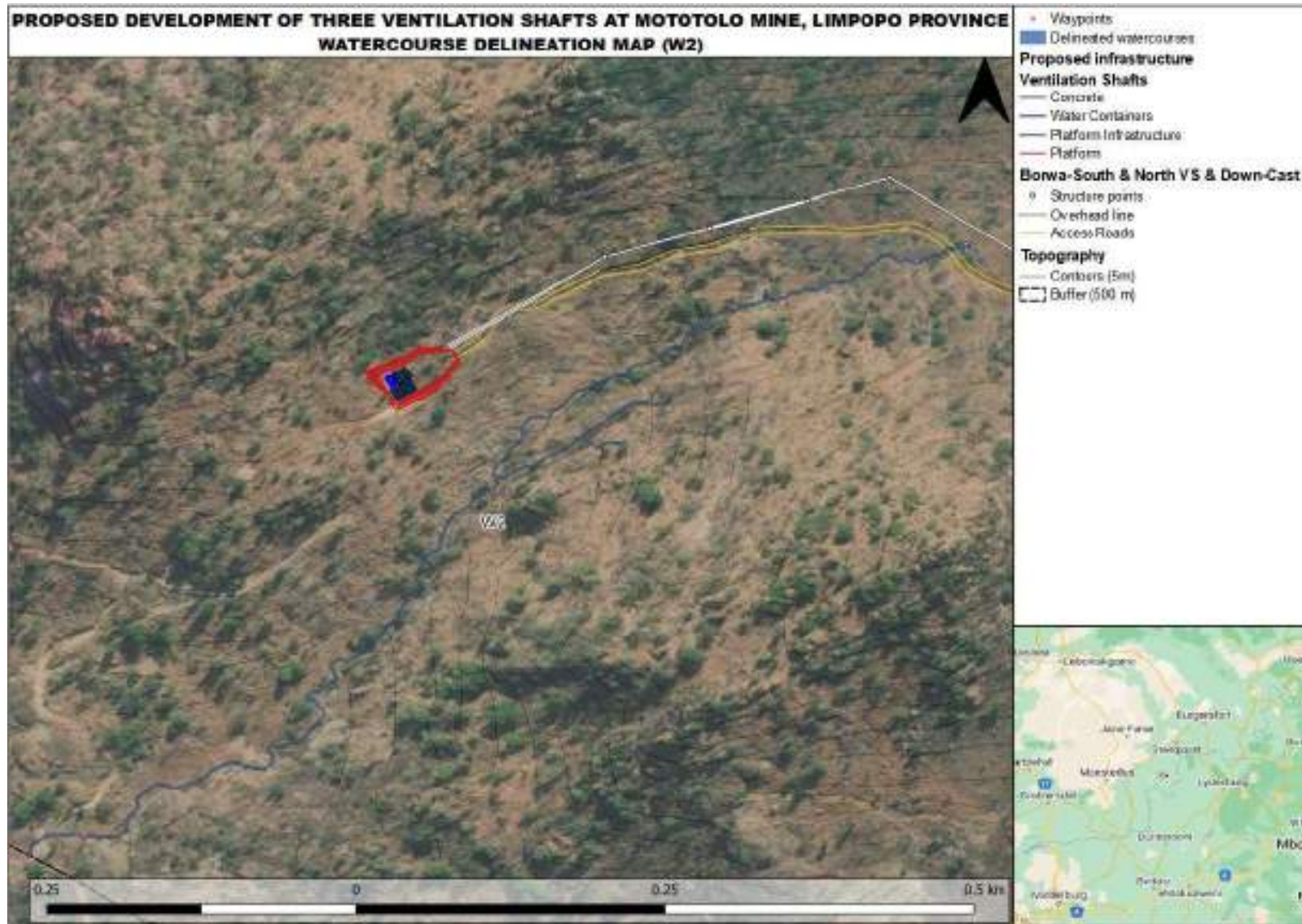


Figure 3.26: Delineation map of W2

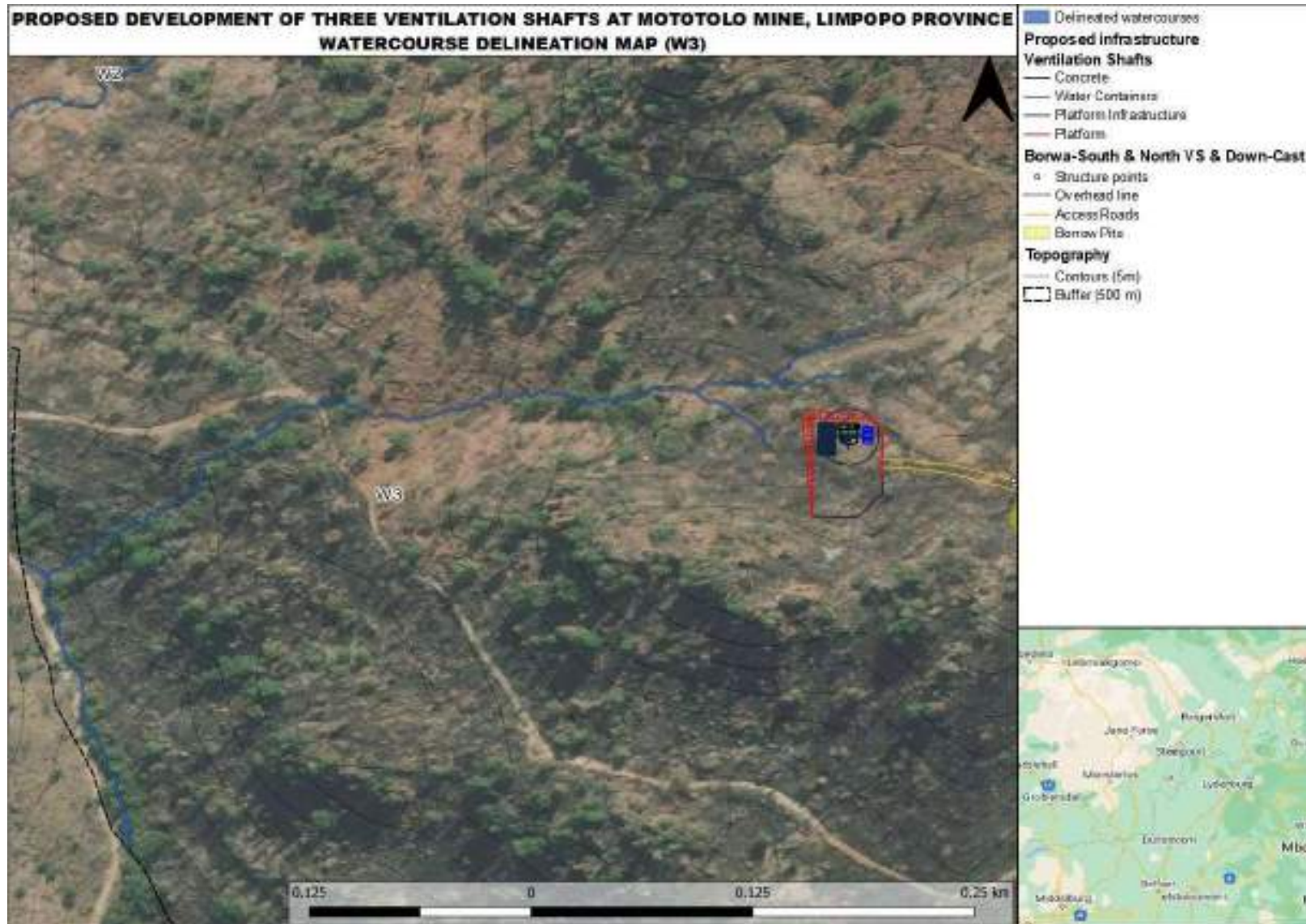


Figure 3.27: Delineation map of W3

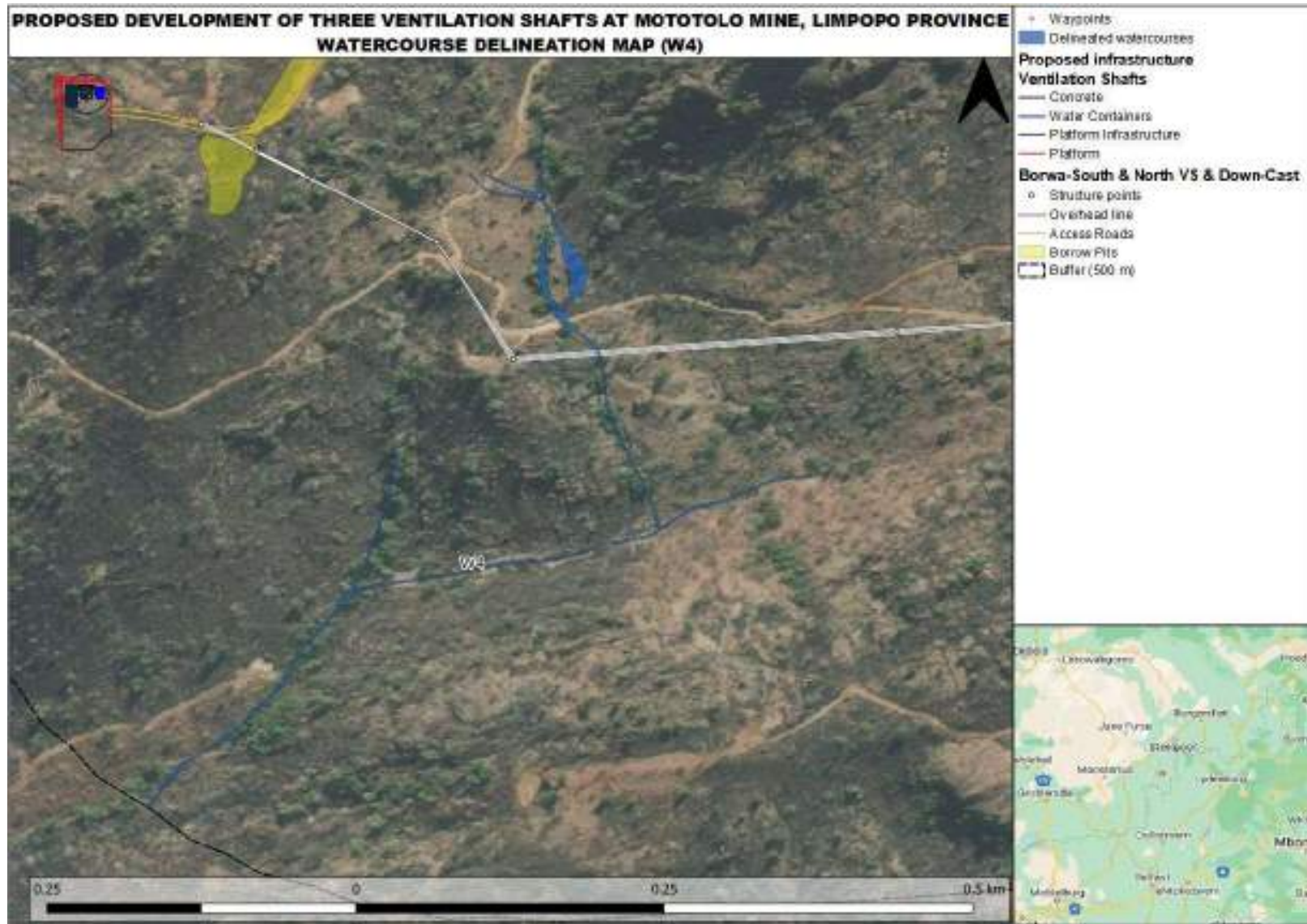


Figure 3.28: Delineation map of W4



HERITAGE AND CULTURAL RESOURCES SITE ASSESSMENT

It has been noted that portions of Malokela and Thorncliffe, and the project area have been altered and transformed as a result of more recent mining and quarrying. During the survey, heritage receptors were noted in the project areas and the following recommendations are made based on general observations in the Borwa Vent Shaft & Bulk Power Supply Project in terms of heritage resources management. The remains of two Historical Period settlement areas consisting out of stone wall enclosures, lower grind stones, middens and material culture such as glass and metal (as Site EXIGO-TC374-HP01 and Site EXIGO-TC374-HP02) are of medium-low significance due to the more recent provenience and poor preservation of the sites. The sites occur within proposed project development areas and it is recommended that the general area be closely monitored in order to avoid the destruction of previously undetected heritage remains – particularly potential burials associated with the settlements. In addition, application should be made for a destruction permit from the relevant heritage authorities should the possible Historical Period site be impacted on, altered or destroyed. The larger Steelpoort area comprises a rich cultural landscape and tangible and intangible heritage aspects associated with local communities are abundant. A site of apparent ritual importance to local communities occurs in the project area (Site EXIGO-TC374-FT01).

The site, which consists of a stone cairn under a tree is potentially of medium heritage significance due to its implied local social and ritual value. It is located within proposed project development areas and it is primarily recommended that a strict heritage conservation buffer of at least 50m be implemented around the feature. Here, the redesign the footprint areas of the ventilation shaft platform, borrow pit, access road and power lines would be necessary to avoid the heritage resource and the proposed conservation buffer. It is advisable that the site be fenced and that access control be applied. Generally, careful monitoring should be conducted by a heritage specialist or an informed Environmental Control Officer (ECO) in order to detect any potential impact on the site at the earliest opportunity. However, should impact on the site prove inevitable a full social consultation process with affected parties / communities regarding significance of site, possible conservation management and protection measures will be required. Application should be made for a destruction permit from heritage authorities and affected parties if/when required. It is essential that cognisance be taken of the larger heritage landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period. As such, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.

(d) ENVIRONMENTAL AND CURRENT LAND USE MAP

(Show all environmental, and current land use features)

Please refer to the Figures in the previous sections.



v) IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACTS

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

Table 3.16 identifies and lists the various anticipated impacts, while Table 3.19 - Table 3.22 provide summaries of the impact ratings. Appendix 5 provides an unabridged impact assessment and details the ratings of these impacts in terms the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be mitigated or reversed.

Table 3.16: Technical scope of the impacts identified during all phases of the proposed activities.

THEME	POTENTIAL ISSUES	SOURCE OF ISSUE	POTENTIAL RECEPTORS	PHASE				ASSESSMENT ACTIONS
				Planning & Design	Construction / Site Establishment	Operational / Mining	Decommissioning / Closure	
Environmental policy	Legal and policy compliance	<ul style="list-style-type: none"> Non-compliance 	<ul style="list-style-type: none"> DMRE Anglo 	X	X	X		General BA
Built environment	Infrastructure	<ul style="list-style-type: none"> Siting and placement Earthworks Accidental leakages Maintenance 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Heritage resources 	X	X	X		General BA
	Material Stockpiling	<ul style="list-style-type: none"> Siting and placement Inadequate management of stockpiles 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 		X			General BA
	Stormwater management	<ul style="list-style-type: none"> Inappropriate infrastructure and design Poor maintenance 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 	X	X	X		General BA



THEME	POTENTIAL ISSUES	SOURCE OF ISSUE	POTENTIAL RECEPTORS	PHASE				ASSESSMENT ACTIONS
				Planning & Design	Construction / Site Establishment	Operational / Mining	Decommissioning / Closure	
	Waste Management	<ul style="list-style-type: none"> Poor planning for storage, handling and disposal of general and hazardous waste Construction rubble General refuse Hazardous waste Cement mixing Spillages 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Surrounding landowners 	X	X			General BA
	Hazardous substances	<ul style="list-style-type: none"> Storage, use and handling of hazardous substances 	<ul style="list-style-type: none"> Aquatic environment Terrestrial environment 		X			General BA
Socio-economic	Job creation	<ul style="list-style-type: none"> Planning and design, and construction activities 	<ul style="list-style-type: none"> Local community General public 	X	X	X		General BA
	Sanitation	<ul style="list-style-type: none"> Adequate ablution facilities at construction site 	<ul style="list-style-type: none"> Staff Labourers 		X	X		
	Health and safety	<ul style="list-style-type: none"> Poor planning Construction activities Obstruction of traffic 	<ul style="list-style-type: none"> Staff Labourers 	X	X	X		
	Air quality and dust control	<ul style="list-style-type: none"> Vegetation clearance Earthworks Construction activities 	<ul style="list-style-type: none"> Surrounding landowners and community Staff and labourers 		X	X		



THEME	POTENTIAL ISSUES	SOURCE OF ISSUE	POTENTIAL RECEPTORS	PHASE				ASSESSMENT ACTIONS
				Planning & Design	Construction / Site Establishment	Operational / Mining	Decommissioning / Closure	
	On-site fire risk	<ul style="list-style-type: none"> Poor planning for emergency response procedures Flammable goods Cooking, smoking and open flame on site 	<ul style="list-style-type: none"> Terrestrial environment Surrounding landowners and general public 	X	X	X		
	Traffic	<ul style="list-style-type: none"> Poor management Construction activities 	<ul style="list-style-type: none"> Surrounding landowners and general public 	X	X	X		
Rehabilitation and decommissioning	Inadequate rehabilitation	<ul style="list-style-type: none"> Inadequate planning and provisioning Lack of maintenance of infrastructure 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Surrounding landowners and general public 	X	X	X	X	General BA
Aquatic Ecology	Direct ecosystem modification or destruction / loss impacts	<ul style="list-style-type: none"> Physical removal of the riparian zones. 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 		X		X	Aquatic Impact Assessment
	Alteration of hydrological and geomorphological processes	<ul style="list-style-type: none"> Changes to hydrological regime such as alteration of surface run-off patterns 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Surrounding landowners 		X	X	X	
	Ecological connectivity and edge disturbance impacts	<ul style="list-style-type: none"> Changes to the hydrological regime Alteration of surface run-off patterns. 	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 		X	X	X	



THEME	POTENTIAL ISSUES	SOURCE OF ISSUE	POTENTIAL RECEPTORS	PHASE				ASSESSMENT ACTIONS
				Planning & Design	Construction / Site Establishment	Operational / Mining	Decommissioning / Closure	
	Water pollution impacts	<ul style="list-style-type: none"> Chemical pollutants and hydrocarbons from equipment and vehicles. Cleaning fluids, cement powder, wet cement, shutter-oil, etc.) 	<ul style="list-style-type: none"> Aquatic environment Surrounding landowners 		X	X	X	
Terrestrial Ecology	Loss of vegetation	<ul style="list-style-type: none"> Loss to ventilation shafts, emulsion shaft, borrow pits, access roads and powerline pylons. Vegetation disturbance and clearance, including construction vehicle traffic, earthworks, excavation and infilling. Poor rehabilitation, management and monitoring. 	<ul style="list-style-type: none"> Abundance, diversity and composition of flora and fauna in development footprint. Ecological connectivity. Plant and animal SCCs. 	X	X		X	Ecological Impact Assessment
	Loss of Plant Species of Conservation Concern	<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	<ul style="list-style-type: none"> Floral diversity. CI, FI, RR and SEI. 	X	X			
	Impact on faunal species of conservation concern	<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 		X		X	



THEME	POTENTIAL ISSUES	SOURCE OF ISSUE	POTENTIAL RECEPTORS	PHASE				ASSESSMENT ACTIONS
				Planning & Design	Construction / Site Establishment	Operational / Mining	Decommissioning / Closure	
		<ul style="list-style-type: none"> Disturbance, fragmentation and loss of habitats. 						
	Reduced Faunal Habitat	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. 	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 		X			
	Disruption of Ecosystem Function and Processes	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. Disturbance, fragmentation and loss of habitats. 	<ul style="list-style-type: none"> Ecological connectivity. Plant and animal SCCs. Floral and faunal diversity. CI, FI, RR and SEI. 	X	X	X	X	
	Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Noise and vibrations of earthworks. Encounters with construction machinery. Disturbance, fragmentation and loss of habitats. 	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 		X		X	



THEME	POTENTIAL ISSUES	SOURCE OF ISSUE	POTENTIAL RECEPTORS	PHASE				ASSESSMENT ACTIONS
				Planning & Design	Construction / Site Establishment	Operational / Mining	Decommissioning / Closure	
	Establishment and/or spread of Alien Plant Species	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Poor rehabilitation, management and monitoring. 	<ul style="list-style-type: none"> Plant and animal SCCs. Floral and faunal diversity. CI, FI, RR and SEI. 	X	X	X	X	
Heritage	Loss of archaeological feature	<ul style="list-style-type: none"> Poor siting and demarcation of activities Indiscriminate excavation 	<ul style="list-style-type: none"> Heritage and cultural landscape 		X	X		Heritage Impact Assessment
	Loss of historically significant building and structures All	<ul style="list-style-type: none"> Poor siting and demarcation of activities Indiscriminate excavation 	<ul style="list-style-type: none"> Heritage and cultural landscape 		X	X		
	Alternation of cultural landscape	<ul style="list-style-type: none"> Poor siting and demarcation of activities Indiscriminate excavation 	<ul style="list-style-type: none"> Heritage and cultural landscape 		X	X		
	Disturbance to graves/human burial sites	<ul style="list-style-type: none"> Poor siting and demarcation of activities Indiscriminate excavation 	<ul style="list-style-type: none"> Heritage and cultural landscape 		X	X		



vi) **METHODOLOGY USED IN DETERMINING AND RANKING THE NATURE, SIGNIFICANCE, CONSEQUENCES, EXTENT, DURATION AND PROBABILITY OF POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS;**

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

(1) AIMS OF ENVIRONMENTAL IMPACT ASSESSMENT

The aim of Basic Assessments and Environmental Impact Assessments is to determine the consequences of proposed developments on the environments to better inform decision-making and the management of natural and social systems. This BA sought to assess the potential environmental impacts of the proposed development of the Ventilation shafts.

(2) IMPACT ASSESSMENT CRITERIA

CES has developed evaluation criteria for assessing impacts in accordance with the requirements outlined in Appendix 2 of the EIA Regulations (2014, as amended). This scale takes into consideration the following variables:

- Nature: negative or positive impact on the environment.
- Type: direct, indirect and/or cumulative effect of impact on the environment.
- Significance: The criteria in Table 3.17 are used to determine the overall significance of an activity. The impact effect (which includes duration; extent; consequence and probability) and the reversibility/mitigation of the impact are then read off the significance matrix in order to determine the overall significance of the issue. The overall significance is either negative or positive and will be classified as low, moderate or high (Table 3.18).
- Consequence: the consequence scale is used in order to objectively evaluate how severe a number of negative impacts might be on the issue under consideration, or how beneficial a number of positive impacts might be on the issue under consideration.
- Extent: the spatial scale defines the physical extent of the impact.
- Duration: the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
- Probability: the likelihood of impacts taking place as a result of project actions arising from the various alternatives. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development and alternatives. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.
- Reversibility: The degree to which an environment can be returned to its original/partially original state.
- Irreplaceable loss: The degree of loss which an impact may cause.
- Mitigation potential: The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in Table 3.17 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.



Table 3.17: Ranking of Evaluation Criteria

Nature	
Positive	Beneficial/positive impact.
Negative	Detrimental/negative impact.
Type	
Direct	Direct interaction of an activity with the environment.
Indirect	Impacts on the environment that are not a direct result of the project or activity.
Cumulative	Impacts which may result from a combination of impacts of this project and similar related projects.
Duration	
Short term	Less than 5 years.
Medium term	Between 5-20 years.
Long term	More than 20 years.
Permanent	Over 40 years or resulting in a permanent and lasting change that will always be there.
Extent	
Localised	Impacts affect a small area of a few hectares in extent. Often only a portion of the project area.
Study area	The proposed site and its immediate environments.
Municipal	Impacts affect the municipality, or any towns within the municipality.
Regional	Impacts affect the wider district municipality or the Eastern Cape Province as a whole.
National	Impacts affect the entire country.
International/Global	Impacts affect other countries or have a global influence.
Consequence	
Slight	Slight impacts or benefits on the affected system(s) or party(ies).
Moderate	Moderate impacts or benefits on the affected system(s) or party(ies).
Severe/ Beneficial	Severe impacts or benefits on the affected system(s) or party(ies).
Probability	
Definite	More than 90% sure of a particular fact. Should have substantial supportive data.
Probable	Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.
Reversibility	
Reversible	The activity will lead to an impact that can be reversed provided appropriate mitigation measures are implemented.
Irreversible	The activity will lead to an impact that is permanent regardless of the implementation of mitigation measures.
Irreplaceable loss	
Resource will not be lost	The resource will not be lost/destroyed provided mitigation measures are implemented.
Resource will be partly lost	The resource will be partially destroyed even though mitigation measures are implemented.
Resource will be lost	The resource will be lost despite the implementation of mitigation measures.
Mitigation potential	
Easily achievable	The impact can be easily, effectively and cost effectively mitigated/reversed.
Achievable	The impact can be effectively mitigated/reversed without much difficulty or cost.



Difficult	The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs.
Very Difficult	The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly.

Table 3.18: Description of significance ratings

SIGNIFICANCE RATING		DESCRIPTION
LOW NEGATIVE	LOW POSITIVE	The impacts on this issue are acceptable and mitigation, whilst desirable, is not essential. The impacts on the issue by themselves are insufficient, even in combination with other low impacts, to prevent the development being approved. Impacts on this particular issue will result in either positive or negative medium to short term effects on the social and/or natural environment.
MODERATE NEGATIVE	MODERATE POSITIVE	The impacts on this issue are important and require mitigation. The impacts on this issue are, by themselves, insufficient to prevent the implementation of the project, but could in conjunction with other issues with moderate impacts, prevent its implementation. Impacts on this particular issue will usually result in either a positive or negative medium to long-term effect on the social and/or natural environment.
HIGH NEGATIVE	HIGH POSITIVE	The impacts on this issue are serious, and if not mitigated, they may prevent the implementation of the project (if it is a negative impact). Impacts on this particular issue would be considered by society as constituting a major and usually a long-term change to the (natural and/or social) environment, and will result in severe effects or if positive, substantial beneficial effects.

(3) ASSESSMENT OF CUMULATIVE IMPACTS

In terms of the NEMA EIA Regulations (2014), a cumulative impact is defined as: “ *The past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities*”.

Project induced cumulative impacts should be considered, along with direct and indirect impacts, in order to better inform the developer’s decision making and project development process. Cumulative impacts may be categorised into one or more of the following types:

- **Additive:** the simple sum of all the effects (e.g. the accumulation of ground water pollution from various developments over time leading to a decrease in the economic potential of the resource);
- **Synergistic:** effects interact to produce a total effect greater than the sum of individual effects. These effects often happen as habitats or resources approach capacity (e.g. the accumulation of water, air and land degradation over time leading to a decrease in the economic potential of an area);
- **Time crowding:** frequent, repetitive impacts on a particular resource at the same time (e.g. multiple boreholes decreasing the value of water resources);



- **Neutralizing:** where effects may counteract each other to reduce the overall effect (e.g. infilling of a wetland for road construction, and creation of new wetlands for water treatment); and,
- **Space crowding:** high spatial density of impacts on an ecosystem (e.g. rapid informal residential settlement)."

Cumulative impacts are, however, difficult to accurately and confidently assess, owing to the high degree of uncertainty, as well as their often being based on assumptions. It is therefore difficult to provide as detailed an assessment of cumulative impacts as is the case for direct and indirect project induced impacts. This is usually because of the absence of specific details and information related to cumulative impacts. In these situations, the EAP will need to ensure that any assumptions made as part of the assessment are made clear. Accordingly, this includes an overview and analysis of cumulative impacts related to a variety of project actions, and does not provide a significance rating for these impacts, as was done for direct project induced impacts. The objective is to identify and focus on potentially significant cumulative impacts so these may be taken into consideration in the decision-making process. It is important to realise these constraints, and to recognise that the assessment will not, and indeed cannot, be perfect. The potential for cumulative impacts will, however, be considered, rather than omitted from the decision making-process and is therefore of value to the project and the environment.

vii) THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY (IN TERMS OF THE INITIAL SITE LAYOUT) AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

The Draft BAR has been released for the mandatory 30-day public review period. As such, refer to Appendix 9 for comments or issues regarding the positive or negative impacts the proposed development may have on environment and/or community, However, no comments on the layout have been received to date following the mandatory 30-day public review period.

The proposed layout of the Anglo Borwa Ventilation Shafts has been designed based on the following environmental considerations (amongst others):

- The proximity of the existing Mine.
- Underlying geology and soils.
- Hydrological features (including the 1:100-year flood line).

The identified potential impacts range from air pollution such as dust, noise pollution, erosion, waste pollution, surface and ground water pollution, visual impacts, impacts on fauna and flora, and socio-economic impacts, amongst others. These impacts, if mitigated correctly, will not be of high significance. All anticipated impacts and the relevant mitigation measures are summarised in Section (j) below and in detail in Appendix 5.



In terms of the positive and negative impacts of the development on the community, the Anglo American Mine is responsible for the employment of over 600 people. The development of the proposed Anglo Borwa Ventilation Shaft will ensure the continued production of the mine until its estimated end-of-life (2032). The continued production of the mine will ensure that the employment opportunities are not lost due to the premature closure of the mine. The mining activities at Mototolo contribute a significant portion of the municipality's GVA and the country's GDP, thereby continuing to the growth of the local and national economy ensuring the sustained livelihoods of those employed and their dependants.

For discussion of Alternatives, please refer to Section (h).

viii) THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

Please refer to Section J below for the recommended mitigation measures associated with each impact identified.

ix) MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED.

No alternative sites/location were considered or assessed in this report as the preferred site is the only land available for use in terms of the approved Mining Right and EMPr. Additionally, the site is in close proximity to the existing Mototolo Mine. An alternative location for the proposed facility would have significant cost implications associated with the transport of the tailings and waste rock. The site also avoids sensitive hydrological features such as the 1:100-year flood line of the Spruit Tributary. On alternatives please also refer to Section (g).

x) STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE.

(Provide a statement motivating the final site layout that is proposed)

The proposed site layout alternatives have been largely influenced by the following:

- Areas of least physical impact, specifically with regards to ecological and heritage impacts.
- Available areas for infrastructure related to topography and proximity to existing infrastructure (e.g. roads and existing & proposed powerlines).

For more information refer to Section 8 above.



(i) FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE (IN RESPECT OF THE FINAL SITE LAYOUT PLAN) THROUGH THE LIFE OF THE ACTIVITY.

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

Refer to Section vi) for the Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks. Section (j) below for the summary of impacts and Appendix 5 for the unabridged impact assessment. All impacts were identified by a combination of the following:

- Desktop analysis.
- Consultation process with landowners and I&APs and previous experience.
- A comprehensive site visit.
- Specialist input

Please refer to Section (j) below for the recommended mitigation measures associated with each impact identified.



(j) ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

(1) PLANNING PHASE

Table 3.19: Summary of impacts associated with the proposed Ventilation shafts during the planning and design phase

POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
ENVIRONMENTAL POLICY					
Legal and policy compliance	All Alternatives	During the planning and design phase, failure to adhere to existing policies and legal obligations and obtain the necessary authorisations could lead to the project conflicting with local, provincial and national policies, legislation, etc. This could result in lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.	HIGH -	<ul style="list-style-type: none"> All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. These should include (but are not restricted to): NEMA and Local Municipal bylaws. All relevant permits and authorisations including Water Use Licences or General Authorisations, Building Plan Approvals and plant removal permits must be in place prior to commencement of construction. 	LOW -
BUILT ENVIRONMENT					
Infrastructure	All Alternatives	During the planning and design phase, planning and placement of structures and associated infrastructure in sensitive areas could lead to the damage and degradation of natural areas as well as to the structures themselves.	MODERATE -	<ul style="list-style-type: none"> Planning for and placement of infrastructure must be done so as to avoid sensitive areas as far as possible. 	LOW -
Stormwater management	All Alternatives	During the planning and design phase, inadequate planning for stormwater during the construction and operational phases within the site could result in erosion and contamination of the soil and surrounding watercourses if there are not appropriate stormwater management structures in place.	MODERATE -	<ul style="list-style-type: none"> A method statement must be developed by the project manager or contractor prior to construction, including considerations for stormwater, erosion, waste and alien vegetation management, as well as site rehabilitation and maintenance considerations. This method statement must be approved by the appointed ECO. This method statement should include stormwater management considerations to control runoff prevent erosion of the site and its surroundings, and mitigate the unnecessary loss of soil and sedimentation of watercourses during all phases of the project. Regular monitoring of implementation of this method statement for the rehabilitation of disturbed areas must be conducted. Appropriate stormwater structures, in alignment with the 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
				method statement, must be designed to minimise erosion of the surrounding environment to the extent required	
Waste management	All Alternatives	During the planning and design phase, failure to plan for the storage, handling and disposal of general and hazardous waste during the construction and operation phase may lead to littering and pollution of the surrounding environment, unsanitary conditions and health risks.	MODERATE -	<ul style="list-style-type: none"> A method statement must be developed by the project manager or contractor prior to construction, including considerations for stormwater, erosion, waste and alien vegetation management, as well as site rehabilitation and maintenance considerations. This method statement must be approved by the appointed ECO. This method statement should include waste management considerations for handling onsite general and hazardous waste during the construction and operation phases must be developed and implemented during construction. An appropriate area must be identified where waste can be stored before disposal. All hazardous substances such as paints, diesel and cement must be stored in a secure bunded area with an impermeable surface beneath them. 	LOW -
SOCIO-ECONOMIC					
Job creation	All Alternatives	During the planning and design phase, there will be some temporary job opportunities associated with planning and design of the proposed Ventilation Shafts.	LOW +	N/A	LOW +
Health and safety	All Alternatives	During the planning and design phase, failure to plan for potential health and safety risks during the construction and operation phase may result in the harm of labourers, staff, surrounding landowners and the public.	MODERATE -	A health and safety plan in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) must be drawn up by and HSE officer prior to construction to ensure workers safety.	LOW -
On-site fire risk	All Alternatives	During the planning and design phase, failure to plan for accidental fires during the construction and operation phase could result in potential harm to the public and/or surrounding landowners and their property.	MODERATE -	<ul style="list-style-type: none"> Emergency preparedness must be in place for both the construction and operational phases and before these phases commence. This should form part of the method statement. Anglo American Platinum must plan for and put measures in place to prevent and deal with fires including the provision of firefighting equipment. 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Traffic	All Alternatives	During the planning and design phase, inadequate planning for the transportation of mast materials and specialist construction equipment to the site could cause traffic congestion.	MODERATE -	<ul style="list-style-type: none"> • Consultation with the local Road Traffic Unit should be done early in the planning phase and if deemed necessary, road traffic permits should be obtained for transporting parts, containers, materials and construction equipment to the site to the extent required. • Make provision for traffic accommodation where construction activities impact on existing roads. 	LOW -
REHABILITATION AND MAINTENANCE					
Inadequate rehabilitation and maintenance	All Alternatives	During the planning and design phase, inadequate planning for rehabilitation and maintenance of infrastructure could lead to degradation of the study area and surrounding areas.	MODERATE -	<ul style="list-style-type: none"> • A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -
TERRESTRIAL BIODIVERSITY					
<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 5.93 ha of SMB vegetation and faunal habitat during the construction phase.</p> <p>The consequence and significance of this impact depends on the pre-construction SEI of the vegetation and habitat.</p>	Preferred Alternative	<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.60 ha of high SEI vegetation (natural and near-natural SMB) during the construction phase.</p> <p>Given the high SEI of the vegetation, the relatively large extent of clearance and generally well-developed vegetation cover within this type, the consequence and overall significance of impact will be severe and high, respectively.</p>	HIGH -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> • The proposed layout of ventilation and emulsion borehole precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Please refer to offset mitigation below. • The siting and layout of supporting infrastructure (e.g. access roads and powerlines) must follow existing disturbed corridors (i.e. existing access roads and servitudes) as far as possible to avoid further impact. Please also refer to minimization and rehabilitation mitigation below. • It is recommended that the location of borrow pit 02 be moved to a semi-natural or already-degraded area. This will prevent the loss of 2 138 m2 of natural to near-natural SMB vegetation and habitat. If this is not feasible, the below measures must be implemented to minimize impacts and rehabilitate the area. <p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> • During the planning and design phase, the development footprint must be designed to minimize the loss of natural to semi-natural indigenous vegetation as far as possible. 	HIGH -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 1.02 ha of medium SEI vegetation (semi-natural).</p> <p>Given the medium SEI and localised extent of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively.</p>	LOW -	<ul style="list-style-type: none"> The development footprint must be clearly demarcated by a qualified ECO prior to the commencement of construction. Only vegetation within the approved footprint may be removed. Vegetation outside of these areas may not be cleared. Footprint creep must not occur. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. <p>Offset impact:</p> <ul style="list-style-type: none"> A biodiversity offset plan must be compiled by an ecologist with experience in undertaking and facilitating offsets in consultation with key stakeholders. The objective of the offset must be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss. 	LOW -
Non-compliance with permitting requirements	Preferred Alternative	<p>During the planning and design phase, the inadequate planning for search and rescue operations and permitting for the removal of any SCC may result in non-compliances being issued and the unintended loss of SCC.</p> <p>The following SCCs have a high likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> <i>Combretum petrophilum</i> (rare), <i>Searsia sekhukhuniensis</i> (rare), <i>Polygala sekhukhuniensis</i> (VU), <i>Sensitive Species A</i> (VU), and <i>Sensitive Species B</i> (rare). 	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> Planning for any search and rescue operations must be conducted prior to the commencement of construction activities. All necessary permits must be obtained for the removal of any identified SCC prior to the commencement of construction activities. 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disruption of Ecosystem Function and Processes	Preferred Alternative	The planned layout and siting of construction activities and infrastructure will result in the disruption of ecosystem functions and processes, including the loss of ecological connectivity and edge disturbance impacts.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> During the planning and design phase, the development footprint must be designed to minimize edge disturbance impacts. Remediate/rehabilitate impact: <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the planning and design phase, the failure to plan for the removal and management of alien vegetation could result in the invasion of alien vegetation in sensitive areas during the construction and operational phases.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> An Alien Vegetation Management Plan must be developed by the Contractor prior to construction to mitigate the establishment and spread of undesirable alien plant species during all phases of the project. The Alien Vegetation Management Plan must be approved by the appointed ECO prior to implementation. Remediate/rehabilitate impact: <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -



(2) CONSTRUCTION PHASE

Table 3.20: Summary of impacts associated with the proposed Ventilation shafts during the construction phase.

POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
ENVIRONMENTAL POLICY					
Legal and policy compliance	All Alternatives	During the construction phase, failure to adhere to existing policies and legal obligations and obtain the necessary authorisations could lead to the project conflicting with local, provincial and national policies, legislation, etc. This could result in lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.	HIGH -	<ul style="list-style-type: none"> All construction related conditions in the Environmental Authorisation, EMPr and other permits must be adhered to. Anglo American Platinum must employ an independent Environmental Control Officer (ECO) for the construction phase to ensure that construction is implemented according to specifications in the EA and EMPr. Copies of all applicable licenses, permits and managements plans (EA, EMPr, etc.) must be available on-site at all times. Environmental Awareness Training must be included in site meetings/talks with all workers. 	LOW -
BUILT ENVIRONMENT					
Infrastructure	All Alternatives	During the construction phase, the disturbance/clearing of vegetation and construction activities within or within close proximity to sensitive areas may result in degradation of the surrounding environment.	MODERATE -	<ul style="list-style-type: none"> Vegetation clearance must be limited to the area within the footprint of the designated area. Vegetation disturbance outside of the development footprint should be minimized. 	LOW -
Material stockpiling	All Alternatives	During the construction phase, inappropriate location and management of material stockpiles may result in erosion.	MODERATE -	<ul style="list-style-type: none"> Material stockpiles must be located away from sensitive areas and they must be monitored for erosion and alien vegetation. Material stockpile locations must be approved by the ECO. 	LOW -
Stormwater management	All Alternatives	During the construction phase, failure to implement effective stormwater management measures may result in increased surface soil erosion and contamination of stormwater and resulting surrounding watercourses.	MODERATE -	<ul style="list-style-type: none"> The construction site must be managed in a manner that prevents pollution to downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants. Berms and swaths must be placed in areas that may be prone to erosion. Temporary cut-off drains and berms may be required to capture storm water and promote infiltration. 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Waste management	All Alternatives	During the construction phase, poor management of handling, disposal and storage of general and hazardous waste may lead to the pollution of the surrounding environment.	MODERATE -	<ul style="list-style-type: none"> All general waste must be disposed of in bins/waste skips labelled "general waste". Sufficient waste bins must be provided throughout the construction site for collecting waste. All general waste collected on site must be disposed of at a licensed general waste disposal site. All hazardous waste generated on site must be placed in a temporary impermeable banded containment area which must be disposed of at a hazardous landfill site or be collected by the appropriate service provider. Proof of receipt of hazardous waste by a licenced service provider must be maintained on the site. Adequate sanitary facilities must be provided for construction workers and they must be properly secured to the ground. Maintenance of the chemical toilets should be done on a regular basis to prevent any leakages. 	LOW -
		During the construction phase, the mixing of cement on site could result in ground water contamination from compounds in the cement. In addition, a large number of cement mixing stations on site could increase the presence of impermeable areas which in turn could increase rates of run-off and thereby increase the risk of localized flooding, soil erosion, silting, gully formation, etc.	MODERATE -	<ul style="list-style-type: none"> Concrete and cement must take place on an impermeable surface, and dried waste concrete and cement must be disposed of with building rubble. No concrete mixing must take place within 32 m of any watercourse. 	LOW -
SOCIO-ECONOMIC					
Job creation	All Alternatives	During the construction phase, there will be some temporary job opportunities associated with building of the proposed Ventilation Shafts.	LOW +	<ul style="list-style-type: none"> N/A 	LOW +
Health and safety	All Alternatives	During the construction phase, failure to comply with health and safety policies and protocols may result in the harm of labourers, staff, surrounding landowners and the public.	MODERATE -	<ul style="list-style-type: none"> A health and safety plan in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) must be adhered to and enforced by a HSE officer to ensure workers safety. 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Air quality and dust control	All Alternatives	During the construction phase, dust generated by construction vehicles and construction activities could result in significant dust during windy conditions.	MODERATE -	<ul style="list-style-type: none"> During windy periods un-surfaced and un-vegetated areas must be dampened down. Vegetation must be retained where possible as this will reduce dust travel. Any complaints or claims emanating from dust issues must be attended to immediately and noted in the complaints register. Vehicles and construction plant must be serviced regularly so as to reduce excessive vehicle emissions. 	LOW -
	All Alternatives	During the construction phase poor maintenance and servicing of construction plant and vehicles may result in an increase in vehicle emissions in the areas.	MODERATE -		LOW -
On-site fire risk	All Alternatives	During the construction phase inadequate attention to fire safety awareness and fire safety equipment could result in uncontrolled fires, posing a threat to animals, vegetation and the surrounding landowners.	MODERATE -	<p>In order to reduce the risk of fires:</p> <ul style="list-style-type: none"> All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. Smoking must not be permitted near flammable substances. All cooking must be done in demarcated areas that are safe in terms of runaway or uncontrolled fires. No open fires must be allowed on site. Fire extinguishers must be available onsite. 	LOW -
REHABILITATION AND MAINTENANCE					
Inadequate rehabilitation and maintenance	All Alternatives	During the construction phase inadequate provision and implementation of rehabilitation measures may lead to the degradation of the surrounding environment.	MODERATE -	The rehabilitation plan must be implemented during and after the construction has been completed.	LOW -
TERRESTRIAL BIODIVERSITY AND ECOLOGY IMPACTS					
Loss of 5.93 ha of SMB vegetation for the construction / establishment of the ventilation shafts, emulsion borehole, borrow pits, pylons and access roads.	Preferred Alternative	<p>Loss of approximately 2.60 ha of high SEI vegetation (natural and near-natural SMB).</p> <p>Given the high SEI of the vegetation, the relatively large extent of clearance and generally well-developed vegetation cover within this type, the consequence and overall significance of impact will be severe and high, respectively.</p>	HIGH -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> Construction activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint. 	HIGH -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
The consequence and significance of this impact depends on the pre-construction SEI of the vegetation.		Loss of approximately 1.02 ha of medium SEI vegetation (semi-natural). Given the medium SEI and localised extent of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively.	LOW -	<ul style="list-style-type: none"> Construction vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint. Lay down areas must not be located within any watercourses or drainage lines. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Topsoil (20 cm, where possible) must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas). Only indigenous species must be used for rehabilitation. The alien invasive management plan for the site must be implemented. Offset impact: <ul style="list-style-type: none"> A biodiversity offset must be implemented in during the construction phase and continued during the operational phase in accordance with the approved offset plan to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss. The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO. The ECO must monitor for potential additional plant SCCs not found during search and rescue activities. Plant SCCs must not be removed from the development footprint unless the relevant permits have been obtained. 	LOW -
		Loss of approximately 2.13 ha of low SEI vegetation (degraded). Despite a relatively large area of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively, given the low SEI.	LOW -		LOW
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with the vegetation continuing to degrade.	LOW -		N/A



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Loss of Plant Species of Conservation Concern	Preferred Alternative	<p>The permanent loss of plant SCCs may occur. The following SCCs have a high likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> • <i>Combretum petrophilum</i> (rare), • <i>Searsia sekhukhuniensis</i> (rare), • <i>Polygala sekhukhuniensis</i> (VU), • <i>Sensitive Species A</i> (VU), and • <i>Sensitive Species B</i> (rare). <p>It is possible that these species may be lost should the development proceed.</p>	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> • A botanical walkthrough of the development area, by an experienced botanist with knowledge of the SCC identified as possibly occurring within the site, must be undertaken during the flowering season. • All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating SCC identified. • If restricted range SCC populations are found, the development must be moved to avoid these populations. • The ECO must monitor for potential additional plant SCCs not found during search and rescue activities. • Plant SCCs must not be removed from the development footprint unless the relevant permits have been obtained. 	LOW -
		<p>If populations of SCC with restricted ranges are present within the site and are impacted by the placement of infrastructure, the cumulative impact will be moderate as some SCC have already been lost as a consequence of historical and current land uses in the region. This impact can be reduced if a thorough botanical walkthrough of the site is undertaken during the optimum flowering season.</p>	MODERATE -		LOW -
	No-go alternative	<p>Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with the vegetation continuing to degrade.</p>	LOW -		N/A



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Impact on faunal species of conservation concern	Preferred Alternative	<p>The loss of animal species of conservation concern may occur during the construction phase. The following SCCs have a moderate likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> • <i>Chrysospalax villosus</i> ((Rough-haired Golden Mole), • <i>Cloeotis percivali</i> (Percival's Short-eared Trident Bat, • <i>Crocidura maquassiensis</i> (Makwassie musk shrew), • <i>Dasymys robertsii</i> (Robert's Shaggy Rat, VU), • <i>Felis nigripes</i> (Black-footed Cat, VU), • <i>Panthera pardus pardus</i> (Leopard, VU), and • <i>Rhinolophus cohenae</i> (Cohen's Horseshoe Bat, VU). <p>It is possible that these species may be lost should the development proceed.</p>	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> • All clearing activities must deploy search and rescue teams in front of clearing machinery to assist in relocating slower moving faunal species e.g. tortoises. • This team should focus on checking termite mounds, burrows and dens in particular for small mammals, such as the Black-footed Cat, moles and rats. • Sensitive species C – Intact habitat patches where these species are known to occur should be buffered (30 m minimum, 100 m recommended) from disturbance taking into account connectivity to other similar habitat, or at least habitats that these species will utilise for migration and dispersal purposes. 	LOW -
		<p>If populations of SCC with restricted ranges are present within the site and are impacted by the placement of infrastructure, the cumulative impact will be moderate as some SCC have already been lost as a consequence of historical and current land uses in the region.</p>	MODERATE -		LOW -
	No-go alternative	<p>Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.</p>	LOW -		N/A



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Reduced Faunal Habitat	Preferred Alternative	During the construction phase, the construction related activities will result in the loss and/or degradation of natural habitats for fauna.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The contractor must ensure that vegetation clearance of near-natural, semi-natural and wetland vegetation is restricted to the approved development footprint only. Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible. Clearing of trees should take place in winter months, to prevent birds and bats establishing nesting grounds and starting to breed and rear young in the spring and summer months. Employees must be prohibited from making open fires during the construction phase. The ECO must monitor that all construction activities are conducted within the development footprint. Remediate/rehabilitate impact: <ul style="list-style-type: none"> All impacted areas must be rehabilitated as per the Rehabilitation Plan, as soon as construction has been completed within each area. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	LOW -		LOW -
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	LOW -		N/A



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disruption of Ecosystem Function and Process	Preferred Alternative	<p>Construction activities will result in the disruption of ecosystem functions and processes, including the loss of ecological connectivity and edge disturbance impacts.</p> <p>Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. It also impacts on fauna as it separates habitats and necessitates fauna having to move across exposed areas like roads to get to another section of their habitat or territory. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors.</p> <p>Given the small footprint of individual powerline pylons and the degraded nature of the proposed substation site, a low significance impact on ecosystem functions and processes is anticipated.</p>	LOW -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> The contractor must ensure that vegetation clearance of natural, near-natural and semi-natural vegetation is restricted to the approved development footprint only. Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible. Employees must be prohibited from making open fires during the construction phase. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be implemented during construction and operation phases. All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	LOW -
		<p>Given the relatively high degree of fragmentation across the project area as the result of historical and current land uses, the cumulative impact of the proposed pylons will carry a moderate significance.</p>	MODERATE -		LOW -
	No-go alternative	<p>Under the no go alternative, habitat fragmentation has already occurred and will continue to do so.</p>	MODERATE -		N/A



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	Preferred Alternative	Faunal species will be disturbed during construction due to noise and vibrations of construction machinery. Faunal species that vacate the immediate area may return following completion of construction or new individuals or species may inhabit the area. Construction machinery may cause unintentional mortalities of faunal species.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Vehicles and machinery must meet best practice standards in terms of noise and vibration. Staff and contractors' vehicles must comply with speed limits of 40 km/hr Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete. ECO must walk ahead of clearing construction machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat. Any faunal species that may die as a result of construction must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI. Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist. Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite. 	LOW -
		Even with the mitigations applied, the construction will still have an impact on faunal species.			
	Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	LOW -	LOW -		
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	LOW -		N/A



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the construction phase, the removal of natural vegetation creates open habitats that favour the establishment of undesirable alien plant species. The infestation of alien plant species will result in the displacement of indigenous vegetation and possible local extinctions of species. This pre-mitigation impact is of moderate significance but can easily be managed through the implementation of an alien invasive management plan.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The Contractor must implement the Alien Vegetation Management Plan. The ECO must monitor for the adequate implementation of this plan. The ECO must monitor the site for the presence of alien invasive plant species and take immediate action when these are recorded. It is recommended that the ECO prepare a photo guide of all invasive plant species likely to occur on site. This will aid in the identification of undesirable species. Remediate/rehabilitate impact: <ul style="list-style-type: none"> All previously infested areas must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as construction has been completed within each area. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the construction of the proposed substation and associated powerlines. This will be of moderate significance.	MODERATE -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	LOW -		N/A
HERITAGE IMPACTS					
Loss of archaeological feature	All Alternatives	The study did not identify any archaeological receptors which will be directly impacted by the proposed project and no impact on archaeological sites or features is anticipated.	LOW -	No mitigation Required	LOW -
Loss of historically significant building and structures	All Alternatives	The study identified no buildings or structures of historical or heritage significance. For the rest of the project area, the general landscape holds varied significance in terms of the built environment as the area comprises historical farming remnants and relatively newly established industrial zones, settlements and townlands. However, no impact on built environment sites is anticipated.	LOW -	No Mitigation Required	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Alternation of cultural landscape	All Alternatives	Generally, the proposed project area and its surrounds are characterized by open fields and farmlands. Further away from the project area, the landscape is typical of the rural north Gauteng with undulating hills with flatter plains in-between. This landscape stretches over many kilometers and the proposed project is unlikely to result in a significant impact on the landscape.	LOW -	No Mitigation Required	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disturbance to graves/human burial sites	All Alternatives	<p>No graves of human burial places were noted during the site investigation the project footprint. In the rural areas of the Gauteng Province graves and cemeteries sometimes occur within settlements or around homesteads but they are also randomly scattered around archaeological and historical settlements. The probability of additional and informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface.</p> <p>Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.</p>	LOW -	No Mitigation Required	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
RIVER AND WETLAND IMPACT					
Direct ecosystem modification or destruction / loss impacts	Preferred	Direct disturbance and removal of riparian soil and vegetation during the construction of the overhead lines and access roads. The access roads will impact the watercourses most directly as there are a number of stream crossings.	MODERATE -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - Construction materials must not be stored within the moderate sensitivity areas. - Stockpiles must not be stored within the moderate sensitivity areas. - Optimally, a buffer of 50 m should be maintained between the riparian edge and the edge of the ventilation shafts, emulsion shaft and borrow pits. Should this not be feasible, a minimum buffer of 30 m should be maintained. - The following best practice powerline crossing alignment measures must be implemented: <ul style="list-style-type: none"> o The number of stream / river crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, a minimum buffer of 30 m should be maintained between the riparian edge and the edge of the road as far as practically possible. 	LOW -
Alteration of hydrological and geo-morphological processes	Preferred Alternative	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation shafts, emulsion shaft, borrow pits and at access / service road crossings due to catchment land cover and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	MODERATE -	<p>Minimize/reduce:</p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Appropriate stormwater structures must be implemented during construction to control run-off and minimize erosion. 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings during construction. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.	LOW -	<ul style="list-style-type: none"> - Vegetation clearing must be kept a minimum and only to the site footprint. - Erosion controls and sediment trapping measures must be put in place. - Stockpiles must be monitored for erosion and mobilisation of materials towards watercourses. - Stockpiles must not exceed 1.5m in height. Stockpiles must be covered during windy periods. - Best practice powerline crossing alignment measures must be implemented. Where wetland and stream / river crossings are required, every effort should be made to minimize the impacts by considering the following: <ul style="list-style-type: none"> o Crossing points should be aligned along areas or corridors of existing disturbance e.g. along existing road crossings. o The length of wetlands and rivers / streams crossed at each crossing must be minimised by adjusting alignments to coincide with narrower sections and ensuring that crossings cross perpendicular to flow. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. • All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	VERY LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Ecological connectivity and edge disturbance impacts	Preferred Alternative	Temporary reduction of ecological connectivity between sections of watercourse units during construction, associated with the use of existing crossings and/or establishment and use of temporary crossings.	LOW -	<p><u>Avoid/prevent:</u></p> <ul style="list-style-type: none"> - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, <u>a minimum buffer of 30 m should be maintained</u> between the riparian edge and the edge of the road as far as practically possible. <p><u>Minimize/reduce:</u></p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Vegetation clearing must be kept a minimum and only to the site footprint. <p><u>Remediate/rehabilitate:</u></p> <ul style="list-style-type: none"> • All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	VERY LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Water pollution impacts	Preferred Alternative	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during construction e.g. oil and diesel leaks and spills.	LOW -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - No concrete mixing must take place within 32 m of any watercourse. - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> • Emergency plans must be in place in case of spillages onto bare soil or within water courses. 	VERY LOW -



(3) OPERATIONAL PHASE

Table 3.21: Summary of impacts associated with the proposed Ventilation shafts during the operational phase.

POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
ENVIRONMENTAL POLICY					
Legal and policy compliance	All Alternatives	During the operation phase, failure to adhere to all permits, authorisations and regulations may lead to financial penalties and closure of the proposed Anglo Borwa Ventilation Shafts.	HIGH -	<ul style="list-style-type: none"> The proponent must ensure that operations of the Anglo Borwa Ventilation Shafts is compliant with the relevant legislation and policy. These should include (but are not restricted to): NEMA, EA, EMPr and any other permits/authorisations. 	LOW -
BUILT ENVIRONMENT					
Infrastructure	All Alternatives	During the operation phase, the Anglo Borwa Ventilation Shafts will provide air in an efficient and sustainable manner, including its generation, transmission and distribution and retail.	MODERATE +	<ul style="list-style-type: none"> Regular maintenance and inspections of all infrastructure and services must be undertaken. 	MODERATE +
Stormwater management	All Alternatives	During the operation phase, failure of the stormwater system and or lack of maintenance of the stormwater system may result in the erosion and or pollution of the surrounding environment should the stormwater be contaminated.	MODERATE -	<ul style="list-style-type: none"> Stormwater management measures such as attenuation structures, channels, etc. must be properly maintained and monitored. If the stormwater management measures put in place are deemed insufficient, a qualified engineer must be approached to assist with additional storm water attenuation mechanisms and remediation. 	LOW -
SOCIO-ECONOMIC					
Job creation	All Alternatives	During the construction phase, there will be some temporary job opportunities associated with building of the proposed Anglo Borwa Ventilation Shafts and associated infrastructure.	LOW +	<ul style="list-style-type: none"> N/A 	LOW +
Health and safety	All Alternatives	During the construction phase, failure to comply with health and safety policies and protocols may result in the harm of labourers, staff, surrounding landowners and the public.	MODERATE -	<ul style="list-style-type: none"> A health and safety plan in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) must be adhered to and enforced by a HSE officer to ensure workers safety. 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Air quality and dust control	All Alternatives	During the construction phase, dust generated by construction vehicles and construction activities could result in significant dust during windy conditions.	MODERATE -	<ul style="list-style-type: none"> During windy periods un-surfaced and un-vegetated areas must be dampened down. Vegetation must be retained where possible as this will reduce dust travel. Any complaints or claims emanating from dust issues must be attended to immediately and noted in the complaints register. Vehicles and construction plant must be serviced regularly so as to reduce excessive vehicle emissions. 	LOW -
	All Alternatives	During the construction phase poor maintenance and servicing of construction plant and vehicles may result in an increase in vehicle emissions in the areas.	MODERATE -		LOW -
On-site fire risk	All Alternatives	During the construction phase inadequate attention to fire safety awareness and fire safety equipment could result in uncontrolled fires, posing a threat to animals, vegetation and the surrounding landowners.	MODERATE -	<p>In order to reduce the risk of fires:</p> <ul style="list-style-type: none"> All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. Smoking must not be permitted near flammable substances. All cooking must be done in demarcated areas that are safe in terms of runaway or uncontrolled fires. No open fires must be allowed on site. Fire extinguishers must be available onsite. 	LOW -
REHABILITATION AND MAINTENANCE					
Inadequate rehabilitation and maintenance	All Alternatives	During the operation phase inadequate rehabilitation of disturbed areas and lack of maintenance of infrastructure may lead to the degradation of the surrounding environment.	MODERATE -	Disturbed areas will be rehabilitated/prepared to allow natural re-vegetation.	LOW -
TERRESTRIAL BIODIVERSITY AND ECOLOGY IMPACTS					
Disruption of Ecosystem Function and Processes	Preferred Alternative	Operational activities, such as routine maintenance, may result in the disruption of ecosystem functions and processes, including the disturbance of vegetation and faunal habitats, as well as edge disturbance impacts.	MODERATE -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> Monitoring and maintenance vehicles must not be permitted outside of the development footprint, as much as practically possible. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> The rehabilitation plan must be implemented during operation phases. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses occurring on site. The additional loss of habitats will have a low cumulative impact.	LOW -		LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	LOW -		N/A
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the operation phase, the failure to manage alien vegetation could result in the widespread invasion of alien vegetation.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The Alien Vegetation Management Plan must continue to be implemented. The site must be monitored on a regular basis to ensure that no alien vegetation establishes on site. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Any alien vegetation found during monitoring must be removed as per the Alien Vegetation Management Plan and the area must be appropriately rehabilitated in alignment with the Rehabilitation Plan. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the operation of the proposed infrastructure. This will be of low significance.	LOW -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	LOW -		N/A
RIVER AND WETLAND IMPACT					
Alteration of hydrological and geomorphological processes	Preferred Alternative	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation and emulsion shaft and borrow pits and at access / service road crossings due to stormwater management and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	MODERATE -	Minimize/reduce: <ul style="list-style-type: none"> All surface runoff / stormwater must be discharged back into the freshwater systems in a manner that does not increase the rates of erosion and sedimentation within the receiving systems. Stormwater infrastructure must be maintained and monitored for effectiveness with respect to controlling and minimising erosion and sedimentation of watercourses. The following best practice stormwater management measures must be adhered to: 	LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.	MODERATE -	<ul style="list-style-type: none"> o All ventilation shafts and the emulsion shaft must be protected from the ingress and interception of surface runoff and subsurface interflow through the establishment of adequate berms and subsoil drains. o The ventilation shaft and emulsion shaft walls should be sealed to minimise interflow and groundwater interception. o Stormwater generated by the upgraded and new roads should be discharged at regular intervals and many small outlets should be favoured over few large. o Stormwater outlets must not be established within wetlands or riparian zones. o As far as practically possible, stormwater conveyance should be via open drains rather than pipes and conveyance from the road drains to the outlets should via open drains with vegetated or rough surfaces that are armoured with erosion protection. o All outlets must be designed to dissipate the energy of outgoing flows to levels that present a low erosion risk. In this regard, suitably designed energy dissipation (e.g. stilling basins) and erosion protection structures (Reno-mattresses) will need to be installed at appropriate locations. o All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground-level. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> • The site must be monitored for erosion and should be rehabilitated where applicable. 	LOW -
Ecological connectivity and edge disturbance impacts	Preferred Alternative	Inadequate rehabilitation of disturbed areas may lead to the reduction of ecological connectivity and degradation of the surrounding environment.	LOW -	<p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> • Disturbed areas should be rehabilitated and re-vegetated. 	VERY LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Water pollution impacts	Preferred Alternative	Operational risk of emulsion use may lead to the contamination of surface water, soil and/or groundwater, impacting upon the water quality of the riparian ecosystems in the broader area.	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> - The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, etc.) needs to be administered. - Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of stormwater. - No machinery must be parked overnight within 32 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Emergency plans must be in place in case of spillages onto bare soil or within watercourses. - All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. - Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site. • Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. 	LOW -
		Routine maintenance may lead to the introduction of chemical / hazardous substances (e.g. oil spills from vehicles, etc.) into the watercourse, soil and/or groundwater, adversely affecting the aquatic ecosystems in the broader area.	LOW -		VERY LOW -



(4) DECOMMISSIONING PHASE

Table 3.22: Summary of impacts associated with the proposed Ventilation shafts during the decommissioning phase.

POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
TERRESTRIAL BIODIVERSITY AND ECOLOGY IMPACTS					
Loss of Indigenous Vegetation	Preferred Alternatives	The decommissioning of the infrastructure and removal of materials will require laydown areas and will disrupt vegetation that has re-established around the areas that were disturbed during the construction phase. The loss of vegetation will be similar to the construction phase impacts.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Decommissioning activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint. Vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint. Lay down areas must not be located within any watercourses or drainage lines. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Topsoil (20 cm, where possible) during decommissioning must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the decommissioning phase (e.g. laydown areas). Only indigenous species must be used for rehabilitation after decommissioning. The alien invasive management plan for the site must be implemented. 	LOW -
	No-go	Should the project not proceed then the current land use will remain the same. Vegetation will likely continue to degrade under current land uses.	LOW -		N/A
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	Preferred Alternative	Faunal species will be disturbed during decommissioning due to noise and vibrations of machinery. Faunal Species that vacate the immediate area may return following completion of construction or new individuals or species may inhabit the area. Machinery may cause unintentional mortalities of faunal species.	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Vehicles and machinery must meet best practice standards in terms of noise and vibration. Staff and contractors' vehicles must comply with speed limits of 40 km/hr Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete. ECO must walk ahead of machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat. Any faunal species that may die as a result of decommissioning must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	LOW -		LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	LOW -	<ul style="list-style-type: none"> Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist. Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite. 	N/A
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the decommissioning phase, the disturbance of natural vegetation creates open habitats that favour the establishment of undesirable alien plant species. The infestation of alien plant species will result in the displacement of indigenous vegetation and possible local extinctions of species. This pre-mitigation impact is of moderate significance but can easily be managed through the implementation of an alien invasive management plan.	MODERATE -	Remediate/rehabilitate impact: <ul style="list-style-type: none"> All areas previously infested by alien plant species must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as decommissioning has been completed within each area. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the decommissioning of the proposed infrastructure. This will be of low significance.	LOW -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	LOW -		N/A
RIVER AND WETLAND IMPACT					
Direct ecosystem modification or destruction / loss impacts	Preferred Alternative	Direct disturbance and removal of riparian soil and vegetation during the decommissioning of the proposed infrastructure.	MODERATE -	<u>Avoid/prevent:</u> <ul style="list-style-type: none"> Construction materials must not be stored within the moderate to very high sensitivity areas. Stockpiles must not be stored within the moderate to very high sensitivity areas. 	LOW -
Alteration of hydrological and geomorphological processes	Preferred	Alteration of sections of watercourse units downstream of crossings during decommissioning.	LOW -	<u>Minimize/reduce:</u> <ul style="list-style-type: none"> Decommissioning activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. Appropriate stormwater structures must be implemented during decommissioning to control run-off and minimize erosion. 	VERY LOW -



POTENTIAL ISSUE	ALT	SOURCE OF ISSUE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Ecological connectivity and edge disturbance impacts	Preferred	Temporary reduction of ecological connectivity between sections of watercourse units during decommissioning.	LOW -	- Erosion controls and sediment trapping measures must be put in place. Remediate/rehabilitate: - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. <ul style="list-style-type: none"> All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	VERY LOW -
Water pollution impacts	Preferred	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during decommissioning e.g. oil and diesel leaks and spills.	LOW -	Avoid/prevent: <ul style="list-style-type: none"> No machinery must be parked overnight within 50 m of the rivers/wetlands. All stationary machinery must be equipped with a drip tray to retain any oil leaks. Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. No ablution facilities must be located within 50m of any river or wetland system. Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. Remediate/rehabilitate: <ul style="list-style-type: none"> Emergency plans must be in place in case of spillages onto bare soil or within water courses. 	VERY LOW -

Refer to the Appendix 5 for the unabridged impact assessment of each impact and risk.



(k) SUMMARY OF SPECIALIST REPORTS

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Ecological Impact Assessment, 2021	The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.60 ha of high SEI vegetation (natural and near-natural SMB) during the construction phase, resulting in highly significant impacts. The proposed layout of ventilation and emulsion borehole precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Efforts to minimize and/or rehabilitate these impacts will not be sufficiently effective to reduce their significance, resulting in residual high impacts. Offsetting will be required for the direct losses to compensate for the significant residual impacts of the development. The objective of the offset should be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss.	X	Refer to Section 6.1 and 6.2 and Appendix 8.1 of the Ecological report.
River and Wetland Impact Assessment	All the mitigation measures provided within the River and Wetland Report are to be implemented in the Planning and Design, Construction, Operation and Decommissioning Phases of the proposed activity, including, but not limited to the following: <ul style="list-style-type: none"> • Optimally, a buffer of 50 m should be maintained between the riparian edge and the edge of the ventilation shafts, emulsion shaft and borrow pits. Should this not be feasible, a minimum buffer of 30 m should be maintained. 	X	Refer to Section 2 of the Appendix 8.2



LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	<ul style="list-style-type: none"> • Best practice guidelines for powerline and road crossing alignment must be implemented. • Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. • Appropriate stormwater structures must be implemented during construction to control run-off and minimize erosion. • Vegetation clearing must be kept a minimum and only to the site footprint. • Disturbed areas must be monitored for erosion channels and these must be rehabilitated. • All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. • No concrete mixing must take place within 32 m of any watercourse. • No machinery must be parked overnight within 50 m of the rivers/wetlands. • All stationary machinery must be equipped with a drip tray to retain any oil leaks. • Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. • No ablution facilities must be located within 50 m of any river or wetland system. • Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. • Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. 		



LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	<ul style="list-style-type: none"> All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. Emergency plans must be in place in case of spillages onto bare soil or within water courses. 		
Archaeological Impact Assessment	<p>It has been noted that portions of Malokela and Thorncliffe, and the project area have been altered and transformed as a result of more recent mining and quarrying. During the survey, heritage receptors were noted in the project areas and the following recommendations are made based on general observations in the Borwa Vent Shaft & Associated Infrastructure Project in terms of heritage resources management.</p> <ul style="list-style-type: none"> The remains of two Historical Period settlement areas consisting out of stone wall enclosures, lower grind stones, middens and material culture such as glass and metal (as Site EXIGO-TC374-HP01 and Site EXIGO-TC374-HP02) are of medium-low significance due to the more recent provenience and poor preservation of the sites. The sites occur within proposed project development areas and it is recommended that the general area be closely monitored in order to avoid the destruction of previously undetected heritage remains – particularly potential burials associated with the settlements. In addition, application should be made for a destruction permit from the relevant heritage authorities should the possible Historical Period site be impacted on, altered or destroyed. The larger Steelpoort area comprises a rich cultural landscape and tangible and intangible heritage aspects associated with local communities are 	X	Refer to Section 7 and Appendix 8.3 of the Archaeological Impact Assessment report.



LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	<p>abundant. A site of apparent ritual importance to local communities occurs in the project area (Site EXIGO-TC374-FT01). The site, which consists of a stone cairn under a tree is potentially of medium heritage significance due to its implied local social and ritual value . It is located within proposed project development areas and it is primarily recommended that a strict heritage conservation buffer of at least 50m be implemented around the feature. Here, the redesign the footprint areas of the ventilation shaft platform, borrow pit, access road and power lines would be necessary to avoid the heritage resource and the proposed conservation buffer. It is advisable that the site be fenced and that access control be applied. Generally, careful monitoring should be conducted by a heritage specialist or an informed Environmental Control Officer (ECO) in order to detect any potential impact on the site at the earliest opportunity. However, should impact on the site prove inevitable a full social consultation process with affected parties / communities regarding significance of site, possible conservation management and protection measures will be required. Application should be made for a destruction permit from heritage authorities and affected parties if/when required.</p> <ul style="list-style-type: none"> • It is essential that cognisance be taken of the larger heritage landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below 		



LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	<p>present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period. As such, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.</p>		

Copies of the specialist reports are included under Appendix 8.



(I) ENVIRONMENTAL IMPACT STATEMENT

i) SUMMARY OF THE KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT;

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thornclyffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga) (Figure 3.2).

The impacts of all aspects for the development were assessed. Impacts are rated as LOW to HIGH pre-mitigation. The implementation of recommended mitigation measures coupled with comprehensive rehabilitation and monitoring in terms of re-vegetation and restoration is an important element of the mitigation strategy. Implementing the recommended mitigations measures will reduce impacts to LOW significance for all but two of the impacts. Two residual HIGH significance impact will remain after the implementation of minimisation and rehabilitation mitigation measures.

Offsetting will be required to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss of high SEI vegetation and faunal habitat. The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO.

ii) FINAL SITE MAP

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers.

A site sensitivity analysis has been conducted based on specialist and general site information gathered. The site was classified into areas of low, conditional sensitivity and NO-GO development.

- **NO-GO** includes areas where no construction should take place.
- **High Sensitivity** areas will require considerable effort to design out, mitigate or manage negative environmental impacts. In many cases this will not be possible and in general these areas should be avoided. Only facilities that are location dependent should be permitted in these areas.
- **Moderate Sensitivity** areas can accommodate development, but there are constraints. Mitigation and management will be required to reduce significant environmental impacts to acceptable levels, and appropriate technology and design will be required to reduce impacts and ensure sustainability.
- **Low Sensitivity** areas can be easily developed, as there are only minor constraints, and little mitigation and management is required (aside from normal building design and construction restrictions outlined in the EMP).



(1) TERRESTRIAL SITE ECOLOGICAL IMPORTANCE (SEI) AND SENSITIVITY

The method used to assess site sensitivity has been described in the Terrestrial Biodiversity Report (CES, 2022). Table 3.23 provides a summary of how each vegetation and habitat type was assessed.

The site falls entirely within the Sekhukhune Mountain Bushveld (Mucina and Rutherford [2018]), the Endangered Sekhukhune Mountainlands Ecosystem (NEMBA, 2004) and the SCOE. The Site Ecological Importance (SEI) ratings for the vegetation and habitat types described in Table 3.15 were therefore largely determined by the current condition of these areas, with the natural and near-natural SMB types assigned a High sensitivity, the semi-natural SMB assigned a moderate sensitivity, and the degraded SMB and transformed types assigned low and very low sensitivities, respectively (Table 3.23, Figure 3.29).

With the exception of the completely transformed areas, all other vegetation and habitat types received high Conservation Importance (CI) scores, attributed to the moderate to high likelihood of three rare and two VU plant species, as well as 6-8 animal SCCs. The transformed areas scored low in terms of CI.

The Functional Integrity (FI) of the ecosystems varied amongst vegetation and habitat types, with a very high rating attained by natural and near-natural SMB types, a high rating in the semi-natural type, a medium rating in the degraded type and very low in the transformed type. These scores were attributed to the connectivity and intactness of the ecosystems within the vegetation habitat types.

The natural near-natural, semi-natural and degraded SMB types score high in terms of high receptor resilience (RR) scores as these types are anticipated to recover relatively quickly following disturbance, with most of their species composition and functionality restored in the short- to medium-term. On the other hand, transformed areas are unlikely to fully recover after a relatively long period, hence its low RR score.



Table 3.23: Evaluation of Site Ecological Importance (SEI) of habitat and SCC

HABITAT/ SPECIES	CONSERVATION IMPORTANCE (CI)	FUNCTIONAL INTEGRITY (FI)	RECEPTOR RESILIENCE (RR)	SEI
Natural SMB and Rocky Outcrops	HIGH	VERY HIGH	HIGH	HIGH
	<p>Plant species: High likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of two VU species (Sensitive Species C and <i>Rhinolophus cohenae</i>).</p>	<p>Very large (~244.6 ha) intact area of natural rocky outcrop habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. Good habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	
Near-natural SMB	HIGH	VERY HIGH	HIGH	HIGH
	<p>Plant species: High likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of two VU species (Sensitive Species C and <i>Rhinolophus cohenae</i>).</p>	<p>Very large (~431.9 ha) intact area of natural habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	



	HIGH	HIGH	HIGH	
Semi-natural SMB	<p>Plant species: Moderate likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of four VU species (Sensitive Species C, <i>Chrysospalax villosus</i>, <i>Dasymys robertsii</i> and <i>Rhinolophus cohenae</i>).</p>	<p>Very large (~143.4 ha) moderately intact area of semi-natural habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	MEDIUM
Degraded SMB	<p>Plant species: Moderate to high likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of four VU species (Sensitive Species C, <i>Chrysospalax villosus</i>, <i>Dasymys robertsii</i> and <i>Rhinolophus cohenae</i>).</p>	<p>Very large (~104.4 ha) partially intact area of degraded habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. Limited connectivity, with migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and a few major current negative ecological impacts.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	LOW



	LOW	VERY LOW	LOW	
Transformed areas	<p>Very large area of transformed. Plant species: No confirmed and highly unlikely populations of plant SCC and/or range-restricted species. Animal species: High likelihood of one EN species (<i>Cloetis percivali</i>) within mine shafts. Moderate likelihood of one VU species (<i>Rhinolophus cohenae</i>) within mine shafts.</p>	<p>Very large (~101.1 ha) area of transformed EN ecosystem type. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.</p>	<p>Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.</p>	VERY LOW

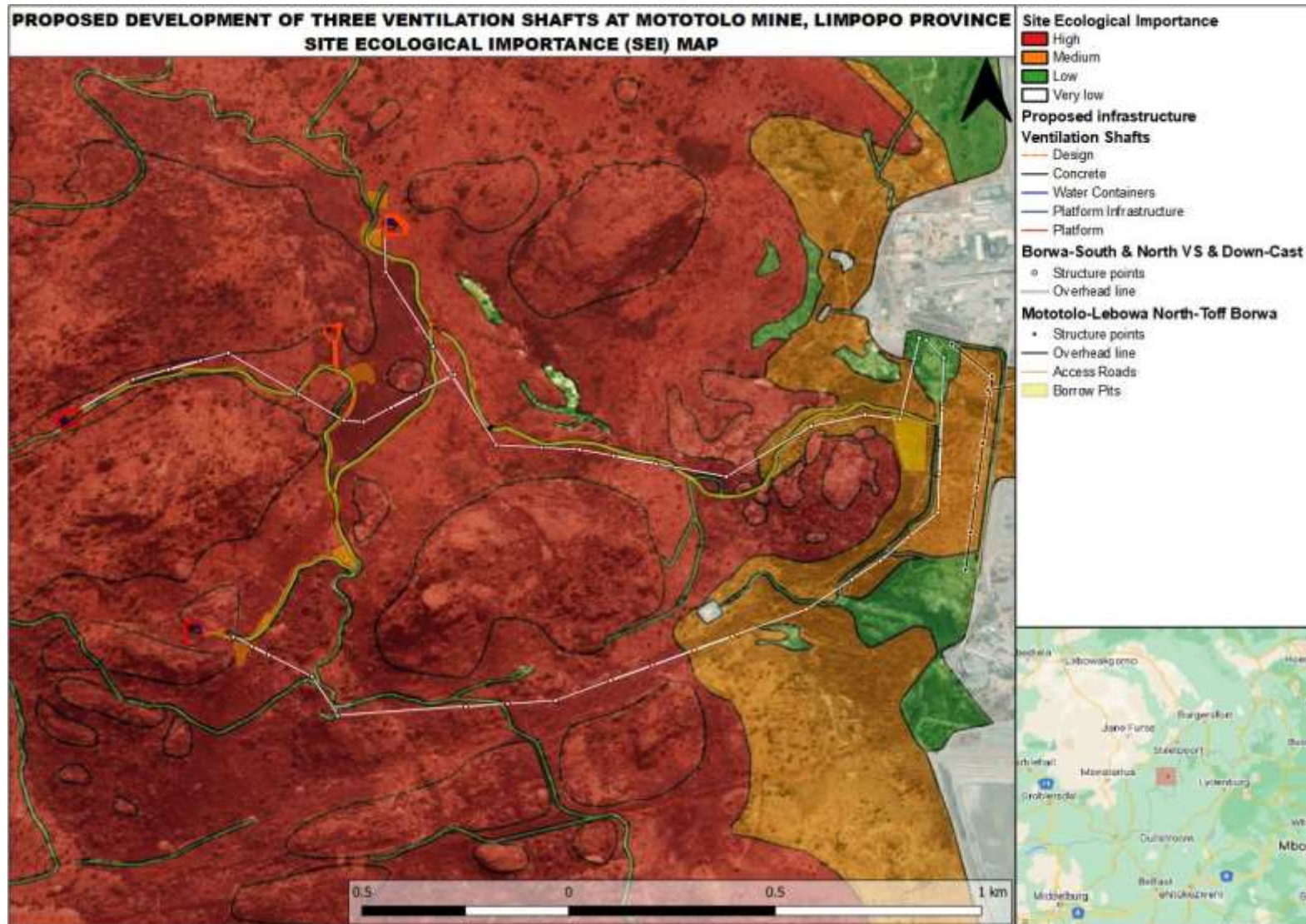


Figure 3.29: Terrestrial Biodiversity Site Ecological Importance (SEI) map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo.



(2) RIVER AND WETLAND ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS)

This section discusses the results of the Ecological Importance and Sensitivity (EIS) assessments. The ephemeral streams were assessed using the Riverine EIS tool. The EIS score generated by the river EIS tool was then integrated with the riparian zone biodiversity maintenance importance score from the WET-EcoServices tool outputs.

The ephemeral streams initially all scored low integrated EIS ratings due to their generally marginal to low importance and sensitivity in terms of instream and riparian biota and habitats (Table 3.24). However, the Riverine EIS rating does not take into account the importance of localised ecosystem services, such as biodiversity maintenance and sediment trapping within the alluvial flood-outs / wash-outs. Taking into consideration the moderate importance of biodiversity maintenance in W2, W3 and W4, the overall integrated EIS rating of these watercourses were revised to moderate.

Table 3.24: Summary of ephemeral streams (E) EIS scores and ratings

UNIT	INTEGRATED EIS SCORE	BIODIVERSITY MAINTENANCE	REVISED INTEGRATED EIS RATING
W1E	1.00 (L)	1.2 (L)	Low
W2E	1.00 (L)	2.2 (M)	Moderate
W3E	1.00 (L)	2.2 (M)	Moderate
W4E	1.00 (L)	2.2 (M)	Moderate

The Wetland EIS tool was used to take into account the alluvial flood-out areas (A) of W1. The unit W1 alluvial flood-outs (A) scored slightly better, though still low, compared to the channelled sections of the unit. Despite offering some sediment trapping services, these flood-outs are localised and are of limited importance and sensitivity. The Wetland EIS assessment results are summarised in Table 3.25 below.

Table 3.25: Summary of alluvial flood-out /wash-out areas (A) of Unit W1 EIS scores and ratings

UNIT	ECOLOGICAL IMPORTANCE SCORE			ECOLOGICAL SENSITIVITY	INTEGRATED EIS SCORE	INTEGRATED EIS RATING
	BIODIVERSITY MAINTENANCE	REGULATING SERVICES	PROVISIONING AND CULTURAL SERVICES			
W1A	1.2	1.0	1.0	1.20	1.20	Low

A sensitivity map (Figure 3.30 below) was developed based on the above EIS ratings and buffer zones. All activities within high sensitivity areas must be closely monitored by a qualified ECO to ensure that all proposed mitigation measures are implemented to manage and minimize potential impacts on the watercourse. Moderate sensitivity areas act as buffers for the high sensitivity areas. Activities that may have an indirect impact on high sensitivity areas are not to occur within these buffer areas. Such activities would include:

- Stockpiling of topsoil, subsoil, etc.;
- Temporary ablution facilities;
- Site camp establishment;
- Temporary laydown areas for equipment/materials;
- Overnight parking of heavy machinery/vehicles;
- Concrete batching; and
- Storage of chemicals/hazardous substances.

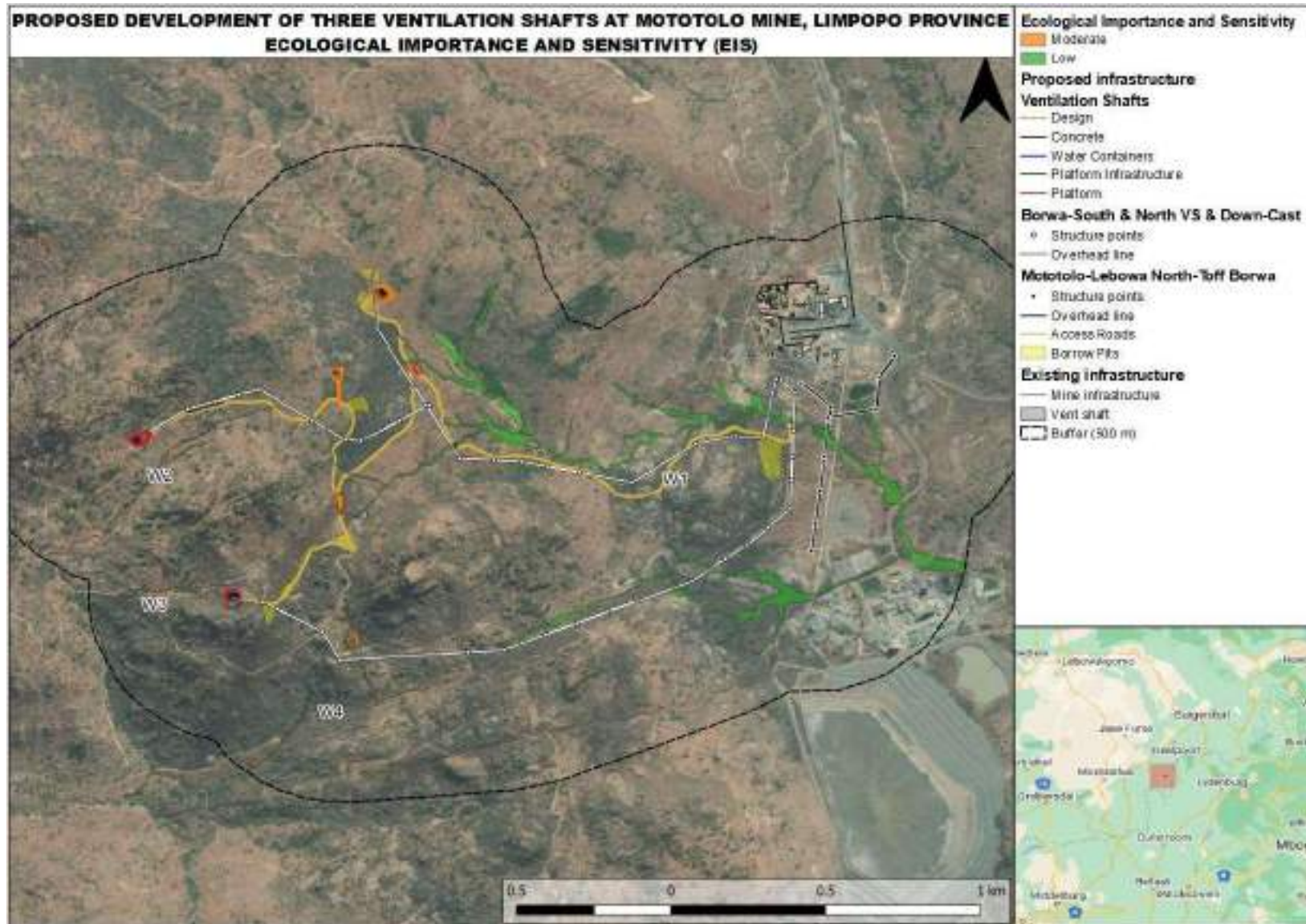


Figure 3.30: Ecological Importance and Sensitivity (EIS) map of the study area.



iii) SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES

This section provides an overview of the environmental impacts associated with the proposed development. Table 3.26 provides an overall summary of the negative (cost) and positive (benefit) environmental impacts associated with the ventilation shafts and associated infrastructure. Prior to mitigation, the proposed development is anticipated to have five impacts of HIGH and 40 of MODERATE negative significance, with 22 LOW impact of negative significance. Most impacts would be reduced to a LOW significance post-mitigation, provided that the proposed mitigation measures are implemented and adhered to. Two highly significant impact will remain as residual impacts, namely the loss of high SEI vegetation

Table 3.26: Summary of impacts before and after mitigation across phases.

THEME	BEFORE MITIGATION				AFTER MITIGATION			
	V. LOW	LOW	MOD	HIGH	V. LOW	LOW	MOD	HIGH
<i>Environmental policy</i>				-3		-3		
<i>Built environment</i>			-9 (+1)			-9	(+1)	
<i>Socio-economic</i>			-11 (+3)			-11 (+3)		
<i>Rehabilitation and maintenance</i>			-3			-3		
<i>Terrestrial Biodiversity</i>		-10	-11	-2		-21		-2
<i>Aquatic Biodiversity and Wetland</i>		-8	-6		-8	-6		
<i>Heritage</i>		-4				-4		
Total	0	-22	-40 (+3)	-5	-8	-57	(+1)	-2

The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.60 ha of high SEI vegetation (natural and near-natural SMB) during the construction phase, resulting in highly significant impacts. The proposed layout of ventilation and emulsion shafts precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Efforts to minimize and/or rehabilitate these impacts will not be sufficiently effective to reduce their significance, resulting in residual high impacts. Offsetting will be required for the direct losses to compensate for the significant residual impacts of the development. The objective of the offset should be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss.



(m) PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

All management / mitigation measures identified for the impacts associated with the proposed development must be incorporated into the EMPr and implemented during the relevant phases of the proposed Anglo Borwa Ventilation Shafts (please refer to Section (j) above for the recommended mitigation measures associated with each impact identified).

(n) ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

Any aspects which must be made conditions of the Environmental Authorisation

All management / mitigation measures identified in this report and incorporated into the EMPr must be incorporated into the EA. Specific mitigation measures and recommendations that should be incorporated into the EA (if granted) include:

- All necessary permitting and authorisations must be obtained prior to the commencement of any construction activities.
- An Erosion Management Plan/ Method Statement must be developed prior to the commencement of construction activities in order to mitigate the unnecessary loss of topsoil and runoff.
- An Alien Invasive Vegetation Management Plan must be compiled, implemented and adhered to during all phases of the proposed development.
- The approved Rehabilitation Plan should be implemented and adhered to. Only indigenous plant species typical of the local vegetation should be used for rehabilitation purposes.
- An ECO must be appointed for the duration of the proposed development.

(o) DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

There is an inherent level of uncertainty in impact assessment, as impact assessment essentially aims to determine what would happen in the future, and is thus associated with unforeseen and unforeseeable events. This uncertainty cannot be reduced by doing more research and has to be addressed by acknowledging the assumptions, uncertainties and gaps in knowledge associated with an impact assessment study (Thissen & Agustinata, 2008).

The conclusions and recommendations made in this impact assessment have to be routinely verified through monitoring exercises during the construction and operational phases of the proposed project, as measuring the actual impacts of a development as they occur is the only undisputable way of showing which impacts are of an acceptable significance and which impacts may require additional or adapted management measures in order to reduce their physical, measured impact.



Thus while this report was compiled with due regard to public consultation, authority consultation, specialist input and in accordance with the relevant legislation, it cannot be seen as a “promise” of what is going to happen, but rather should be seen as a scientific prediction of the most likely significant effects that could be brought about by the proposed project based on current knowledge.

The specialist studies list specific assumptions and limitations. Where an uncertainty existed, the precautionary principle was applied and the impact rated with a higher significance.

The project Terrestrial Ecologist notes the following assumptions and limitations in the Terrestrial Biodiversity Assessment Report (CES, 2022):

- The report is based on a project description received from the client.
- A detailed faunal survey was not conducted. Although a site visit was undertaken, the faunal survey was mainly a desktop study, using information from previous ecological surveys conducted in the area. This data was supplemented by recording animal species that were observed during the site survey.
- A separate avifaunal survey was undertaken by a specialist and birds are therefore not included in this report.
- Species of Conservation Concern (SCC) are difficult to find and difficult to identify, thus species described in this report do not comprise an exhaustive list. It is almost certain that additional SCCs will be found during construction and operation of the development.
- Sampling could only be carried out at one stage in the annual or seasonal cycle. The survey was conducted in early summer when most plants were at the end of the flowering stage. Early flowering species, specifically geophytes could therefore not be identified. However, the time available in the field, and information gathered during the survey was sufficient to provide enough information to determine the status of the affected area.

The project Heritage Specialist notes the following assumptions and limitations in the Archaeological Impact Assessment Report (Exigo Sustainability, 2022):

- The site survey for the Borwa Vent Shaft & Associated Infrastructure Project AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the mapping and aerial survey) as well as areas of potential high human settlement catchment. In terms of on-site limitations during the survey, the following should be noted:
 - The project area is accessed via a mine service roads and access control was arranged for the site assessment and no access restrictions onto the site were encountered during the site visit.
 - The surrounding vegetation in the project area mostly comprised out of dense tree cover and mountain vegetation with pioneering species occurring in places and the general visibility at the time of the site inspection (January and February 2022) proved to be a constraint in the project area.
- Cognisant of the constraints noted above, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage



resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist

The project River and Wetland Ecologist notes the following assumptions and limitations in the Terrestrial Biodiversity Assessment Report (CES, 2022):

- The report is based on a project description received from the client;
- Species of Conservation Concern (SCC) are difficult to find and difficult to identify, thus species described in this report do not comprise an exhaustive list. It is almost certain that additional SCCs will be found during construction and operation of the development;
- Sampling by its nature means that not all parts of the study area were visited. The assessment findings are thus only applicable to those areas sampled, which were extrapolated to the rest of the study area.
- A Soil Munsell Colour Chart was used to determine the soil matrix colour of the soil sampled. However, it is important to note that the recording of the colours using the soil chart is highly subjective and varies significantly depending on soil moisture and the prevailing light conditions. In this case, all the soils sampled were dry and sampling was undertaken in sunny conditions.
- Soil wetness indicators (i.e. soil mottles, grey soil matrix), which in practice are primary indicators of hydromorphic soils, are not seasonally dependent (wetness indicators are retained in the soil for many years) and therefore seasonality has no influence on the delineation of wetland areas.
- All vegetation information recorded was based on the onsite visual observations of the author and no formal vegetation sampling was undertaken. Furthermore, only dominant and noteworthy plant species were recorded. Thus, the vegetation information provided has limitations for true botanical applications.

(p) REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

i) REASONS WHY THE ACTIVITY SHOULD BE AUTHORIZED OR NOT.

It is the professional opinion of CES and specialists that:

- **NO FATAL FLAWS** are currently associated with the proposed development as all identified impacts can be adequately mitigated to reduce the risk or significance of impacts to an acceptable level, provided mitigation measures recommended in this report are implemented and maintained throughout the life of the project.
- If any changes to these layouts are made, the input of the relevant specialist must be obtained and incorporated into any changes.
- The information in the report is sufficient to allow DMRE to make an informed decision.

It is the recommendation of CES that the proposed ventilation shafts and associated infrastructure should be approved provided that the proposed mitigation measures are implemented and that the



EMPr is implemented, maintained and adapted to incorporate relevant legislation, standard requirements and audit reporting, throughout the life of the development. The mitigation measures for all impacts identified in the BAR must be incorporated into the EMPr and must be used by the engineers during the detailed Planning & Design Phase, by the contractors during the Construction Phase and by Anglo American during the Operation Phase.

ii) CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

The mitigation measures for all impacts identified in the BAR must be incorporated into the EMPr and must be used by the engineers during the detailed Planning & Design Phase, by the contractors during the Construction Phase and by Anglo American during the Operation Phase.

(q) PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The Environmental Authorisation will be required for a period of 10 years, with the option to extend.

(r) UNDERTAKING

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

The undertaking has been included in Part B (EMPr) of this report and is applicable to both the BAR and the EMPr.

(s) FINANCIAL PROVISION

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

The 2021 quantum for closure-related financial provision for project was undertaken by CES. The summary of the closure cost calculated for the mine is presented in the Financial Quantum and Closure Plan and Liability report in Appendix 7.

The estimated financial provision required for the rehabilitation and closure of the project is R5 111 865,79 (Final Closure) excl. VAT, inclusive of the Latent liability and Monitoring.

i) EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED.

The financial provision was calculated in accordance with the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) as amended and Regulation 1147 of the National Environmental Management Act, 1988 (Act No. 107 of 1998). In accordance with the aforementioned legislation, the holder of a mining right must make the prescribed financial provision for the costs associated with the undertaking of the management, rehabilitation and remediation of the negative environmental impacts due to prospecting, exploration and mining activities and the latent or residual environmental impacts that may become known in future.

The prescribed methodology for estimation of the closure costs is provided for by the DMRE in the form of a Guideline Document for the Evaluation of Financial Provision. The financial provision was determined using the DMRE master rates as provided by the DMRE.



ii) CONFIRM THAT THIS AMOUNT CAN BE PROVIDED FOR FROM OPERATING EXPENDITURE.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the mining work programme, financial and technical competence report or prospecting work programme as the case may be)

The amount can be provided from operating expenditure. The stated financial provision that is required to both manage and rehabilitate the environment will be provided by means of either a) a financial bank guarantee, b) insurance backed guarantee or c) by direct payment to the DMR. The preferred method is being assessed and will be in place prior to the authorisation being granted and provided to the DMRE for consideration. Anglo makes use of a financial bank guarantee.

(t) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

i) COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) READ WITH SECTION 24 (3) (A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998). THE EIA REPORT MUST INCLUDE THE:-

(1) IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix 5.

Socio-Economic Impacts are provided in Table 3.19, Table 3.20, Table 3.21, Table 3.22 and Appendix 5.

(2) IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12.herein).

Heritage and Cultural Impacts are provided in Table 3.19, Table 3.20, Table 3.21, Table 3.22, Appendix 5 and Appendix 8.3 (Archaeological Impact Assessment).

(u) OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

(The EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix 4**).

No alternative sites/location were considered or assessed in this report as the preferred site is the only land available for use in terms of the approved Mining Right and EMPr. Additionally, the site is in close proximity to the existing Mototolo Mine. The development and implementation of an efficient ventilation shaft system will circulate air to and/or from the underground mining area, regulate the



temperature and ensure employee safety and health. Should the proposed ventilation shaft developments not be undertaken, the underground mining operations at the Mototolo Mine will come to a complete halt as the ventilation that is required to ensure the safety of the underground employees will not be achieved. The cessation of mining activities will potentially leave un-mined economic resources in the ore body and result in the closure of the mine before its potential end-of-life. If mining ceases, the positive socio-economic impacts associated with mining at the Mototolo Mine (i.e. retaining the current jobs of the employees and the mines contribution to the economic growth of South Africa) would also not be realised. Furthermore, Should the access roads to the proposed ventilation shafts not be constructed; maintenance and monitoring of the ventilation shaft would not be possible.



PART B - ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

4 FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME

(a) DETAILS OF THE EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

All relevant information related to the EAP is included in Part A, Section 3(a).

(b) DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, Section (1)(h) herein as required).

All relevant information related to the project description is included in Part A, Section (d). Environmental aspects are covered under the Impacts identification in Table 3.19, Table 3.20, Table 3.21, Table 3.22 and Appendix 5.

(c) COMPOSITE MAP

(Provide a map (Attached as an Appendix) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

The composite map is provided in Section (l)(ii) (Figure 3.29 and Figure 3.30).

(d) DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

The EMPr has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the proposed mining activities as well as to ensure that all relevant factors are considered to ensure for environmentally responsible development. The purpose of the EMPr is to provide specifications for "good environmental practice" for application during construction.

This EMPr informs all relevant parties [the Project Coordinator, the Contractor, the Environmental Control Officer (ECO) and all other staff employed by SANRAL at the site as to their duties in the fulfilment of the legal requirements for the construction, operation and decommissioning of the proposed mining activities with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

All parties should note that obligations imposed by the EMPr are legally binding in terms of the environmental authorisation granted by the relevant environmental permitting authority.



The objectives of an EMPr are to:

- Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international;
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts;
- Verify environmental performance through information on impacts as they occur;
- Respond to unforeseen events;
- Provide feedback for continual improvement in environmental performance;
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels;
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project;
- Identify measures that could optimize beneficial impacts;
- Create management structures that addresses the concerns and complaints of I&APs with regards to the development;
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity;
- Ensure that safety recommendations are complied with; and
- Specify time periods within which the measures contemplated in the final environmental management programme must be implemented, where appropriate.

i) DETERMINATION OF CLOSURE OBJECTIVES.

(Ensure that the closure objectives are informed by the type of environment described)

The following principles have been defined in support of the closure vision:

- Rehabilitate all disturbed land to a state that is suitable for its post closure use (wilderness/grazing).
- Ensure that affected areas are safe and secure for both human and animal activities.
- All ventilation shafts infrastructure will be removed and the shaft sealed.
- The area will be shaped to reduce erosion and covered with topsoil.
- Ripping of compacted soil will be done during rehabilitation of the terrain, including roads.
- During rehabilitation an indigenous vegetation cover comprising of local plant species should be established and to prevent erosion of the replaced topsoil on the disturbed areas.
- No soil erosion must be present at closure.
- No excessive dust must be present after closure.
- No soil contamination must be visible or known before closure can be given.
- The fertility and structure of soil on rehabilitated areas must be able to sustain vegetation after closure.
- The soil must be fertile enough to ensure sustainable growth of indigenous vegetation.
- Invader & exotic plant species will be eradicated from the rehabilitated areas.
- The area will be rehabilitated to the state that it is suitable for the predetermined and agreed land capability namely wilderness.
- The animal life habitat must be restored after decommissioning. Success will be measured against the extent to which the animal diversity returns to the area.



- Rehabilitate all disturbed land to a state where limited or preferably no post closure management is required;
- Rehabilitate all disturbed land to a state that facilitates compliance with current environmental quality objectives (air and water quality); and
- Limit the impact on personnel whose positions may become redundant on decommissioning of the operation.

(1) THE PROCESS FOR MANAGING ANY ENVIRONMENTAL DAMAGE, POLLUTION, PUMPING AND TREATMENT OF EXTRANEIOUS WATER OR ECOLOGICAL DEGRADATION AS A RESULT OF UNDERTAKING A LISTED ACTIVITY

Refer to Section (j) for the proposed mitigation measures.

(2) POTENTIAL RISK OF ACID MINE DRAINAGE

No acid mine drainage is associated with the development of the proposed ventilation shafts.

(3) STEPS TAKEN TO INVESTIGATE, ASSESS AND EVALUATE THE IMPACT OF ACID MINE DRAINAGE

No acid mine drainage is associated with the development of the proposed ventilation shafts.

(4) ENGINEERING OR MINE DESIGN SOLUTIONS TO BE IMPLEMENTED TO AVOID OR REMEDY ACID MINE DRAINAGE

Not Applicable.

(5) MEASURES THAT WILL BE PUT IN PLACE TO REMEDY ANY RESIDUAL OR CUMULATIVE IMPACT THAT MAY RESULT FROM ACID MINE DRAINAGE

Not Applicable.

ii) HAS A WATER USE LICENCE HAS BEEN APPLIED FOR?

A water use licence has been applied for. The ventilation shafts and the access roads will cross or disturb drainage lines/streams/rivers.



iii) IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Table 4.1: Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
The development of facilities or infrastructure for the transmission and distribution of electricity— (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	Planning and design, Construction, Operational and Decommissioning	Total footprint of pylons: 27.37 m ² . Total length of powerlines: 5 800 m.	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	Throughout the course of the construction phase.
The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	Construction	Total storage capacity: 42.3 m ³	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	Throughout the course of the construction phase.



ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including — (a) Associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; (b) The primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing.	Planning and design, Construction, and Operational	Total footprint of borrow pits: 2.69 ha.	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	From the onset of the mining of the borrow pits until the closure procedure has been completed and then, additionally, in the initial period after the activities are completed.
The decommissioning of any activity requiring (i) A closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Decommissioning	Total footprint of borrow pits: 2.69 ha.	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	From the end of the mining of the borrow pits, throughout rehabilitation, until the closure procedure has been completed and then, additionally, in the initial period after the activities are completed.
The clearance of an area of 1 hectares or more, but less	Planning and design, and Construction	Total footprint: 5.93 ha.	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental 	From the onset of the clearing activities until the end of



ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
than 20 hectares of indigenous vegetation.				Management Act (Act 107 of 1998) <ul style="list-style-type: none"> National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]	rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.
The development of a road wider than 4 metres with a reserve less than 13.5 metres. e. Limpopo <ul style="list-style-type: none"> i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; 	Planning and design, Construction, Operational and Decommissioning	Width: 5.5 m. Total footprint: 2.365 ha.	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	From the onset of the clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.
The development and related operation of facilities or infrastructure for the storage,	Planning and design, and Construction	Total storage capacity: 42.3 m ³	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> National Environmental 	Throughout the course of the construction phase.



ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>e. Limpopo i. All areas.</p>				<p>Management Act (Act 107 of 1998)</p> <ul style="list-style-type: none"> National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	
<p>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.</p> <p>e. Limpopo i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p>	<p>Planning and design, and Construction</p>	<p>Total footprint: 5.93 ha.</p>	<p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA] 	<p>From the onset of the clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.</p>



ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
ii. Within critical biodiversity areas identified in bioregional plans.					
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; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; e. Limpopo i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	Planning and design, Construction, and Operational	Total footprint across watercourses: 318 m ² .	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	<ul style="list-style-type: none"> • National Environmental Management Act (Act 107 of 1998) • National Environmental Management Biodiversity Act (Act 10 of 2004) • National Heritage Resources Act (Act 25 of 1999) • National Water Act (Act No 36 of 1998) [NWA] 	From the onset of the clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.



(e) IMPACT MANAGEMENT OUTCOMES

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ());

To identify the appropriate methods required to manage and mitigate environmental disturbance during the proposed development, the impacts and risks that need to be avoided must first be identified. This has been conducted via a BA process and the details of the impacts and risks associated with the proposed development are included in the EIR. The aim of the EMPr is to ensure that the impacts which have been identified are properly mitigated to ensure that their significance is reduced (in the case of negative impacts) in order to protect the environment.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> Application for relevant authorisations 	Legal and policy compliance	<ul style="list-style-type: none"> DMRE Anglo 	<ul style="list-style-type: none"> Planning and design Construction Operational 	Avoid/prevent non-compliance through applications for authorisation and adherence to EA, EMPr and GA. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Siting and placement Earthworks Accidental leakages Maintenance 	Infrastructure	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Heritage resources 	<ul style="list-style-type: none"> Planning and design Construction Operational 	Avoidance of sensitive areas through planning and design and minimization of impact through site demarcation. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Siting and placement Management of stockpiles 	Material Stockpiling	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 	<ul style="list-style-type: none"> Construction 	Minimization of impact through site demarcation away from sensitive areas and monitoring of stockpiles. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> Infrastructure and design Maintenance 	Stormwater management	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 	<ul style="list-style-type: none"> Planning and design Construction Operational 	<p>Avoidance/prevention of impact through planning and design of stormwater infrastructure areas through planning and design and minimization of impact through monitoring and maintenance of infrastructure.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Planning for storage, handling and disposal of general and hazardous waste Construction rubble General refuse Hazardous waste Cement mixing Spillages 	Waste Management	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Surrounding landowners 	<ul style="list-style-type: none"> Planning and design Construction 	<p>Avoidance of sensitive areas through planning and design and minimization of impact regular removal of waste and appropriate waste management.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Storage, use and handling of hazardous substances 	Hazardous substances	<ul style="list-style-type: none"> Aquatic environment Terrestrial environment 	<ul style="list-style-type: none"> Construction 	<p>Avoidance of sensitive areas through planning and design and minimization of impact through appropriate hazardous substance storage, use and disposal.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Planning and design, and construction activities 	Job creation	<ul style="list-style-type: none"> Local community General public 	<ul style="list-style-type: none"> Planning and design Construction Operational 	<p>Maximise benefits through employment of local labourers where feasible.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> Ablution facilities at construction site 	Sanitation	<ul style="list-style-type: none"> Staff Labourers 	<ul style="list-style-type: none"> Construction Operational 	<p>Avoidance of sensitive areas through planning, design and placement of ablution facilities and minimization of impact through regular servicing of ablution facilities.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Planning Construction activities Obstruction of traffic 	Health and safety	<ul style="list-style-type: none"> Staff Labourers 	<ul style="list-style-type: none"> Planning and design Construction Operational 	<p>Avoidance of impacts through adherence to health and safety protocols and reduction of risks through incident reporting, toolbox talks, etc.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Vegetation clearance Earthworks Construction activities 	Air quality and dust control	<ul style="list-style-type: none"> Surrounding landowners and community Staff and labourers 	<ul style="list-style-type: none"> Construction Operational 	<p>Minimization of impacts through adherence to air emissions standards and implementation of dust suppression measures.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Planning for emergency response procedures Flammable goods Cooking, smoking and open flame on site 	On-site fire risk	<ul style="list-style-type: none"> Terrestrial environment Surrounding landowners and general public 	<ul style="list-style-type: none"> Planning and design Construction Operational 	<p>Avoidance of impacts through adherence to site method statements and safety protocols and reduction of risks through incident reporting, toolbox talks, etc.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19,</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	
<ul style="list-style-type: none"> Management Construction activities 	Traffic	<ul style="list-style-type: none"> Surrounding landowners and general public 	<ul style="list-style-type: none"> Planning and design Construction Operational 	<p>Minimization of impact through appropriate traffic control planning and implementation.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Planning and provisioning of infrastructure Maintenance of infrastructure 	Inadequate rehabilitation	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Surrounding landowners and general public 	<ul style="list-style-type: none"> Planning and design Construction Operational Decommissioning 	<p>Minimization of impact through appropriate rehabilitation planning and implementation. Rehabilitation of disturbed areas and offsetting of unavoidable loss of sensitive areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Physical removal of the riparian zones. 	Direct ecosystem modification or destruction / loss impacts	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 	<ul style="list-style-type: none"> Construction Decommissioning 	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Changes to hydrological regime such as alteration of surface run-off patterns 	Alteration of hydrological and geo-morphological processes	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment Surrounding landowners 	<ul style="list-style-type: none"> Construction Operational Decommissioning 	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19,</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	
<ul style="list-style-type: none"> Changes to the hydrological regime Alteration of surface run-off patterns. 	Ecological connectivity and edge disturbance impacts	<ul style="list-style-type: none"> Terrestrial environment Aquatic environment 	<ul style="list-style-type: none"> Construction Operational Decommissioning 	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Chemical pollutants and hydrocarbons from equipment and vehicles. Cleaning fluids, cement powder, wet cement, shutter-oil, etc.) 	Water pollution impacts	<ul style="list-style-type: none"> Aquatic environment Surrounding landowners 	<ul style="list-style-type: none"> Construction Operational Decommissioning 	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Loss of vegetation to ventilation shafts, emulsion shaft, borrow pits, access roads and powerline pylons. Vegetation disturbance and clearance, including construction vehicle traffic, earthworks, excavation and infilling. Poor rehabilitation, management and monitoring. 	Loss of vegetation	<ul style="list-style-type: none"> Abundance, diversity and composition of flora and fauna in development footprint. Ecological connectivity. Plant and animal SCCs. 	<ul style="list-style-type: none"> Planning and design Construction Decommissioning 	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation, rehabilitation of disturbed areas and offsetting of unavoidable loss of sensitive areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	Loss of Plant Species of Conservation Concern	<ul style="list-style-type: none"> Floral diversity. CI, FI, RR and SEI. 	<ul style="list-style-type: none"> Planning and design Construction 	<p>Avoidance of impact through appropriate search and rescue operations.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Disturbance, fragmentation and loss of habitats. 	Impact on faunal species of conservation concern	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 	<ul style="list-style-type: none"> Construction Decommissioning 	<p>Avoidance of impact through appropriate search and rescue operations.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. 	Reduced Faunal Habitat	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 	<ul style="list-style-type: none"> Construction 	<p>Minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. Disturbance, fragmentation and loss of habitats. 	Disruption of Ecosystem Function and Processes	<ul style="list-style-type: none"> Ecological connectivity. Plant and animal SCCs. Floral and faunal diversity. CI, FI, RR and SEI. 	<ul style="list-style-type: none"> Planning and design Construction Operational Decommissioning 	<p>Minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Noise and vibrations of earthworks. 	Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 	<ul style="list-style-type: none"> Construction Decommissioning 	<p>Minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19,</p>	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> Encounters with construction machinery. Disturbance, fragmentation and loss of habitats. 				Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Rehabilitation, management and monitoring. 	Establishment and/or spread of Alien Plant Species	<ul style="list-style-type: none"> Plant and animal SCCs. Floral and faunal diversity. CI, FI, RR and SEI. 	<ul style="list-style-type: none"> Planning and design Construction Operational Decommissioning 	Minimisation of impact through appropriate planning and implementation of alien management plan and rehabilitation of disturbed areas. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Siting and demarcation of activities and earthworks 	Loss of archaeological feature	<ul style="list-style-type: none"> Heritage and cultural landscape 	<ul style="list-style-type: none"> Construction Operational 	No mitigation proposed. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Siting and demarcation of activities and earthworks 	Loss of historically significant building and structures All	<ul style="list-style-type: none"> Heritage and cultural landscape 	<ul style="list-style-type: none"> Construction Operational 	No mitigation proposed. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Siting and demarcation of activities and earthworks 	Alternation of cultural landscape	<ul style="list-style-type: none"> Heritage and cultural landscape 	<ul style="list-style-type: none"> Construction Operational 	No mitigation proposed. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	Adhere to Environmental Authorisation, EMPr and General Authorisation.
<ul style="list-style-type: none"> Siting and demarcation of activities and earthworks 	Disturbance to graves/human burial sites	<ul style="list-style-type: none"> Heritage and cultural landscape 	<ul style="list-style-type: none"> Construction Operational 	No mitigation proposed. Refer to mitigation measures in Part A, Section (j), Table 3.19,	Adhere to Environmental Authorisation, EMPr and General Authorisation.



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	



(f) IMPACT MANAGEMENT ACTIONS

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

The table below list the impact management actions which need to be implemented in order to correctly mitigate the significance of the abovementioned impacts during the planning and design, construction, operational and decommissioning phases, respectively.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> Application for relevant authorisations 	Legal and policy compliance	<p>Avoid/prevent non-compliance through applications for authorisation and adherence to EA, EMPr and GA.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Siting and placement Earthworks Accidental leakages Maintenance 	Infrastructure	<p>Avoidance of sensitive areas through planning and design and minimization of impact through site demarcation.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Siting and placement Management of stockpiles 	Material Stockpiling	Minimization of impact through site demarcation away from sensitive areas and monitoring of stockpiles.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Infrastructure and design Maintenance 	Stormwater management	<p>Avoidance/prevention of impact through planning and design of stormwater infrastructure areas through planning and design and minimization of impact through monitoring and maintenance of infrastructure.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Planning for storage, handling and disposal of general and hazardous waste Construction rubble General refuse Hazardous waste Cement mixing Spillages 	Waste Management	<p>Avoidance of sensitive areas through planning and design and minimization of impact regular removal of waste and appropriate waste management.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Storage, use and handling of hazardous substances 	Hazardous substances	<p>Avoidance of sensitive areas through planning and design and minimization of impact through appropriate hazardous substance storage, use and disposal.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19,</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	performed throughout operational phase.	National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Planning and design, and construction activities 	Job creation	<p>Maximise benefits through employment of local labourers where feasible.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Ablution facilities at construction site 	Sanitation	<p>Avoidance of sensitive areas through planning, design and placement of ablution facilities and minimization of impact through regular servicing of ablution facilities.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Planning Construction activities Obstruction of traffic 	Health and safety	<p>Avoidance of impacts through adherence to health and safety protocols and reduction of risks through incident reporting, toolbox talks, etc.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> Vegetation clearance Earthworks Construction activities 	Air quality and dust control	Minimization of impacts through adherence to air emissions standards and implementation of dust suppression measures. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Planning for emergency response procedures Flammable goods Cooking, smoking and open flame on site 	On-site fire risk	Avoidance of impacts through adherence to site method statements and safety protocols and reduction of risks through incident reporting, toolbox talks, etc. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Management Construction activities 	Traffic	Minimization of impact through appropriate traffic control planning and implementation. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Planning and provisioning of infrastructure Maintenance of infrastructure 	Inadequate rehabilitation	Minimization of impact through appropriate rehabilitation planning and implementation. Rehabilitation of disturbed areas and offsetting of unavoidable loss of sensitive areas.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally,	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Physical removal of the riparian zones. 	Direct ecosystem modification or destruction / loss impacts	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Changes to hydrological regime such as alteration of surface run-off patterns 	Alteration of hydrological and geo-morphological processes	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Changes to the hydrological regime Alteration of surface run-off patterns. 	Ecological connectivity and edge disturbance impacts	<p>Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19,</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	performed throughout operational phase.	National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Chemical pollutants and hydrocarbons from equipment and vehicles. Cleaning fluids, cement powder, wet cement, shutter-oil, etc.) 	Water pollution impacts	Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation and rehabilitation of disturbed areas. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Loss of vegetation to ventilation shafts, emulsion shaft, borrow pits, access roads and powerline pylons. Vegetation disturbance and clearance, including construction vehicle traffic, earthworks, excavation and infilling. Poor rehabilitation, management and monitoring. 	Loss of vegetation	Avoidance of impact through appropriate micro-siting of activities, minimisation of impact through site demarcation, rehabilitation of disturbed areas and offsetting of unavoidable loss of sensitive areas. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	Loss of Plant Species of Conservation Concern	Avoidance of impact through appropriate search and rescue operations. Refer to mitigation measures in Part A, Section (j), Table 3.19,	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	performed throughout operational phase.	National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Disturbance, fragmentation and loss of habitats. 	Impact on faunal species of conservation concern	<p>Avoidance of impact through appropriate search and rescue operations.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. 	Reduced Faunal Habitat	<p>Minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. Disturbance, fragmentation and loss of habitats. 	Disruption of Ecosystem Function and Processes	<p>Minimisation of impact through site demarcation and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	Disturbance to faunal species and potential reduction in	Minimisation of impact through site demarcation and rehabilitation of disturbed areas.	From the onset of the planning and design phase, through clearing	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> Noise and vibrations of earthworks. Encounters with construction machinery. Disturbance, fragmentation and loss of habitats. 	abundance and mortality of faunal species	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Rehabilitation, management and monitoring. 	Establishment and/or spread of Alien Plant Species	<p>Minimisation of impact through appropriate planning and implementation of alien management plan and rehabilitation of disturbed areas.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Siting and demarcation of activities Excavation and earthworks 	Loss of archaeological feature	<p>No mitigation proposed.</p> <p>Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.</p>	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Siting and demarcation of activities Excavation and earthworks 	Loss of historically significant building and structures All	Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999)



ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
			Monitoring and maintenance to be performed throughout operational phase.	National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Siting and demarcation of activities Excavation and earthworks 	Alternation of cultural landscape	No mitigation proposed. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]
<ul style="list-style-type: none"> Siting and demarcation of activities Excavation and earthworks 	Disturbance to graves/human burial sites	No mitigation proposed. Refer to mitigation measures in Part A, Section (j), Table 3.19, Table 3.20, Table 3.21 and Table 3.22, as well as Appendix 5.	From the onset of the planning and design phase, through clearing activities until the end of rehabilitation and then additionally, in the initial period after the activities are completed. Monitoring and maintenance to be performed throughout operational phase.	<ul style="list-style-type: none"> National Environmental Management Act (Act 107 of 1998) National Environmental Management Biodiversity Act (Act 10 of 2004) National Heritage Resources Act (Act 25 of 1999) National Water Act (Act No 36 of 1998) [NWA]

**(g) FINANCIAL PROVISION****(1) DETERMINATION OF THE AMOUNT OF FINANCIAL PROVISION.****(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.**

The prescribed methodology for estimation of the closure costs is provided for by the DMR in the form of a Guideline Document for the Evaluation of Financial Provision. The financial provision was determined using the DMRE master rates. For the Quantum Calculation refer to Table 2 below.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

The land for the proposed Ventilation Shafts is owned by Anglo American Mototolo Mines which is privately owned and is affected by the conveyor and service road. The landowner, as well as all identified I&APs, will be notified of the proposed mine infrastructure changes and this report will be made available for review and comment. Comments and concerns will be recorded and incorporated in the Final BAR and EMPr that will be submitted to the DMRE.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

The rehabilitation plan has been compiled in accordance with the objectives and goals listed in Appendix 7.5 Decommissioning and Mine Closure Plan and is deemed to be satisfactory according to the Mine and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) as amended and GNR 1147 of the National Environmental Management Act, 1988 (Act No. 107 of 1998). The following rehabilitation will take place:

- Rehabilitation of access roads
- Breaking down and removal of infrastructure (including ventilation fan, fence etc)
- Sealing of Shafts
- Topsoil placement, levelling and rehabilitation of ventilation shaft footprint area
- Water management

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

Rehabilitation measures have been specifically designed to meet closure objectives as stipulated in various sections of the report and is deemed to be satisfactory according to the Mine and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) and in line with the mine's current closure plan.

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.



A high-level closure cost estimate was conducted based on the information received and the assumptions listed within this report. The closure cost estimate was done for a premature unscheduled closure scenario, followed by a 10 year forecast and a Life of mine (LOM) estimation. Based on the calculations and financial estimates for the rehabilitation, closure and after care for the proposed Extension Project, is estimated as follows:

- The total financial liability for closure is estimated to be R 5 111 865.79 (incl. VAT).

(f) Confirm that the financial provision will be provided as determined.

The stated financial provision that is required to both manage and rehabilitate the environment will be provided by means of either a) a financial bank guarantee, b) insurance backed guarantee or c) by direct payment to the DMRE. The preferred method is being assessed and will be in place prior to the right being granted and provided to the DMRE for consideration. Further details on financial provisions are provided under Section (s).

(2) MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING

ENVIRONMENTAL MONITORING AND AUDITING

DFFE (2004) defines environmental auditing as *“a process whereby an organisation’s environmental performance is tested against its environmental policies and objectives.”* Monitoring and auditing is an essential environmental management tool which is used to assess, evaluate and manage environmental and sustainability issues.

In order to ensure that the objectives of sustainable development and integrated environmental management are met and in order to obtain data which can inform continuous improvement of environmental practices at the site (adaptive management), monitoring and reporting will be an essential component of the proposed operations.

This section provides a summary of the critical monitoring aspects per specific environmental field.

GENERAL MONITORING AND MANAGEMENT

Anglo American must keep a qualified on-site Environmental Superintendent (ES) to ensure the successful implementation of this project. The ES will be responsible for the implementation of the EMPr, applicable environmental legislation and any stipulations/conditions set by the relevant competent authorities (including but not limited to the DMRE and DHSWS). The ES will conduct formal weekly site inspections and monthly internal EMPr compliance reports.

An independent Environmental Control Officer (ECO) should also be appointed to conduct annual audits for the duration of the construction and operational phases. The Independent ECO should monitor the success and effective implementation of the environmental management measures stipulated by applicable legislation, the EIA & EMPr, and any conditions set by the competent



authorities. Following each site visit, the ECO should submit a report to the DMRE documenting the success/failure of the implementation of the management measures at the operations.

SPECIFIC MONITORING REQUIREMENTS

Monitoring of the proposed development (both on site and where appropriate in the surrounding environments) should be considered a high priority and should be conducted in accordance with the relevant specialist recommendations as summarized below:

MONITORING PROTOCOL

It is essential that during the construction and operational phases of the proposed development that the monitoring of certain elements is carried out to ensure compliance with licenses and/or authorisations. A monitoring protocol for both the construction phase and the operational phase will be required. It is important to note that the monitoring measures specified below does not include any monitoring that should take place according to the water use license if and when it will be authorized.

MONITORING REQUIREMENTS AND RECORD KEEPING

To ensure that the procedures outlined throughout the EMPr are implemented effectively, it will be necessary to monitor the implementation of the EMPr and evaluate the success of achieving the objectives listed in the EMPr. To ensure that all personnel on site are aware of their obligation to protect the environment, induction training will also include environmental awareness.

The audit procedure will include a Compliance audit, conducted by the Environmental Control Officer. Where the objectives of the EMPr are not being met, the reasons will be determined and remedial action or variation to the tasks will be recommended. Major residual effects shall be documented in a Non-Conformance Report, during the construction and operational phases. Follow-up audits will be conducted as per the audit protocol in the EMPr.

AUDIT PROTOCOL

An Audit Protocol for both the construction phase and the actual operational phase will be required. The auditing only includes those activities identified in the EIA & EMPr and excludes any auditing that should take place according to the water use license or any other legislative authorization process if and when they will be authorized.

CONSTRUCTION PHASE

The following audits need to be completed (valid for this EMPr):

- Weekly internal environmental audits of EA, GA and EMPr compliance to be conducted by on-site Environmental Superintendent (ES) during construction phase.



- Monthly environmental audits of EA, GA and EMPr compliance conducted by an independent ECO during construction.

OPERATIONAL PHASE

The following audits must be completed:

- Monthly internal compliance checks of EA, GA and EMPr to be conducted by on-site Environmental Superintendent (ES) during operational phase.
- Annual performance assessments of EA, GA and EMPr compliance conducted by an independent ECO during the operational phase.

ENVIRONMENTAL INCIDENTS

An environmental incident is defined as any unplanned event that results in actual or potential damage to the environment, whether of a serious or non-serious nature. An incident may involve non-conformance with environmental legal requirements, the requirements of the EMPr, or contravention of written or verbal orders given by the Environmental superintendent of Glencore or relevant authority.

In the event of any incident, an Environmental Incident Log should be completed and these reports should be kept on file by the Environmental superintendent. Such reports should provide the following details:

- Date of the Incident (and time if relevant)
- Description of the nature of the incident (what happened)
- Explanation for current conditions (why it happened), responsible person, supporting photographs etc.
- Description of corrective actions taken

Corrective action to mitigate the impact (appropriate to the nature and scale of the incident) should be conducted immediately and affected parties notified. In the case of serious incidents or emergencies, the incident report should be sent to the relevant authority as soon as possible after the incident has been recorded.

PENALTIES AND FINES FOR NON-COMPLIANCE OR MISCONDUCT

This EMPr will need to form part of the contract agreement between the Client and the Principal contractor. As such, non-compliance with conditions of the EMPr will amount to a breach of contract. Penalties should be issued directly to the contractor by the Environmental superintendent in the event of non-compliance to the EMPr specifications. The issuing of a penalty will be preceded by a verbal warning by the applicant, as well as strict instruction in at least one monthly Environmental report to rectify the situation. The Environmental superintendent will communicate with regards to realistic time-frames for possible rectification of the contravention, and possible consequences of continued non-compliance to the EMPr.



Penalties incurred do not preclude prosecution under any other law. Cost of rehabilitation and/or repair of environmental resources that were harmed by the actions of the contractor, if such actions were in contravention of the specifications of the EMPr, will be borne by the contractor himself. Penalties may be issued over and above such costs. The repair or rehabilitation of any environmental damage caused by non-compliance with the EMPr cannot be claimed in the Contract Bill, nor can any extension of time be claimed for such works. Penalty amounts shall be deducted from Certificate payments made to the Contractor.

The following categories of non-compliance are an indication of the severity of the contravention, and the fine or penalty amounts may be adjusted depending on the seriousness of the infringement:

- Category One – Acts of non-compliance that are unsightly, a nuisance or disruptive to adjacent landowners, existing communities, tourists or persons passing through the area;
- Category Two – Acts of non-compliance that cause minor environmental impact or localised disturbance;
- Category Three – Acts of non-compliance that affect significant environmental impact extending beyond point source; and
- Category Four – Acts of non-compliance that result in major environmental impact affecting large areas, site character, protected species or conservation areas.



Table 2: Quantum of Financial Provision

No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor	E=A*B*C*D Amount
1	Dismantling of processing plant and related structures	m ²	5 800	R18,36	1	1,2	R127 818,38
2(A)	Demolition of steel buildings and structure	m ²	0	R255,81	0	0	R0,00
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0	R376,99	0	0	R0,00
3	Rehabilitation of access roads	m ²	33 923	R45,78	1	1,2	R1 863 477,40
4(A)	Demolition and rehabilitation of electrified railway lines		0	R444,31	0	0	R0,00
4(B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R242,35	0	0	R0,00
5	Demolition of housing and/or administration facilities	m ²	0	R511,63	0	0	R0,00
6	Opencast rehabilitation including final voids and ramps	ha	0	R260 391,13	0,52	1,2	R0,00
7	Sealing of shafts, adits and inclines	m ³	0	R137,33	1	1	R0,00
8(A)	Rehabilitation of overburden and spoils	ha	1,2	R178 800,11	1	1,2	R257 472,16
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (salts)	ha	0	R222 692,31	0	0	R0,00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	R646 804,02	0	0	R0,00
9	Rehabilitation of subsided areas	ha	0	R149 718,17	0	0	R0,00
10	General surface rehabilitation	ha	3,87	R141 639,85	1	1,2	R657 775,46
11	River diversions	ha	0	R141 639,85	0	0	R0,00
12	Fencing	m	1 114	R161,57	1	1,2	R215 981,92
13	Water management	ha	3,87	R53 855,46	0,41	1,2	R102 542,94
14	2 to 3 years of maintenance and aftercare	ha	18,5	R18 849,41	1	1,2	R418 456,89
15(A)	Specialist study	sum	0				R0,00
15(B)	Specialist study	sum	0				R0,00
SUBTOTAL 1							R3 643 525,15
1	Weighting factor 2	(0%, 5% or 10%)					R 182 176,26
2	Preliminary and General	7% of subtotal 1					R255 046,76
8	Contingency	10,0% of subtotal 1					R364 352,52
SUBTOTAL 2							R801 575,53
VAT (15%)							R666 765,10
GRAND TOTAL (SUBTOTAL 1 + SUBTOTAL 2 + VAT)							R5 111 865,79



- (g) Monitoring of Impact Management Actions
- (h) Monitoring and reporting frequency
- (i) Responsible persons
- (j) Time period for implementing impact management actions
- (k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> • Application for relevant authorisations 	Legal and policy compliance	Ensure that the conditions of the EA, EMPr and GA, as well as any additional management plans and method statements, are being implemented.	<p>Anglo American (Proponent):</p> <p>Anglo American is the applicant/proponent and shall therefore be the entity managing and monitoring the implementation of the EMPr and compliance with the authorisation for the duration of the planning, construction and operation phases. However, if Anglo appoints a Contractor / site manager to implement the project and hence implement the proposed management and mitigation measures documented in this EMPr on their behalf, then the successful contractor's responsibilities are outlined in the section that follows.</p> <p>Contractor / site manager:</p> <p>The Contractor / site manager shall:</p> <ul style="list-style-type: none"> • Be responsible for the finalisation of the EMPr in terms of methodologies which are required to be implemented ('method statements') to achieve the environmental 	<p>Monitoring of the impacts as outlined here must include reporting of the following:</p> <ul style="list-style-type: none"> • Daily site diary including reporting on Health & Safety, EMP compliance, adherence to speed limits, dust, damage to vegetation, litter, pollution, noise etc. • Weekly internal environmental audits of EA, GA and EMPr compliance to be conducted by on-site Environmental Superintendent (ES) during construction phase and monthly compliance checks during operation. • Monthly environmental audits of EA, GA and EMPr compliance conducted by an independent ECO during construction and annual
<ul style="list-style-type: none"> • Siting and placement • Earthworks • Accidental leakages • Maintenance 	Infrastructure			
<ul style="list-style-type: none"> • Siting and placement • Management of stockpiles 	Material Stockpiling			
<ul style="list-style-type: none"> • Infrastructure and design • Maintenance 	Stormwater management			
<ul style="list-style-type: none"> • Planning for storage, handling and disposal of general and hazardous waste • Construction rubble • General refuse • Hazardous waste • Cement mixing • Spillages 	Waste Management			



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<ul style="list-style-type: none"> Storage, use and handling of hazardous substances 	Hazardous substances		<p>specifications contained herein and the relevant requirements contained in the environmental authorisation, if issued by DMRE;</p> <ul style="list-style-type: none"> Be responsible for the overall implementation of the EMPr in accordance with the requirements of Anglo and the environmental authorisation, if issued by DMRE; Ensure that all third parties who carry out all or part of the Contractor's obligations under the Contract comply with the requirements of this EMPr; Be responsible for obtaining any environmental permits which are required for the design, construction and operation of the proposed development. Ensure that the appointments of the Environmental Superintendent (ES) subject to the approval of Anglo. <p><u>Environmental Superintendent (ES):</u> The Contractor shall appoint a nominated representative of the contractor as the ES for the contract. The ES will be site-based and shall be the responsible person for implementing the environmental provisions of the construction contract.</p>	performance assessments during operation.
<ul style="list-style-type: none"> Planning and design, and construction activities 	Job creation			
<ul style="list-style-type: none"> Ablution facilities at construction site 	Sanitation			
<ul style="list-style-type: none"> Planning Construction activities Obstruction of traffic 	Health and safety			
<ul style="list-style-type: none"> Vegetation clearance Earthworks Construction activities 	Air quality and dust control			
<ul style="list-style-type: none"> Planning for emergency response procedures Flammable goods Cooking, smoking and open flame on site 	On-site fire risk			
<ul style="list-style-type: none"> Management Construction activities 	Traffic			
<ul style="list-style-type: none"> Planning and provisioning 	Inadequate rehabilitation			



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<ul style="list-style-type: none"> Maintenance of infrastructure 				
<ul style="list-style-type: none"> Physical removal of the riparian zones. 	Direct ecosystem modification or destruction / loss impacts		There shall be an approved ES on the site at all times. It may be necessary to have more than one ES employed.	
<ul style="list-style-type: none"> Changes to hydrological regime such as alteration of surface run-off patterns 	Alteration of hydrological and geo-morphological processes		The ES's duties will include, inter alia, the following:	
<ul style="list-style-type: none"> Changes to the hydrological regime Alteration of surface run-off patterns. 	Ecological connectivity and edge disturbance impacts		<ul style="list-style-type: none"> Ensuring that all the environmental authorisations and permits required in terms of the applicable legislation have been obtained prior to construction commencing. 	
<ul style="list-style-type: none"> Chemical pollutants and hydrocarbons from equipment and vehicles. Cleaning fluids, cement powder, wet cement, shutter-oil, etc.) 	Water pollution impacts		<ul style="list-style-type: none"> Reviewing and approving construction method statements with input from the ECO and Engineer, where necessary, in order to ensure that the environmental specifications contained within the construction contract are adhered to. 	
<ul style="list-style-type: none"> Loss of vegetation to ventilation shafts, emulsion shaft, borrow pits, access roads and powerline pylons. 	Loss of vegetation		<ul style="list-style-type: none"> Assisting the Contractor in finding environmentally responsible solutions to problems. Keeping accurate and detailed records of all activities on site. Keeping a register of complaints on site and recording community comments and 	



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<ul style="list-style-type: none"> Vegetation disturbance and clearance, including construction vehicle traffic, earthworks, excavation and infilling. Poor rehabilitation, management and monitoring. 			<p>issues, and the actions taken in response to these complaints.</p> <ul style="list-style-type: none"> Ensuring that the required actions are undertaken to mitigate the impacts resulting from non-compliance. Ordering the removal of, or issuing spot fines for person/s and/or equipment not complying with the specifications of the EMPr and/or environmental authorisation. Reporting all incidences of non-compliance to the ECO and Contractor. The ES shall submit regular written reports to the ECO, but not less frequently than once a month. 	
<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	Loss of Plant Species of Conservation Concern			
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Disturbance, fragmentation and loss of habitats. 	Impact on faunal species of conservation concern		<p>The ES must have:</p> <ul style="list-style-type: none"> The ability to manage public communication and complaints; The ability to think holistically about the structure, functioning and performance of environmental systems; and The ES must be fully conversant with the Environmental Impact Report and EMPr for the development and all relevant environmental legislation. 	
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. 	Reduced Faunal Habitat			
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. 	Disruption of Ecosystem Function and Processes		<ul style="list-style-type: none"> The ES must have received professional training, including training in the skills necessary to be able to amicably and 	



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<ul style="list-style-type: none"> Disturbance, fragmentation and loss of habitats. 			<p>diplomatically deal with the public as outlined in bullet point one above.</p>	
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Noise and vibrations of earthworks. Encounters with construction machinery. Disturbance, fragmentation and loss of habitats. 	<p>Disturbance to faunal species and potential reduction in abundance and mortality of faunal species</p>		<p>The ECO shall be in the position to determine whether or not the ES has adequately demonstrated his/her capabilities to carry out the tasks at hand and in a professional manner. The ECO shall therefore have the authority to instruct the contractor to replace the ES if, in the ECO's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the construction contract. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required and within what timeframe. The ECO shall visit the development site and in addition to the responsibilities listed below, review the performance of the ES and submit regular performance reviews to Anglo.</p>	
<ul style="list-style-type: none"> Vegetation disturbance and clearance. Rehabilitation, management and monitoring. 	<p>Establishment and/or spread of Alien Plant Species</p>			
<ul style="list-style-type: none"> Siting and demarcation of activities Excavation and earthworks 	<p>Loss of archaeological feature</p>			
<ul style="list-style-type: none"> Siting and demarcation of activities Excavation and earthworks 	<p>Loss of historically significant building and structures All</p>		<p><u>Environmental Control Officer (ECO):</u> For the purposes of implementing the conditions contained herein Anglo shall appoint an Environmental Control Officer (ECO) for the contract. The ECO shall be the responsible person for ensuring that the provisions of the EMPr as well as the environmental</p>	



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<ul style="list-style-type: none"> Siting and demarcation activities Excavation and earthworks 	Alternation of cultural landscape		authorisation are complied with during the construction period. The ECO will be responsible for issuing instructions to the contractor and where environmental considerations call for action to be taken. The ECO shall submit regular audit reports to Anglo at a frequency to be agreed or as required by the issued Environmental Authorisation.	
<ul style="list-style-type: none"> Siting and demarcation activities Excavation and earthworks 	Disturbance to graves/human burial sites		The ECO will be responsible for the monitoring, reviewing and verifying of compliance with the EMPr and conditions of the environmental authorisation. The ECO's duties in this regard will include, inter alia, the following: <ul style="list-style-type: none"> Site audit and to confirm that all the environmental authorisations and permits required in terms of the applicable legislation have been obtained prior to construction commencing. Monitoring and verifying that the EMPr, Environmental Authorisation and Contract are adhered to at all times and taking action if specifications are not followed. Monitoring and verifying that environmental impacts are kept to a minimum. Reviewing and approving construction method statements with input from the ES and project manager where necessary, in 	



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			<p>order to ensure that the environmental specifications contained within this EMPr and environmental authorisation are adhered to.</p> <ul style="list-style-type: none"> • Inspecting the site and surrounding areas on a regular basis regarding compliance with the EMPr, Environmental Authorisation and Contract. • Monitoring the undertaking by the Contractor to implement environmental awareness training for all new personnel on site. • Ensuring that activities on site comply with all relevant environmental legislation. • Undertaking a continual internal review of the EMPr and submitting any changes to Anglo and/or DMRE (in case of major changes) for review and approval. • Checking the register of complaints kept on site and maintained by the DEO and ensuring that the correct actions are/were taken in response to these complaints. • Checking that the required actions are/were undertaken to mitigate the impacts resulting from non-compliance. • Reporting all incidences of non-compliance in audit report that is submitted to Anglo, stating the level of environmental 	



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			<p>performance in respect of the activities undertaken relating to the project.</p> <ul style="list-style-type: none"> • The ECO shall also submit compliance audit reports to DMRE, in accordance with the requirements of the environmental authorisation. Such reports shall be reviewed by Anglo, prior to submission. • Keeping a photographic record of progress on site from an environmental perspective. This can be conducted in conjunction with the ES as the ES will be the person that will be onsite at all times and can therefore take photographic records weekly. The ECO would need to check and ensure that the ES understands the task at hand. • Recommending additional environmental protection measures, should this be necessary. • Providing report back on any environmental issues at site meetings. <p>The ECO must have:</p> <ul style="list-style-type: none"> • A good working knowledge of all relevant environmental policies, legislation, guidelines and standards; • The ability to conduct inspections and audits and to produce thorough, readable and informative reports; 	



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			<ul style="list-style-type: none"> • The ability to manage public communication and complaints; • The ability to think holistically about the structure, functioning and performance of environmental systems; and • Proven competence in the application of the following integrated environmental management tools: <ul style="list-style-type: none"> • Environmental Impact Assessment. • Environmental management plans/programmes. • Environmental auditing. • Mitigation and optimisation of impacts. • Monitoring and evaluation of impacts. • Environmental Management Systems. <p>The ECO must be fully conversant with the BA, EMPr, Environmental Authorisation (should the application succeed) for the proposed activities and all relevant environmental legislation.</p> <p>Anglo shall have the authority to replace the ECO if, in their opinion, the appointed officer is not fulfilling their duties in terms of the requirements of the EMPr or this specification. Such instruction will be in writing and shall</p>	



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			clearly set out the reasons why a replacement is required and within what timeframe.	



(l) Indicate the frequency of the submission of the performance assessment / environmental audit report.

- Daily site diary including reporting on Health & Safety, EMP compliance, adherence to speed limits, dust, damage to vegetation, litter, pollution, noise etc.
- Weekly internal environmental audits of EA, GA and EMPr compliance to be conducted by on-site Environmental Superintendent (ES) during construction phase and monthly compliance checks during operation.
- Monthly environmental audits of EA, GA and EMPr compliance conducted by an independent ECO during construction and annual performance assessments during operation.

(m) Environmental Awareness Plan

- (1) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

All employees will undergo an induction course when they are employed which will inform them of the environmental issues / risks and requirements prior to work commencing. An annual refresher will be done thereafter, with toolbox talks being undertaken monthly. The following aspects of environmental training should be included within the induction course:

- Sustainability
- Environmental goals and manner of achieving these
- SCCs (Species of Conservation Concern) likely to be encountered
- Rehabilitation
- Waste management / minimisation (including recycling)
- Saving water
- Dealing with soil contamination and spillages
- Solutions to environmental risks

The Environmental Superintendent shall ensure that adequate environmental training takes place. All employees shall be given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in a language understandable by all employees. The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities;
- The importance of not littering;
- The need to use water sparingly;
- Details of, and encouragement to, minimise the production of waste and re-use, recover and recycle waste where possible;
- Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered;



- Details regarding SCCs, including protected/endangered species, and the procedures to be followed should these be encountered during prospecting.

In the case of permanent staff, the Site manager/ Environmental Superintendent shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Site manager shall inform how he intends concluding his environmental training obligations.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. the executive, middle management and labour. Environmental awareness training programmes should contain the following information:

- The names, positions and responsibilities of personnel to be trained.
- The framework for appropriate training plans.
- The summarised content of each training course.

The Environmental Superintendent / ECO shall monitor the records as listed above.

- (2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

All mitigation and management measures should be covered in the induction training. This will ensure prevention of risky situations during operation. The compliance to the procedures is the duty of all staff and contractors. This is monitored by supervisors and reported to the management team as well as the Environmental Superintendent / ECO.

(n) Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

No specific information was requested from the authorities to date. Financial provisions will be reviewed annually.



5 UNDERTAKING

The EAP herewith confirms

- (a) THE CORRECTNESS OF THE INFORMATION PROVIDED IN THE REPORTS
- (b) THE INCLUSION OF COMMENTS AND INPUTS FROM STAKEHOLDERS AND I&APS ;
- (c) THE INCLUSION OF INPUTS AND RECOMMENDATIONS FROM THE SPECIALIST REPORTS WHERE RELEVANT; AND
- (d) THAT THE INFORMATION PROVIDED BY THE EAP TO INTERESTED AND AFFECTED PARTIES AND ANY RESPONSES BY THE EAP TO COMMENTS OR INPUTS MADE BY INTERESTED AND AFFECTED. PARTIES ARE CORRECTLY REFLECTED HEREIN

A handwritten signature in black ink, appearing to read 'Steyn', written over a horizontal line.

Signature of the environmental assessment practitioner:

Coastal & Environmental Services

Name of company:

17 October 2022

Date:

-END-



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APPENDICES

- Appendix 1 – EAP Declaration and CV
- Appendix 2 – Locality Map
- Appendix 3 – Copies of Environmental Authorisations
- Appendix 4 – Site Plan
- Appendix 5 – Impact Assessment Tables
- Appendix 6 – Sensitivity Map
- Appendix 7 – Financial Quantum and Closure Plan and Liability Report
- Appendix 8 – Specialist Studies
 - Appendix 8.1 – Terrestrial Biodiversity Assessment
 - Appendix 8.2 – Wetland Assessment
 - Appendix 8.3 – Archaeological Impact Assessment
- Appendix 9 – Public Participation Documentation

APPENDIX 1 – EAP DECLARATION AND CV

CONTACT DETAILS

Name of Company	CES – Environmental and Social Advisory Services
Designation	Principal Environmental Consultant
Profession	Environmental Consultant
Years with firm	16 years
E-mail	corrie.retief@cesnet.co.za
Office number	+27 (0) 010 045-1372
Mobile	+27 (0) 82 852-2134
Nationality	South African
Professional Body	<ul style="list-style-type: none">➤ SACNASP: South African Council for Natural Scientific Profession➤ EAPASA: Environmental Assessment Practitioners Association of South Africa
Key areas of expertise	<ul style="list-style-type: none">➤ Environmental Impact Assessment➤ Waste management➤ Water Use Licensing➤ Environmental management systems, auditing and due-diligence

PROFILE

Corrie is a SACNASP registered Environmental Scientist and an EAPASA Registered EAP with a Bachelor degree specialising in environmental management and an Honours Bachelors in Geography. I have been working for more than 16 years on several diverse projects relating to the Environmental and Waste Management for mining, local government and for the private sector.

**EMPLOYMENT
EXPERIENCE**

- March 2022 – Present: Principal Environmental Consultant (Coastal & Environmental Services, Gauteng, South Africa)
- August 2020 – March 2022: Freelance Environmental Consultant (Retief Environmental, Brits, South Africa)
- May 2015 – July 2020: Business Unit Head: Authorisations and Waste (Environmental Assurance (Pty) Ltd, Pretoria, South Africa)
- January 2011 – April 2015: Environmental Scientist (WorleyParsons RSA (Pty) Ltd, Pretoria, South Africa)
- November 2009 – January 2011: Environmental Scientist (Kwezi V3 Engineers (Pty) Ltd, Pretoria, South Africa)
- November 2004 – November 2009: Freelance Environmental Consultant (Retief Environmental Consultants, Pretoria, South Africa)

**ACADEMIC
QUALIFICATIONS**

- Honours BA (Geography), Unisa, 2007
- BA Specialising in Environmental Management, Unisa, 2007

COURSES

- 2021 Environmental Law Update Training, Inlexso, 2021
- 2017 Course in Integrated Waste Management, Northwest University: Centre for Environmental Management, 2017
- Environmental Legal Update Training, MacRobert Attorneys, 2017
- Environmental Law Workshop, IMBEWU, 2016
- Innovative Management of Tailings, Mine Waste And Heap Leaching, Melrose Training, 2015
- 2014 Short Course in Environmental Management and Regulation, University of Pretoria, 2014
- SEAL Sustainable Design Lead Practitioner Course, WorleyParsons RSA, 2013
- Short Course in Environmental Compliance, University of Pretoria, 2013
- 2009
- ISO 14001:2004 Requirements Course, TIQMS, 2009
- ISO 14001:2004 Internal Auditors Course, TIQMS, 2009

**CONSULTING
EXPERIENCE**

Environmental Impact Assessment

- Managed numerous environmental impact assessment (EIA) and prepared EIA reports in terms of relevant EIA legislation and regulations for development proposals including bulk water and wastewater, roads, electrical, mining, renewable energy, industrial processes, housing developments, golf estates and resorts, etc. (2004 – present).
- EIA for the expansion of the Tronox Namakwa Sands mining footprint, Brand se Baai, (2020)
- Basic Assessment and water-use license for Canyon Coal for a new proposed Argent Coal Siding, Delmas (2016)
- EIA, Waste License and Water use license for the establishment of a Solar power park consisting of a 100MW concentrated solar power plant and three 75MW photovoltaic solar power developments, Upington, Northern Cape (2015)
- Application for a Mining Right for Ilingabi Coal to mine sand coal and clay, Nigel (2020)

Waste Management

- Waste License applications for the Rhodium Reefs Mareesburg, Kennedy's Vale and Spitskop Mines, Steelpoort (2016)
- Classification of sewage sludge of the WWTW of the Samancor Western Chrome Mines (2018)
- Waste Classification of all waste facilities for the Eastplats Zandfontein, Crocette and Maroelabuilt mine sections (2015)
- Managed waste license process to license a new landfill site and closure the current landfill site for the Naledi Local Municipality (2010)
- Managed waste license process to license new landfill sites for the towns of Piet Plessis, Bray, Tosca and Pomfret for the Kagisano and Molopo Local Municipalities (2014)
- Managed waste license process to license new regional landfill site for the Nkangala District Municipality (2014)
- Managed Waste Management License for the closure of the historic ArcelorMittal BOF Slag disposal facility and the identification and licensing of a new BOF slag disposal facility, ArcelorMittal Newcastle Works, Newcastle, KZN, 2012

Environmental auditing and compliance

- Conducted environmental management plan compliance audits for Gautrain Rapid Rail system (2015-2017).
- External EMPr Audit for the Glencor Rhovan Mine, Brits, Northwest, 2017
- GN704 Audit for the Harmony Kusasaletu and Deelkraal Mines, Randfontein, Gauteng, 2016
- External EMPr audit for the Afrisam Springvalley Mine near Lichtenburg (2017)
- EMPr Performance Assessment for Black Chrome Mine near Burgersfort (2017)
- GN704 Audit of the Harmony Kusasaletu and Deelkraal Mines (2016)
- Monthly ECO Audits for the Relocation of the Baghouse Dust Disposal Facility to the Existing Licensed slag disposal facility at Assmang Machadodorp (2014-2015)
- Monthly environmental compliance audits for the construction phase of the Zeekoegat Wastewater Treatment Plant, Pretoria (2013-2015)

Water Use Licensing

- Integrated water-use licensing for the Eastplats Zandfontein, Crocette and Maroelabuilt mine sections, Brits (2017)
- Integrated water-use licensing for the Brikor Plant 1 and 3 Brick making plants, Nigel (2020)
- Water use license application for the proposed PMG Paling Manganese Mine, Postmasburg (2017)
- Integrated water-use license for a new WCM Elandsdrift opencast mine, Mooinooi (2020)

CERTIFICATION

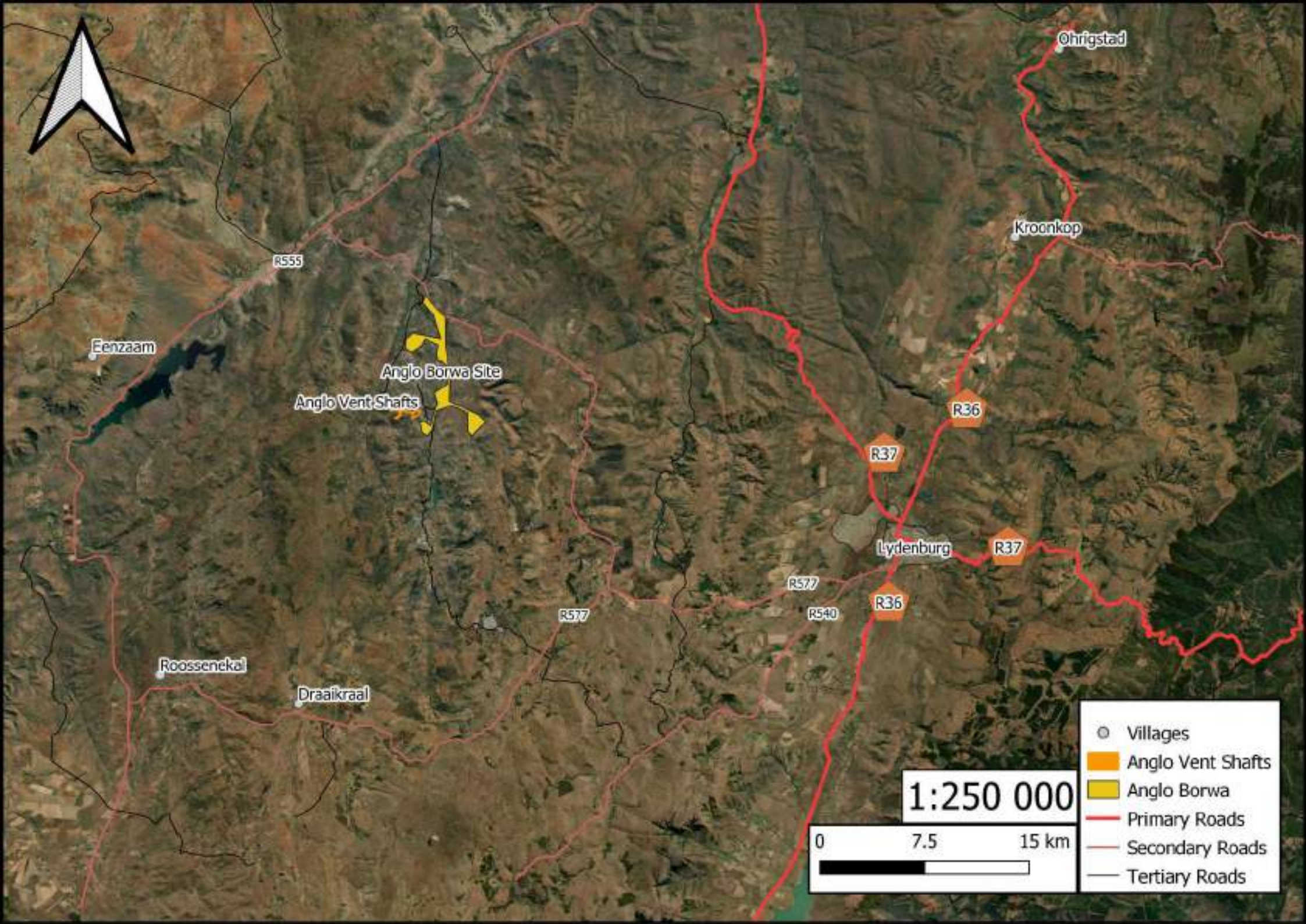
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.



CORNELIUS JOHANNES RETIEF

Date: 17 March 2022

APPENDIX 2 – LOCALITY MAP



Ohrigstad

Kroonkop

R555

Eenzaam

Anglo Borwa Site
Anglo Vent Shafts

R36

R37

Lydenburg

R37

R577

R540

R36

Roossenekal

Draaikraal

R577

- Villages
- Anglo Vent Shafts
- Anglo Borwa
- Primary Roads
- Secondary Roads
- Tertiary Roads

1:250 000

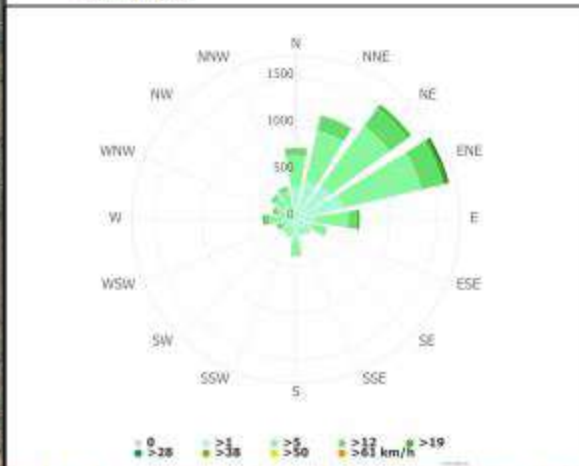
0 7.5 15 km

PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE

LOCALITY AND LAYOUT MAP



- Proposed infrastructure**
- Ventilation Shafts**
 - Design
 - Concrete
 - Water Containers
 - Platform Infrastructure
 - Platform
 - Borwa-South & North VS & Down-Cast**
 - Structure points
 - Overhead line
 - Mototolo-Lebowa North-Toff Borwa**
 - Structure points
 - Overhead line
 - Access Roads
 - Borrow Pits
 - Existing infrastructure**
 - Mine infrastructure
 - Vent shaft
 - Text point



APPENDIX 3 – COPY OF THE PREVIOUS ENVIRONMENTAL AUTHORISATION



mineral resources & energy

Department
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9467, Polokwane, 0700, Tel: 015 287 4700, Fax: 066 710 1045
DMR Building, 101 Dorp Street, Polokwane, 0699

Enquiries: Ref: LP30/5/1/2/3/2/1 (0182) EM
E-Mail Address: Jane.Mulaudzi@dmre.gov.za
Sub-Directorate: Mine Environmental Management

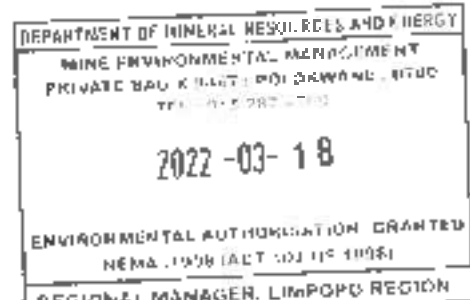
BY HAND

The Director(s):

Anglo American Platinum (AAP) Rustenburg Platinum Mines (RPM) Ltd
Der Brochen – Mototolo Mine complex
Private Bag X1
Marshalltown
Johannesburg
2107

For attention: Dr Gordon Smith.
CC: Mrs Selma Nel

Email: Gordon.smith@angloamerican.com
Email: SNel@srk.co.za



INTEGRATED ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AS AMENDED (NEMA) AND NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT 59 OF 2008) AS AMENDED (NEMWA), AND THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2014 FOR CONSOLIDATION OF ENVIRONMENTAL AUTHORISATIONS AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPRs) FOR DER BROCHEN MINE TO INCLUDE THE MOTOTOLO MINE INFRASTRUCTURE AND ACTIVITIES ON THE REMAINING EXTENT, PORTIONS 1 AND 2 OF THE FARM RICHMOND 370 KT; REMAINING EXTENT, PORTIONS 1 AND 2 OF THE FARM ST GEORGE 2 JT; REMAINING EXTENT OF THE FARM HERMANSDAL 3 JT; REMAINING EXTENT AND PORTION 1 OF THE FARM HEBRON 5 JT; REMAINING EXTENT AND PORTION 3 OF THE FARM HELENA 6 JT, REMAINING EXTENT OF THE FARM DER BROCHEN 7 JT, PORTION 7 OF THE FARM MAREESBURG 8 JT; PORTION OF PORTION 3, A PORTION OF PORTION 7 AND A PORTION OF THE REMAINING EXTENT OF THE FARM THORNCLIFFE 374 KT; SITUATED WITHIN FETAKGOMO TUBATSE LOCAL MUNICIPALITY OF SEKHUKHUNE DISTRICT: LIMPOPO REGION.

With reference to the abovementioned application, please be advised that the Department has decided to grant an integrated environmental authorisation in terms of National Environmental Management Act (Act 107 of 1998). The environmental authorisation and reasons for the decision are attached herewith.

In terms of regulation 4 (2) of the Environmental Impact Assessment Regulations of 2014, you are instructed to notify all registered interested and affected parties, in writing within 14 (Fourteen) calendar days, from the date of the Department's decision in respect of your application and the relevant provisions regarding the lodgement of appeal must be provided for in terms of the National Appeal Regulations of 2014.

Should you wish to appeal any aspect of the decision, you must submit the appeal to the Minister of Environmental Affairs and a copy of such appeal to the Department of Mineral Resources (Limpopo Regional Office), within 20 days from the date of notification, and such appeal must be lodged as prescribed in by Chapter 2 of the National Appeal Regulations of 2014 by means of the methods as per prescribed below:

Appeal to the Department of Environmental Affairs

Attention : Directorate Appeals and Legal Review
Email : appeals@environment.gov.za
By post : Private Bag X 447, PRETORIA, 0001
By hand : Environmental House, Corner Steve Biko and Soutpansberg Street, Arcadia, Pretoria, 0083

Copy of the lodged appeal to the Department of Mineral Resources

Attention : Regional Manager: Limpopo Region
By facsimile : (015) 297 7230
E-mail : azwihangwisi.melaudzi@dmre.gov.za
By post : Private Bag X 8467, POLOKWANE, 0700
By hand : DMR Building, 101 Dorp Street, Polokwane, 0699

Should you decide to appeal, you must comply with the National Appeal Regulation of 2014 in relation to notification of all registered interested and affected, and a copy of the official appeal form can be obtained from the Department of Environmental Affairs.

Kind Regards,

M. M. Malapane
MS. MODILATI MAGDELINE MALAPANE
CHIEF DIRECTOR: NORTHERN REGIONS
MINERAL AND PETROLEUM REGULATION
DATE: 18.03.2022

DEPARTMENT OF MINERAL RESOURCES AND ENERGY MINE ENVIRONMENTS MANAGEMENT PRIVATE BAG 8467, POLOKWANE 0700 TEL: 015 297 7230
2022-03-18
ENVIRONMENTAL AUTHORIZATION: GRANTED MEMA 4998 (ACT 107 OF 1994)
REGIONAL MANAGER: LIMPOPO REGION



mineral resources & energy

Department:
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9467, Polokwane, 0700, Tel: 015 287 4700, Fax: 086 710 1045
DMR Building, 101 Dorp Street, Polokwane, 0699

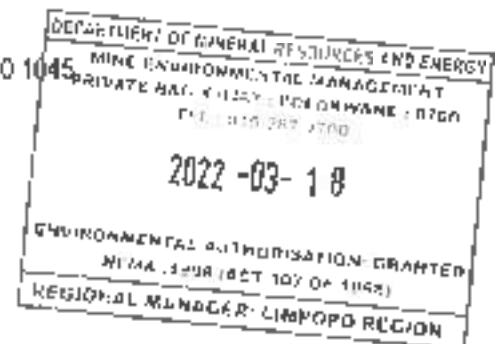
ENVIRONMENTAL AUTHORISATION

Reference number: LP30/5/1/2/3/2/1 (0182) EM

Last amended: First issue

Holder of authorisation: Anglo American Platinum (AAP) Rustenburg Platinum Mines (RPM) Ltd
(Der Brochen – Mototolo Mine complex)

Location of activities: Remaining extent portions 1 and 2 of the farm Richmond 370 KT, Remaining extent, portions 1 and 2 of the farm ST George 2 JT; Remaining extent of the farm Hermansdal 3 JT; Remaining extent and portion 1 of the farm Habron 5 JT, Remaining extent and portion 3 of the farm Helena 6 JT, Remaining extent of the farm Der Brochen 7 JT, portion 7 of the farm Marsburg 8 JT; portion of portion 3, a portion of portion 7 and a portion of the remaining extent of the farm Thomcliffe 374 KT; situated within Fetakgomo Tloletse local municipality of Sekhukhune district: Limpopo Region.



DECISION

ACRONYMS

NEMA:	The National Environmental Management Act, 1998 (Act 107 of 1998), as amended
EIA:	Environmental Impact Assessment
DEPARTMENT:	Department of Mineral Resources
EA:	Environmental Authorisation
IEA:	Integrated Environmental Authorisation
EMPr:	Environmental Management Programme
BAR:	Basic Assessment Report
S&EIR:	Scoping and Environmental Impact Report
I&AP:	Interested and Affected Parties
ECO:	Environmental Control Officer
LIHRA:	Limpopo Heritage Resource Agency
SAHRA:	South African Heritage Resources Agency
EIA REGULATIONS:	EIA Regulations, 2014
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), as amended
NEMA:WA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended.

The Department is satisfied, on the basis of information availed to it and subject to compliance with the conditions of this integrated environmental authorisation, that the applicant should be authorised to undertake NEMA EIA and NEMWA listed activity (ies) specified below. Details regarding the basis on which the Department reached this granting decision are set out in Annexure "1 and 2" of this integrated environmental authorisation.

ACTIVITY APPLIED FOR

By virtue of the powers conferred on it by NEMA, the Department hereby Grant an application for EA by Anglo American Platinum (AAP) Rustenburg Platinum Mines (RPM) (Pty) Ltd (Der Brochen Mine) with the following contact details -

Dr Gordon Smith

American Platinum (AAP) Rustenburg Platinum Mines (RPM) (Pty) Ltd

Der Brochen – Mototolo Mine complex

Private Bag X1

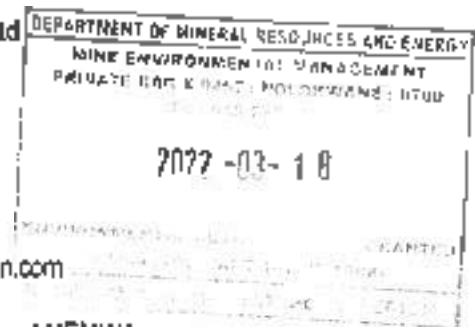
Marshalltown

Johannesburg

2107

Tel no: (011) 373 6334

Email: Gordon.smith@angloamerican.com




to undertake the following activities listed in the NEMA EIA Regulation and NEMWA.

LISTED ACTIVITIES IN TERMS OF NEMA EIA REGULATIONS AND NEMWA TRIGGERED BY THE CONSOLIDATION PROJECT FOR ANGLO AMERICAN PLATINUM (AAP) RUSTENBURG PLATINUM MINES (RPM) LTD: DER BROCHEN – MOTOTOLO MINE COMPLEX

NEMA Listed activities that have been authorised previously

Activity description	Activity footprint / extent	Listed activity	Relevant Listing Notice
Mototolo Mine's Listed Activities			
Four new ventilation shafts and associated access roads at Mototolo Mine	Combined 6400 m ²	Activity 20: Any activity that requires a mining right or renewal thereof as contemplated in sections 22 and 24 of the MPRDA.	GNR 545 (18 June 2010) - Listing notice 2
Above ground air storage facilities at Lebowa and Borwa shafts	<u>Borwa shaft</u> 2 x 14 000 t 1 x 4 500 t <u>Lebowa shaft:</u> 2 x 14 000 t 1 x 4 500 t	Activity 10 (a)(ii)(bb): The construction of facilities or infrastructure for the storage or storage and handling of a dangerous good where such storage occurs in containers with the combined capacity of 30 and not exceeding 60 cubic meters.	GNR 546 (18 June 2010) - Listing notice 3
Der Brochen Project's Listed Activities			
Tailings delivery and return water pipelines from the Mototolo Concentrator to the Maresburg TSF and CDF.	<u>Maresburg TSF.</u> Length of pipelines: 2,77 km Internal diameter: • Tailings lines: 0,35 m	Activity 9: The construction of facilities for infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water –	GNR 544 (02 August 2010) - Listing notice 1

Activity description	Activity footprint / extent	Listed activity	Relevant Listing Notice
	<ul style="list-style-type: none"> Return water: 0.35 m <p>Peak throughput:</p> <ul style="list-style-type: none"> Tailings lines: approximately 160 ts Return water: approximately 100 ts <p>CDF:</p> <p>Length of pipeline: ± 1.5 km</p> <p>Internal diameter:</p> <ul style="list-style-type: none"> Tailings line: 0.3 m Return water: 0.3 m <p>Peak throughput:</p> <ul style="list-style-type: none"> Tailings line: approximately 120 ts Return water: approximately 100 ts 	<p>(i) with an internal diameter of 0.38 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more, excluding where:</p> <p>a) such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or</p> <p>b) where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the top of the watercourse.</p>	<p>DEPARTMENT OF MINERAL RESOURCES AND ENERGY WATER ENVIRONMENTAL MANAGEMENT PRIVATE BAG 281 PRETORIA 0001 TEL: 011 667 4100</p> <p>2022-03-18</p> <p>ENVIRONMENTAL AUTHORISATION: GRANTED NEMA, 1998 (ACT 107 OF 1998)</p> <p>REGIONAL OFFICE: LIMPOPO REGION</p>
<p>The pipelines to transport tailings material from the Motoko Concentrator to the Maresburg TSF and return water back to the Concentrator crosses the Groot-Dwars River and tributaries including the Maresburg Stream.</p>	<p>The construction of the overstream crossing required the excavation of more than 5 m³ river bed material in a watercourse</p>	<p>Activity 18: The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from:</p> <p>(i) a watercourse;</p> <p>(ii) the sea;</p> <p>(iii) the seashore;</p> <p>(iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater but excluding where such infilling, depositing, dragging, excavation, removal or moving</p> <p>(i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or</p> <p>(ii) occurs behind the development setback line</p>	<p>GNR 544 (02 August 2010) - Listing notice 1</p>
<p>Roads required for the Dar Drodhan Project</p>	<ul style="list-style-type: none"> Mine roads around the North and South pits (12 m wide); Service road alongside the Maresburg TSF pipeline. The Maresburg pipeline 	<p>Activity 22: The construction of a road, outside urban areas</p> <p>(i) with a reserve wider than 13.5 metres or,</p> <p>(ii) where no reserve exists where the road is wider than 8 metres, or</p>	<p>GNR 544 (02 August 2010) - Listing notice 1</p>

Activity description	Activity footprint / extent	Listed activity	Relevant Listing Notice
	corridor is 50 m wide)	(iii) for which an environmental authorisation was obtained for the route determination in terms of activity 6 in Government Notice 387 of 2006 or activity 18 in Notice 546 of 2010.	
<p>Part of the existing Eskom 132 kV powerline may be demolished and re-routed to accommodate the proposed Open Pits.</p>		<p>Activity 27: The decommissioning of existing facilities or infrastructure or – (i) electricity generation with a threshold of more than 10 MW; (ii) electricity transmission and distribution with a threshold of more than 132 kV; (iii) nuclear reactors and storage of nuclear fuel; (iv) activities, where the facility or the land on which it is located is contaminated; (v) storage, or storage and handling, of dangerous goods of more than 80 cubic metres</p>	GNR 544 (02 August 2010) - Listing notice 1
<p>A Waste Treatment Licence is required for the disposal of waste or water containing waste in a manner which may detrimentally impact on a water resource.</p>	<p>Waste of water containing waste is disposed of at:</p> <ul style="list-style-type: none"> • Pollution control dams at the Maresburg TSF; • Waste rock dumps at Open pits; • Ore stockpiles at Open pits; and • Pollution control dam at Open pits and Co-disposal area. 	<p>Activity 5 The construction of facilities or infrastructure for any process or activity which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.</p>	GNR 545 (02 August 2010) - Listing notice 2
<p>The Der Brochen Project expanded to include the following structures:</p> <ul style="list-style-type: none"> • North pit (including WRDs): 47 ha • South pit (including WRDs): 45 ha • CDF: 35 ha (additional to already disturbed North pit) • Maresburg TSF: 150 ha 	<p>A total footprint of 277 ha of undeveloped land was altered for industrial use as part of the Der Brochen Project</p>	<p>Activity 15 Physical alteration of undeveloped, vacant or derelict land for residential, retail commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more: except where such physical alteration takes place for: (i) linear development activities, or (ii) agriculture or afforestation where activity 16 in the Schedule will apply.</p>	GNR 545 (02 August 2010) - Listing notice 2
<p>A total footprint of 277 ha of undeveloped land was altered for industrial use as part of the Der Brochen Project</p>	<p>As the Der Brochen Project is situated in the Sekhukhune land Centre of Plant Endemism and more than 300 m² will be developed, this activity was triggered</p>	<p>Activity 12 The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</p>	GNR 546 (02 August 2010) - Listing notice 3

NEM:WA Listed Activities

With regards to the Der Brochen Project, none of the waste management activities undertaken on site required authorisation under NEM:WA as the waste management activity either did not exceed the waste volumes/thresholds stipulated in the Listed Waste Management Activities or the relevant NEM:WA Regulations (GNR 921, as amended) were not yet published and promulgated.

In terms of the Lebowa and Borwa shafts, both operations received separate Waste Management Licences (WMLs) from the Department of Environmental Affairs in March 2010 for the storage of general and hazardous waste on site. Details of the waste management listed activities authorised by the relevant WMLs are provided below.

Lebowa and Borwa shaft's authorised waste management activities

Shaft	Lebowa Shaft	Borwa Shaft
Licence Number	12/9/11/L225/6	12/9/11/L224/5
Licence Class and description	H.H – Hazardous waste landfill that can receive high risk waste	H.H – Hazardous waste landfill that can receive high risk waste
Name of waste management facility	Motoloto North Salvage Yard	Motoloto South Salvage Yard
Location	Portion 3 of the farm Thoncliff 374 KT	Portion 7 of the farm Thoncliff 374 KT
Authorised waste management activity	The temporary storage of general and hazardous waste	The treatment and transfer of general and hazardous waste

Coordinates

Map ID	Latitude	Longitude
S1	S25.03136	E30.11573
O1	S25.07117	E30.1191
MOTO1	S25.00915	E30.11148

DEPARTMENT OF MINERAL RESOURCES AND ENERGY
 MIN. ENVIRONMENTAL MANAGEMENT
 PRIVATE BAG 601, SOUTHERN CROSS
 TEL: 012 397 3000

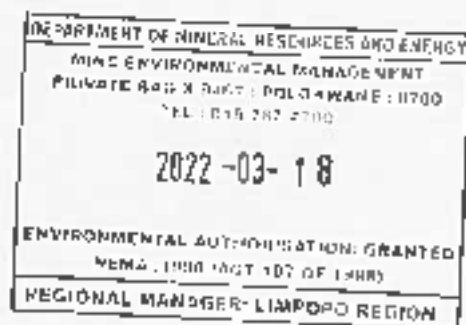
2022-03-18

ENVIRONMENTAL AUTHORIZATION GRANTED
 NEMA 2002 ACT (25 OF 2002)
 REGIONAL MANAGER LIMPOPO REGION

The granting of this IEA is subject to the conditions set out below (site specific) and in Annexure 2 (Departmental standard conditions). The EIR and EMPR attached as part of reports for the above development submitted as part of the application for an IEA is hereby approved and must be adhered to throughout the life cycle of the operation.

EA SITE SPECIFIC CONDITIONS

1. Protected plant species must not be removed (disturbed, cut and destroy their products which may not be possessed, collected, removed, transported, exported, donated, purchased or sold) unless the necessary permission is granted by the Department of Agriculture, Forestry and Fisheries (DAFF).
2. All development footprint areas and areas affected by the proposed development must remain as small as possible and must not encroach onto the surrounding sensitive areas and the associated buffer zones.
3. Terms and conditions of the Integrated Water Use License (IWUL) obtained from the Department of Water and Sanitation (DWS) must be adhered to.
4. Wetland and riverine areas are to be considered as no go zones unless authorisation is obtained. Ensure that construction activities are outside the demarcated wetland area. No activity should be allowed to encroach on to wetland system.
5. Rehabilitation of the environment affected by any activities undertaken must be done as committed on the approved EMPR.



ANNEXURE 1: REASONS FOR THE DECISION

1. Background

Anglo American Platinum (AAP) Rustenburg Platinum Mines (RPM) Ltd: Der Brochen – Motototo Mine Complex applied for consolidation of EA and EMPRs for activities listed in the EIA Regulations and NEMWA Listed Activities of National Environmental Management Waste Act, 2008 (Act No. 59 of 2008) as:

NEMA Listed activities that have been authorised previously

Activity description	Activity footprint / extent	Listed activity	Relevant Listing Notice
Motototo Mine's Listed Activities			
Four new ventilation shafts and associated access roads at Motototo Mine	Combined 6400 m ²	Activity 20: Any activity that requires a mining right or renewal thereof as contemplated in sections 22 and 24 of the MPRDA	GNR 546 (18 June 2010) - Listing notice 2
Above ground oil storage facilities at Lebowa and Borwa shafts	<u>Borwa shaft</u> 2 x 14 000 l 1 x 4 500 l <u>Lebowa shaft:</u> 2 x 14 000 l 1 x 4 500 l	Activity 10 (a)(i)(bb). The construction of facilities or infrastructure for the storage or storage and handling of a dangerous good where such storage occurs in containers with the combined capacity of 30 but not exceeding 80 cubic meters.	GNR 548 (18 June 2010) - Listing notice 3
Der Brochen Project's Listed Activities			
Tailings delivery and return water pipelines from the Mriptoko Concentrator to the Maresburg TSF and CDF.	<u>Maresburg TSF:</u> Length of pipelines: 2.71 km Internal diameter: • Tailings lines: 0.35 m • Return water: 0.35 m Peak throughput: • Tailings lines: approximately 150 l/s • Return water: approximately 100 l/s <u>CDF:</u> Length of pipelines: 4.5 km Internal diameter: • Tailings line: 0.3 m • Return water: 0.3 m Peak throughput: • Tailings line: approximately 120 l/s	Activity 9: The construction of facilities for infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water – (i) with an internal diameter of 0.38 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: a) such facilities are infrastructure for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b) where such construction will occur within urban areas but further than 32 metres from the edge of the watercourse.	GNR 544 (02 August 2010) - Listing notice 1

Activity description	Activity footprint / extent	Listed activity	Relevant Listing Notice
<p>The pipelines to transport tailings material from the Mototolo Concentrator to the Maresburg TSF and return water back to the Concentrator crosses the Groot-Dwars River and tributaries including the Maresburg Stream.</p>	<ul style="list-style-type: none"> Return water, approximately 100 Ds <p>The construction of the river/stream crossing required the excavation of more than 5 m³ over bed material in a watercourse.</p>	<p>Activity 18: The infilling or depositing of any material of more than 5 cubic metres into or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from:</p> <ul style="list-style-type: none"> (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater, excluding where such infilling, depositing, dredging, excavation, removal or moving: (i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (ii) occurs behind the designated setback line. 	<p>GNR 544 (02 August 2010) - Listing notice 1</p>
<p>Roads required for the Der Brochen Project</p>	<ul style="list-style-type: none"> Mine roads around the North and South pits (12 m wide); Service road alongside the Maresburg TSF pipeline. The Maresburg pipeline corridor is 50 m wide) 	<p>Activity 22: The construction of a road, outside urban areas:</p> <ul style="list-style-type: none"> (i) with a reserve wider than 13.5 metres or, (ii) where no reserve exists where the road is wider than 8 metres, or (iii) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 367 of 2000 or activity 18 in Notice 545 of 2010. 	<p>GNR 544 (02 August 2010) - Listing notice 1</p>
<p>Part of the existing Eskom 132 kV powerline may be demolished and re-routed to accommodate the proposed Open Pits.</p>		<p>Activity 27: The decommissioning of existing facilities or infrastructure or -</p> <ul style="list-style-type: none"> (i) electricity generation with a threshold of more than 10 MW; (ii) electricity transmission and distribution with a threshold of more than 132 kV; (iii) nuclear reactors and storage of nuclear fuel; (iv) activities, where the facility or the land on which it is located is contaminated; (v) storage, or storage and handling, of dangerous goods of more than 80 cubic metres 	<p>GNR 544 (02 August 2010) - Listing notice 1</p>

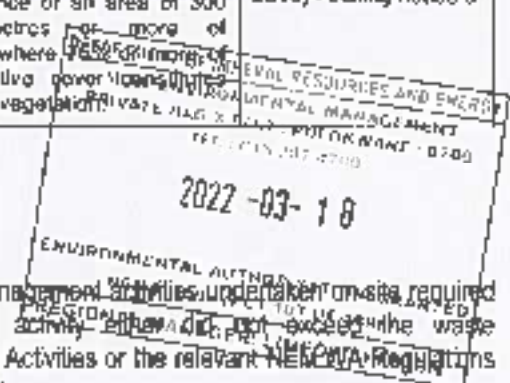
DEPARTMENT OF ENVIRONMENTAL AFFAIRS
 NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY
 2022-03-10
 ENVIRONMENTAL AUTHORITY: GRANTED
 REGIONAL AUTHORITY: GRANTED

Activity description	Activity footprint / extent	Listed activity	Relevant Listing Notice
A Waste Use Licence is required for the disposal of waste or water containing waste in a manner which may detrimentally impact on a water resource	Waste or water containing waste is disposed of at: <ul style="list-style-type: none"> • Pollution control dams at the Maresburg TSF; • Waste rock dumps at Open pits; • Ore stockpiles at Open pits; and • Pollution control dam at Open pits and Co-disposal area 	Activity 5 The construction of facilities or infrastructure for any process or activity which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No 58 of 2008) in which case that Act will apply	GNR 545 (02 August 2010) - Listing notice 2
The Der Brochen Project expanded to include the following structures: <ul style="list-style-type: none"> • North pit (including WRDs): 47 ha • South pit (including WRDs): 45 ha • CDF: 35 ha (additional to already disturbed North pit) • Maresburg TSF: 150 ha 	A total footprint of 277 ha of undeveloped land was offered for industrial use as part of the Der Brochen Project.	Activity 15 Physical alteration of undeveloped, vacant or derelict land for residential, retail commercial, recreational, industrial, or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: <ul style="list-style-type: none"> (i) linear development activities, or (ii) agriculture or afforestation where activity 16 in the Schedule will apply. 	GNR 545 (02 August 2010) - Listing notice 2
A total footprint of 277 ha of undeveloped land was offered for industrial use as part of the Der Brochen Project.	As the Der Brochen Project is situated in the Sekhukhune Land Centre of Plant Endemism and more than 300 m ² will be developed, this activity was triggered.	Activity 17 The clearance of an area of 300 square metres or more of vegetation where 45% or more of the vegetative cover consists of indigenous vegetation	GNR 546 (02 August 2010) - Listing notice 3

NEM:WA Listed Activities

With regards to the Der Brochen Project, none of the waste management activities undertaken on site required authorisation under NEM:WA as the waste management activity either did not exceed the waste volumes/thresholds stipulated in the Listed Waste Management Activities or the relevant NEM:WA Regulations (GNR 921, as amended) were not yet published and promulgated.

In terms of the Lebowa and Borwa shafts, both operations received separate Waste Management Licences (WMLs) from the Department of Environmental Affairs in March 2010 for the storage of general and hazardous waste on site. Details of the waste management listed activities authorised by the relevant WMLs are provided below



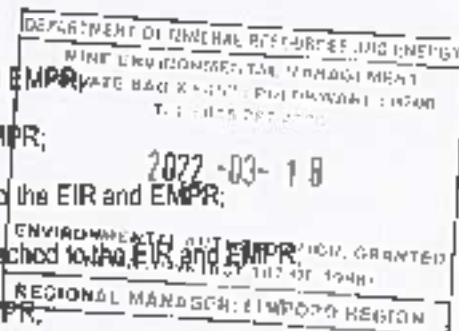
Lebowa and Borwa shaft's authorised waste management activities

Shaft	Lebowa Shaft	Borwa Shaft
Licence Number	12/N/11/L225r5	12/N/11/L224r5
Licence Class and description	H:H – Hazardous waste landfill that can receive high risk waste	H:H – Hazardous waste landfill that can receive high risk waste
Name of waste management facility	Mototolo North Salvage Yard	Mototolo South Salvage Yard
Location	Portion 3 of the farm Thorncliffe 374 KT	Portion 7 of the farm Thorncliffe 374 KT
Authorised waste management activity	The temporary storage of general and hazardous waste	The treatment and transfer of general and hazardous waste

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

- a) The information contained in the application form received by the Department;
- b) The information contained in the EIR and EMPR received by the Department on 28 September 2021;
- c) The objectives and requirements of the applicable and relevant legislation, policies and guidelines and the EIA Regulations of 2014;
- d) Public Participation Process (PPP) documentation attached to the EIR and EMPR as Appendix 5;
- e) Previous Der Brochon specialist studies attached as Appendix 9 of the EIR and EMPR;
- f) Geochemistry study attached to the EIR and EMPR;
- g) Surface water Specialist Report attached to the EIR and EMPR;
- h) Floristic Assessment Report attached to the EIR and EMPR;
- i) Groundwater Investigation and Model Report attached to the EIR and EMPR;
- j) Wetland and Aquatic Ecological Assessment Report attached to the EIR and EMPR;
- k) Air Quality specialist Report attached to the EIR and EMPR;
- l) Noise Impact study attached to the EIR and EMPR;
- m) Specialist Traffic and Transportation study attached to the EIR and EMPR;
- n) Social Baseline and Impact Assessment Report attached to the EIR and EMPR;
- o) Rehabilitation and Closure Plan attached to the EIR and EMPR.



3. Key factors considered in making the decision.

All the information presented to the Department was taken into account upon the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance are set out below.

- a) The procedure that has been followed is in accordance with the NEMA, NEMWA and the EIA Regulations of 2014
- b) The environmental impacts associated with the proposed activity will be addressed by the proposed mitigation measures outlined in the EMPR compiled by Ms Selma Nel of srk Consulting.
- c) A sufficient Public Participation Process (PPP) was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulations R982 of 2014 for public involvement;
- d) Air Quality Impact Assessment Report dated October 2014, compiled by R von Gruenewaldt of AIRSHED Planning Professionals recommended that the management and monitoring of all operations at the mine should be evaluated on a daily basis and appropriate actions taken to minimise dust generation and impacts. It is further recommended that air quality management measures be implemented to ensure the lowest possible impacts on the surrounding environment from proposed operations;
- e) Floristic Assessment Report dated May 2014; compiled by Natural Scientific Services recommended continuous monitoring of ecological sensitive areas (high and medium-high areas) and prevent access to these areas, continuous education of staff both permanent and contractors on the importance of biodiversity in the region the importance of conservation, regular wetting of roads, no off road driving permitted on site and no harvesting of species from any natural areas;
- f) Groundwater Investigation and Model Report dated November 2014; compiled by Martin Hokand of delta h water systems modelling recommended that the existing monitoring programme be reviewed and additional monitoring boreholes and surface water sampling locations be implemented. Dedicated source monitoring boreholes have been proposed and should be drilled to monitor the development of the potential leachate plumes emanating from the TSFs. A number of the proposed monitoring boreholes could also be utilised as scavenger (pumping) wells if needed in the future and should be constructed;
- g) Wetland and Aquatic Ecological Assessment Report dated April 2014; compiled by S. Caminati and A. Mileson of Scientific Aquatic Services CC recommended that mitigation and performance improvement measures and actions that address the risks and impacts are identified and described in as much details as possible. Mitigation measures are investigated according to the impact mitigation hierarchy. Measures and actions to address negative impacts will favour avoidance and prevention over minimisation, mitigation or compensation;
- h) Noise Impact Study dated April 2014; compiled by Morne de Jager of Enviro-Acoustic Research CC recommended that noise monitoring programme should be implemented in the operational phase with additional measurements taken at the location of any receptors that have complained to the mine regarding noise originating from the operation. Feedback regarding noise measurements should be presented to all stakeholders and other interested and affected parties in the area. Quarterly noise monitoring is recommended to be conducted by an acoustical consultant or approved noise inspection authority for the first year of operation. A noise monitoring programme should be designed considering the locations of the closest noise-sensitive developments as well as any other areas identified by other specialist studies (fauna, avifauna, macro-invertebrates, etc);
- i) Archaeological Resources Management Report dated April 2012; compiled by Professor TN Huffman and Jaco van der Walt of School of Geography, Archaeology and Environmental Studies recommended the burning of thick vegetation at some terraced sites so they can be mapped. The most important are CC10 and CC14 on Richmond. The entire open pit in Richmond also needs to be burned to complete the initial assessment. Because of the high social importance of cemeteries, both European and African graves should be left in situ wherever possible. All cemeteries inside impact zones must be removed

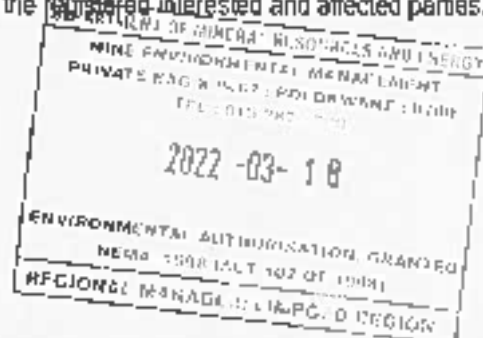
(CC53, CC54, AA18, AA44b, AA124, and probably AA89). Social consultations and SAHRA permits usually take two months, and then the actual removal and reburial takes another two days per grave. Three other cemeteries near impact zones (AA20, AA104 and AA105) should be protected by fencing;

- j) Specialist Traffic and Transportation study dated October 2014; compiled by Mike Van Tonder of Aurecon (Pty) Ltd recommended that the mine should implement measures to reduce the frustration experienced by the motoring public on these roads. It is therefore recommended that the drivers of all heavy vehicles be required to attend a specialised driving course that sensitises them to the impact that they have on driving conditions on these roads;
- k) Social Baseline and Impact Assessment Report dated November 2014; compiled by Helen Jansen of srk consulting recommended that contractors should be encouraged to employ as many local people from the study area as possible so that mining maximises benefits to immediately affected communities. Where it is not possible to employ people or procure goods from the study area because of levels of skills required, efforts must be made to source contract workers in the immediate focus area before employing people in the broader focus area;
- l) Geochemistry study dated May 2014; compiled by Kai Withuser of delta h Water Systems Modelling recommended that appropriate engineering designs and leachate management strategies should be implemented to limit impacts of seepage from the proposed TSFs on the water quality of underlying aquifers or surrounding water resources. Suitable design considerations should also be given to waste rock dumps and ore stockpiles, though less severe impacts of seepage from these sources are expected.
- m) Surface Water Specialist Report dated November 2014, compiled by Martin Slois and James Kettleides of srk Consulting recommended that the mine should ensure compliance with Regulation 704. Further design considerations for clean and dirty water separation will need to be informed by recommendations from the detailed survey and geotechnical, biodiversity and other specialist studies as appropriate.

4. Findings

After consideration of the information and factors listed above, the Department made the following findings –

- a) The potential impacts on the proposed site were clearly investigated and mitigation measures outlined.
- b) Public Participation Process complied with Chapter 6 of the EIA Regulations R.982 of 2014. The PPP included, *inter-alia*, the following:
 - Interested and Affected Parties database;
 - Proof of project notification to Interested and Affected Parties;
 - Notices were sent to all key stakeholders and the registered interested and affected parties.



ANNEXURE 2

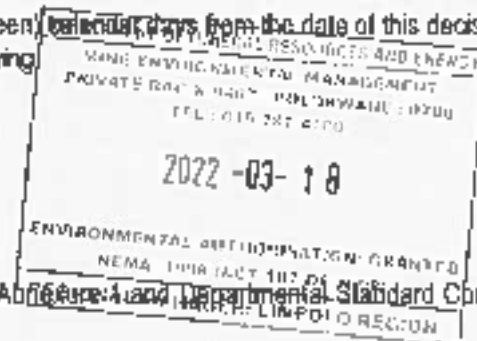
DEPARTMENTAL STANDARD CONDITIONS

1. SCOPE OF AUTHORISATION

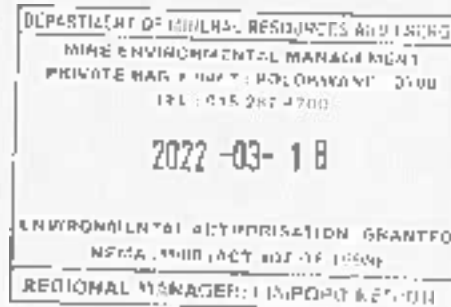
- 1.1. The holder of IEA shall be responsible for ensuring compliance with the conditions contained in the IEA. This includes any person acting on the holder's behalf, including but not limited to an agent, servant, contractor, subcontractor, employee, consultant or any person rendering a service to the holder of IEA.
- 1.2. Any changes to, or deviation from the project description set out in this IEA must be approved in writing by this Department before such changes or deviation may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviation and it may be necessary for the holder of the IEA to apply for further authorisation in terms of the EIA Regulations.
- 1.3. The activities, which are authorised, may only be carried out at the property (ies) indicated in the IEA and or on the approved EMP.
- 1.4. Where any of the holder of the IEA contact details change including name of the responsible person, physical or postal address/ or telephonic details, the holder of the IEA must notify the Department as soon as the new details become known to the holder of the IEA.
- 1.5. The IEA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to the undertaking of such activity (ies).
- 1.6. The holder of IEA must ensure that all areas where the authorised activities occur have controlled access to ensure safety of people and animals.

2. APPEAL OF AUTHORISATION

- 2.1. The holder of IEA must in writing, within 14 (fourteen) calendar days from the date of this decision and in accordance with EIA Regulation 4(2) do the following:
- 2.2. Notify all registered I&APs of -
 - 2.2.1. The outcome of the application;
 - 2.2.2. The date of the decision;
 - 2.2.3. The date of issue of the decision and;
 - 2.2.4. The reasons for the decision as included in **Annexure 4 and Departmental Standard Conditions in Annexure 2.**
- 2.3. Draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulations,
- 2.4. Draw the attention of all registered I&APs to the manner in which they may access the decision.
- 2.5. Provide the registered I&APs with:



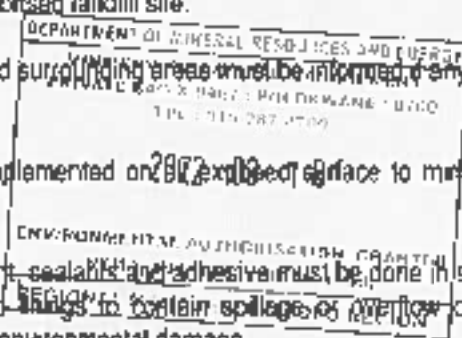
- 2.5.1 Name of the holder (entity) of this IEA:
Anglo American Platinum (AAP) Rustenburg Platinum Mines (RPM) (Pty) Ltd
(Der Brochen – Mototolo Mine complex)
- 2.5.2 Name of the responsible person for this IEA:
Dr Gordon Smith
- 2.5.3 Postal address of the holder:
Private Bag X1
Marshalltown
Johannesburg
2107
- 2.5.4 Telephonic and fax details of the holder:
Tel: 011 373 6334
Fax (086) 776 3656
- 2.5.5 E-mail address of the holder if any;
Gordon.smith@angloamerican.com



3. COMMENCEMENT OF THE ACTIVITY (IES)

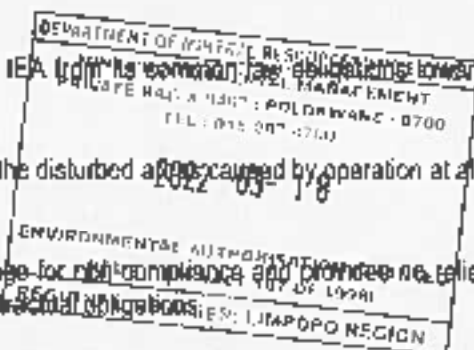
- 3.1 In order to ensure safety, all employees must be given the necessary personnel protective equipment (PPE).
- 3.2 This IEA must be provided to the site operator and the requirements thereof must be made fully known to him or her.
- 3.3 Hauling routes for construction vehicles and machinery must be clearly marked and appropriate signalling must be posted to that effect. Furthermore, movement of construction vehicles and machinery must be restricted to areas outside of the drainage line or wet areas.
- 3.4 Appropriate notification sign must be erected at the construction site, warning the public (residents, visitors etc.) about the hazard around the construction site and presence of heavy vehicles and machinery.
- 3.5 Construction must include design measures that allow surface and subsurface movement of water along the drainage lines so as not to impede natural surface and subsurface water flow, and drainage measures must promote the dissipation of storm water runoff.
- 3.6 Vegetation clearance must be limited areas where the individual activities will occur, and mitigation measures must be implemented to reduce the risk of erosion and alien species invasion.
- 3.7 The holder of IEA must note that in terms of the National Forest Act (Act No.84 of 1998) protected plant species, also listed in Limpopo Environmental Management Act (Act no.7 of 2003) must not be cut, disturbed, damaged, destroyed and their products must not be possessed, collected, removed, transported, exported, donated, purchased or sold unless permission is granted by the Department of Agriculture Forestry and fisheries.

- 3.8 Construction areas (e.g. material lay down areas), topsoil and subsoil must be protected from contamination or pollution. Stockpiling must not take place in drainage lines or areas where it will impede surface water runoff.
- 3.9 If any soil contamination is noted at any phase of the proposed activity (ies), the contaminated soil must be removed to a licensed waste disposal facility and the site must be rehabilitated to the satisfaction of the Department and Department of Water and Sanitation. The opportunity for the onsite remediation and re-use of contaminated soil must be investigated prior to the disposal and this Department must be informed in this regard.
- 3.10 An integrated waste management approach must be implemented that is based on waste minimization and must incorporate avoidance, reduction, recycling, treat, reuse and disposal where appropriate. Uncontaminated rubble generated on the premises can be re-used as back filling material on site. Ensure that no refuse or rubble generated on the premises is placed, dumped or deposited on the adjacent properties or public places and open space
- 3.11 In terms of sections 28 and 30 of NEMA, and sections 19 and 20 of the National Water Act, 1998 (Act No. 36 of 1998), any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the holder of the IEA reads through and understand the legislative requirements pertaining to the project. It is the Applicant's responsibility to take reasonable measures which include informing and educating contractors and employees about environmental risks of their work and training them to operate in an environmentally acceptable manner.
- 3.12 Construction vehicle must be serviced and maintained in the manner whereby no excessive smokes and noise production is reduced to acceptable levels, and to prevent oil leaks. Contaminated soil must be remediated on site or removed to an authorised landfill site.
- 3.14 Residents (if any) on the property (ies) and surrounding areas must be informed if any unusually noisy activities are planned.
- 3.15 Dust suppression measures must be implemented on all exposed surface to minimize and control airborne dust.
- 3.16 Mixing of cement, concrete, paints, solvent sealants and adhesive must be done in specified areas on concrete aprons or on protected plastic sheets to contain spillage or overflow onto soil to avoid contamination of underground water and environmental damage
- 3.17 Should any heritage remains be exposed during operation or any actions on the site, these must immediately be reported to the South African Heritage Resource Agency (SAHRA) and or Limpopo Heritage Resource Agency (LHRA) (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from the South African Heritage Resource Agency (SAHRA) and or Limpopo Heritage Resource Agency (LHRA).



Heritage remains include: archaeological remains (including fossil bones and fossil shells), coins; middens, indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials. A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority

- 3.18 Care must be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons
- 3.19 Hydraulic fluid or chemicals required during construction must be stored in a concrete lined surface with bund walls and shall be designed in such a manner that any spillage can be contained and reclaimed without any impact on the surrounding environment. Should any spills occur it should be cleaned immediately by removing spillage together with the polluted solids and dispose it in the authorised disposal site permitted of such waste. The regional office of the Department of Water and Sanitation must be notified within 24 hours of an incident that may pollute surface and underground water resources.
- 3.20 Chemical sanitation facilities or system such as toilets that do not rely on the seepage of liquids must be provided with a ratio of 1 for every 15 workers. These must be placed such that they prevent spills or leaks to the environment and must be maintained according to the operating instructions and the content thereof must be disposed of at an authorised waste water treatment works.
- 3.21 The holder of IEA must ensure that any water uses listed in terms of Section 21 of National Water Act must get authorization from Department of Water and Sanitation prior to the commencement of such activity (ies).
- 3.22 This IEA does not purport to absolve the holder of IEA from its common law obligations towards the owner of the surface of land affected
- 3.23 The holder of IEA must ensure that rehabilitation of the disturbed areas caused by operation at all times comply with the approved EMP.
- 3.24 This IEA may be amended or withdrawn at any stage for non-compliance and provides no relief from the provisions of any other relevant statutory or contractual obligations.
- 3.25 The holder of IEA must note that in terms Section 43A of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), residue deposit and residue deposit must be deposited and managed in a prescribed manner on any site demarcated for that purpose in the Environmental Management Plan or Environmental Management Programme. No person may temporary or permanently deposits residue stockpile or residue deposit on any area or site other than on site indicated on the Environmental Management Plan or Environmental Management Programme.
- 3.26 The holder of IEA must note that in terms Section 20 of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), no person may commence, undertake or conduct a waste management activity, except in accordance, with the requirements of norms and standards determined in terms of Section 19 (3) for that activity or a waste management licence is issued in respect of that activity if licence is required.
- 3.27 An appeal under Section 43 (7) of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended) suspend an IEA or exemption or any provisions of conditions attached hereto, or any directive unless the Minister directs otherwise.
- 3.28 Should you be notified by the Minister of a suspension of the authorisation pending appeal procedure, you may not commence with the activity (ies) until such time that the Minister allows you to commence with such activity (ies) in writing



- 3.29 The Department reserves the right to audit and/or inspect the activity (ies) without prior notification at any reasonable time and at such frequency as may be determined by the Regional Manager
- 3.30 The waste storage site must have a firm, impermeable, chemical resistant floors and a roof to prevent direct sunlight and rain water from getting in contact with the waste.
- 3.31 The storage of hydrocarbons must have bund walls with adequate capacity to contain the maximum volume that is stored in the area. Uncontaminated storm water must be prevented from coming into contact with the waste and must be diverted away from the storage site.
- 3.32 Subject to the commencement and duration requirements of the MPRDA and NEMA for the listed mining activity is valid for the period for which the aforesaid right is granted provided that this activity must commence within 10 years. If the commencement of the proposed activity does not occur within the specified period, the IEA lapses and a new application for IEA in terms of the NEMA and the EIA Regulations should be made for the activity to be undertaken.
- 3.33 The commissioning and decommissioning of individual activity within the overall listed mining activity must take place within the phases and timeframes as set out in EMP or EMPr.
- 3.34 This IEA will only be effective on the event that a corresponding right is issued in terms of MPRDA as amended and none of the activities listed in this IEA may commence without right.
- 3.35 The listed activity (ies), including site preparation, must not commence within 20 (twenty) calendar days of the date of the notification of the decision being sent to the registered I&APs. In the event that an appeal is lodged with the appeal administrator, the effect of this environmental authorisation is suspended until such time as the appeal is decided.

3.36 Should there be any conflicting conditions between this IEA and other approval granted by other authorities, it is upon the holder of IEA to bring it to the attention of the Department for resolution.

4. MANAGEMENT OF ACTIVITY (IES)

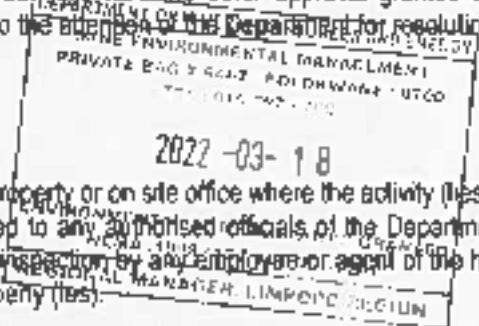
4.1 A copy of the IEA and EMPr must be kept at the property or on site office where the activity (ies) will be undertaken. The IEA and EMPr must be produced to any authorised officials of the Department who request to see it and must be made available for inspection by any employee or agent of the holder of the IEA who works or undertakes work at the property (ies).

4.2 The content of the EMPr and its objectives must be made known to all contractors, subcontractors, agent and any other people working on the site, and any updates or amendments to the EMPr must be submitted to the Department for approval.

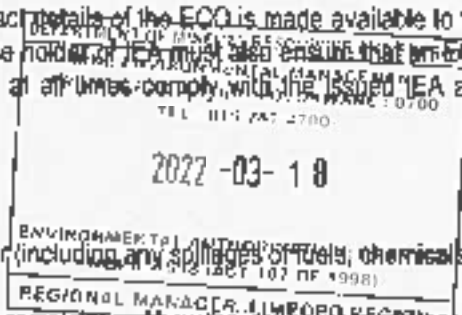
4.3 Regular monitoring and maintenance of storm water drainage facilities must be conducted at all times, if damaged as directed by the Department or any other relevant authority.

4.4 A buffer zone of 100 metres between the activity (ies) and the residential areas, cemeteries or burial grounds must be clearly demarcated and maintained.

4.5 The holder of the IEA must prevent nuisance conditions or health hazards, or the potential creation of nuisance conditions or health hazards.



- 4.6 The holder of the IEA must ensure that all non-recyclable waste are disposed of at waste management facilities licenced to handle such wastes and all recyclable waste are collected by licenced waste management facilities for recycling, reuse or treatment.
- 4.7 The holder of the IEA must ensure that all liquid wastes, whose emissions to water or land could cause pollution are diverted to sewer, after testing water quality and receiving written approval from the relevant local authority.
- 4.8 Non-compliance with any condition of this IEA or EMPr may result in the issuing of a directive in terms of section 28 and or a compliance notice in terms of section 31L of NEMA.
- 4.9 This IEA only authorises activities specified in the EMPr /closure plan and a new authorisation must be applied for in respect of any new activity not specified as part of the EMPr
- 4.10 Only listed activities that are expressly specified in the EMPr that forms part of this IEA may be conducted, and additional or new activities not specified herein must be applied for by the holder and authorised by the competent authority in the form of an amendment to the aforesaid EMPr before such activities may be commenced with. This condition is also applicable in the case of the amendment, addition, substitution, correction, removal or updating of any detail in the aforesaid EMPr.
- 4.11 Rehabilitation of the disturbed surface caused by operation at all times must comply with the approved EMPr.
- 4.12 The Holder of IEA must ensure that the name and contact details of the ECO is made available to the Regional Manager within 30 days of commencement. The holder of IEA must also ensure that an ECO is always available on site to ensure that activity (ies) at all times comply with the issued IEA and approved EMPr.
- 4.13 The ECO must:
- 4.13.1 Keep and maintain a detailed incidents register (including any spillages of fuels, chemicals or any other material)
 - 4.13.2. Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what the preventative measures were implemented to avoid re-occurrence of complaints.
 - 4.13.3 Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised officials.
 - 4.13.4. Keep copies of all environmental reports submitted to the Department.
 - 4.13.5. Keep the records of all permits, licences and authorisations required by the operation.
 - 4.13.6. Compile a monthly monitoring report and make it available to the Department if requested.
- 4.14 The duties and responsibility of the ECO should not be seen as exempting the holder of the IEA from the legal obligations in terms of the NEMWA and NEMA
- 4.15 The footprint of the activity (ies) must be limited on the areas authorised for the actual construction works and operational activities and all areas outside of the footprint must be regarded as a 'no go' areas
- 4.16 Erosion and soil loss must be prevented by minimizing the construction site exposed to surface water run-off. Where necessary erosion stabilizing action such as gabions or re-vegetation must be implemented to prevent further habitat deterioration.



- 4.17 The holder of the IEA must ensure that all personnel who work with hazardous waste are trained to deal with these potential hazardous situations so as to minimise the risk involved. Records of training and verification of competence must be kept by the holder IEA.
- 4.18 In order to prevent nuisance conditions, the holder of the IEA must ensure that all storage skips and bins are not overfilled.

5 REPORTING TO THE DEPARTMENT

5.1 The holder of EA must:

- 5.1.1 submit an Environmental Audit Report to this Department biennially and such report must be done by qualified Environmental Assessment Practitioner and must the audit report must specify whether conditions of this environmental authorisation and EMP closure plan are adhered to.
- 5.1.2 identify and assess any new impacts and risks as a result of undertaking the activities, if applicable;
- 5.1.3 Identify shortcomings in the EMP closure plan, if applicable.
- 5.1.4 identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMP closure plan;
- 5.1.5 if applicable, specify that the corrective action/s taken for the previous audit's non-conformities, was adequate;
- 5.1.6 Specify the name of the auditor and
- 5.1.7 Be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit.

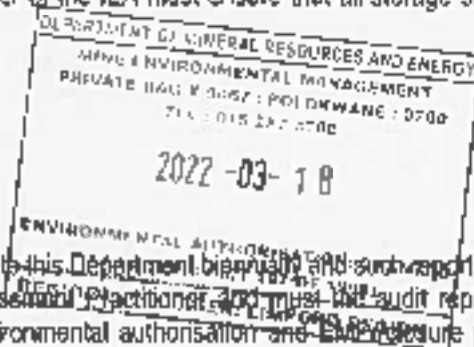
5.2 Should any shortcomings in terms of Regulation 34(4) be identified, the holder must submit recommendation to amend the EMP closure plan in order to rectify any shortcomings identified with the aforementioned audit report.

5.3 Any complaint received from the I&AP during all phases of the operation must be attended to as soon as possible and addressed to the satisfaction of all concerned interested and affected parties.

5.4 The holder of the IEA must annually assess the environmental liabilities of the operation by using the master rates in line with the applicable Consumer Price Index (CPI) at the time and address the shortfall on the financial provision submitted in terms of section 24P of NEMA.

5.5 The holder of the IEA must within 24 hours of incidents occurring, notify the Competent Authority of the occurrence or detection of any incident on the site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.

5.6 The holder of the IEA must, within 14 days, or a shorter period of time, if specified by the Competent Authority from the occurrence or detection of any incident referred to in condition 5.5, submit an action plan, which must



include a detailed time schedule, and resource allocation signed off by top management, to the satisfaction of the Competent Authority of measures taken to –

- 5.6.1 Correct the impact resulting from the incident;
- 5.6.2 Prevent the incident from causing any further impact; and
- 5.6.3 Prevent a recurrence of a similar incident.

5.7 In the event that measures have not been implemented within 21 days of the incident referred to in condition 5.6, or measures which have been implemented are inadequate, the Competent Authority may implement the necessary measures at the cost of the holder of the IEA.

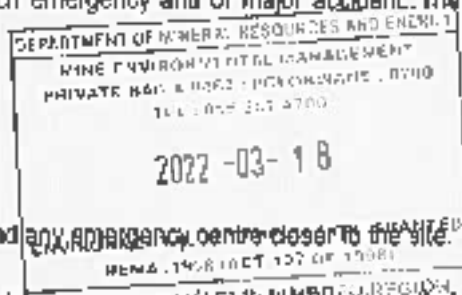
6. SITE SECURITY AND ACCESS CONTROL

- 6.1 The holder of the IEA must ensure effective access control on the site to reasonably prevent unauthorised entry. Signs indicating the risks involved in unauthorised entry must be displayed at each entrance.
- 6.2 Weather proof, durable and legible notices in at least three official languages applicable in the area must be displayed at each entrance to the Site. These notices must prohibit unauthorised entry and state the hours of operation, the name, address and telephone number of the holder of the IEA and the person responsible for the operation of the site.

7. EMERGENCY PREPAREDNESS PLAN

7.1 The holder of the IEA must maintain and implement an emergency preparedness plan and review it biennially when conducting audit and after each emergency and or major accident. The plan must, amongst others, include:

- 7.1.1 Site Fire
- 7.1.2 Spillage
- 7.1.3 Natural disasters such as floods
- 7.1.4 Industrial action
- 7.1.5 Contact details of police, ambulances and any adjacent centre closer to the site.



7.2 The holder of IEA must ensure that an up to date emergency register is kept during all phases of the operation. This register must be made available upon request by the department

8. INVESTIGATIONS

- 8.1 If, in the opinion of the Competent Authority, nuisances or health risks may be or is occurring on the site, the holder of the IEA must initiate an investigation into the cause of the problem or suspected problem.
- 8.2 If, in the opinion of the Competent Authority, pollution may be or is occurring, the holder of the IEA must initiate an investigation into the cause of the problem or suspected problem. Such investigation must include the monitoring of the water quality variables, at those monitoring points and such frequency as may be specified by the Competent Authority.
- 8.3 Investigations carried out in terms of conditions 8.1 and 8.2 above must include the monitoring of the relevant environmental pollution, nuisance and health risk variables, at those monitoring points and such frequency to be determined in consultation with the Competent Authority.

8.4 Should the investigation carried out as per conditions 8.1 and 8.2 above reveal any unacceptable levels of pollution, the holder of the IEA must submit mitigation measures to the satisfaction of the Competent Authority.

9. COMMISSIONING AND DECOMMISSIONING

9.1 The commissioning and decommissioning of individual activity within the overall listed mining activity must take place within the phases and timeframes as set out in EMP or EMPr.

10. SITE CLOSURE

10.1 The holder of IEA must apply for a closure certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended within 180 days of occurrence of lapsing, abandonment, cancellation, cessation, relinquishment and completion of development.

10.2 The application for closure indicated above must be submitted together with all relevant documents as indicated in Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended.

10.3 No exotic plants may be used for rehabilitation purposes only indigenous plant can be utilized for rehabilitation purposes.

10.4 The holder of IEA remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of extraneous water, compliance with the conditions of IEA and the management and sustainable closure thereof until the Minister has issued a Closure Certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002). Where necessary the Minister may retain certain portion of financial provision for closure, health or environmental impacts that might be known in future

11. NEMA PRINCIPLES

The NEMA Principles (set out in Section 2 of NEMA, which apply to the actions of all Organs of State, serve as guidelines by reference to which any Organ of State must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), inter alia, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between Organs of State through conflict resolution procedures; and
- the selection of the best practicable environmental option.

PRIVATE BAG 24011 JOHANNESBURG 2001
TEL: 011 501 2111

2022-03-18

DEPARTMENT OF ENVIRONMENTAL AFFAIRS
NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY
REGISTRAR GENERAL

12. DISCLAIMER

The Department of Mineral Resources in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision

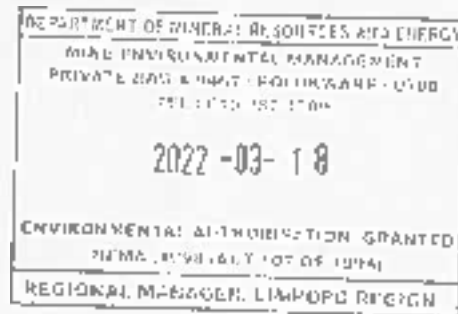
13. RECOMMENDATIONS

In view of the above, the NEMA principles, compliance with the conditions stipulated in this IEA, and compliance with the EMP/closure plan, the competent authority is satisfied that the proposed listed activity/ies will not conflict with the general objectives of Integrated Environmental Management stipulated in Chapter 5 of NEMA, and that any potentially detrimental environmental impacts resulting from the listed activity/ies can be mitigated to acceptable levels. **The Integrated Environmental Authorisation is accordingly granted**

Your interest in the future of our environment is appreciated.

Kind Regards,

H. H. Malapane
MS. MODELATI MAGDELINE MALAPANE
CHIEF DIRECTOR: NORTHERN REGIONS
MINERAL AND PETROLEUM REGULATION
DATE: 18.03.2022

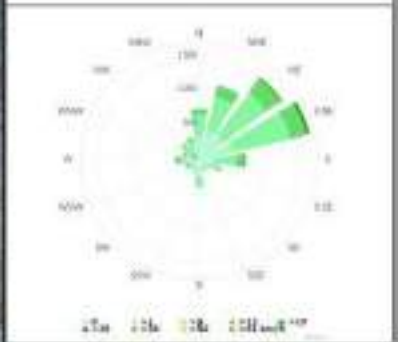


APPENDIX 4 – SITE PLANS

PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
DOWNCAST SHAFT LAYOUT MAP



- Proposed infrastructure**
- Concrete
 - Water Containers
 - Platform Infrastructure
 - Platform
- Borwa-South & North VS & Down-Cast**
- Structure points
 - Overhead line
 - Access Roads
 - Text point



**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
UPCAST NORTH AND BORROW PIT 02 LAYOUT MAP**



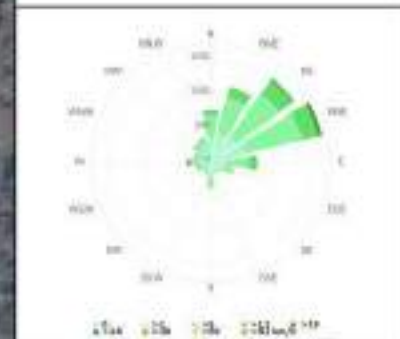
Proposed Infrastructure

Ventilation Shafts

- Design
- Concrete
- Water Containers
- Platform Infrastructure
- Platform

Borwa-South & North VS & Down-Cast

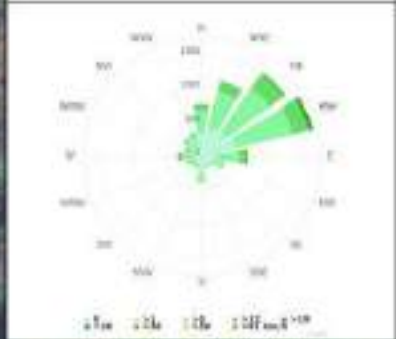
- Structure points
- Overhead line
- Access Roads
- Borrow Pits
- Text point



**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
UPCAST SOUTH SHAFT AND BORROW PIT 06 LAYOUT MAP**



- Proposed infrastructure**
- Concrete
 - Water Containers
 - Platform Infrastructure
 - Platform
- Borwa-South & North VS & Down-Cast**
- Structure points
 - Overhead line
 - Access Roads
 - Borrow Pits
 - Test point



**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
EMULSION SHAFT AND BORROW PIT 03 LAYOUT MAP**



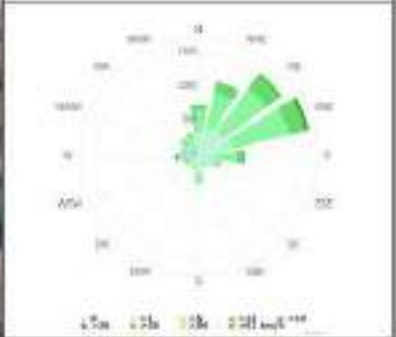
Proposed infrastructure

Ventilation Shafts

- Design
- Concrete
- Platform infrastructure
- Platform

Borwa-South & North VS & Down-Cast

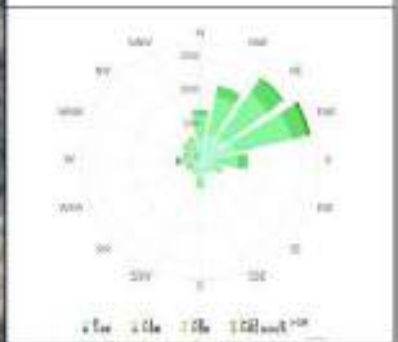
- Structure points
- Overhead line
- Access Roads
- Borrow Pits
- Text point



**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
BORROW PIT 01 LAYOUT MAP**



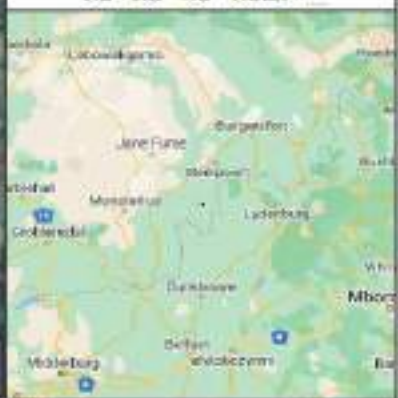
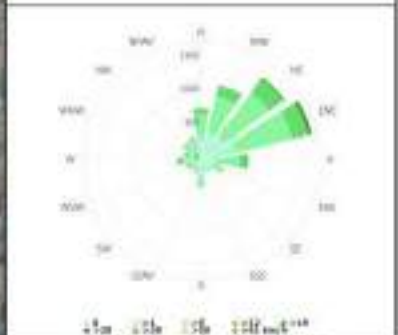
- Proposed infrastructure**
- Borwa-South & North VS & Down-Cast**
- Structure points
 - Overhead line
- Mototolo-Lebowa North-Toff Borwa**
- Structure points
 - Overhead line
 - Access Roads
 - Borrow Pits
 - Test point



**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
BORROW PIT 04 AND 05 LAYOUT MAP**



Proposed infrastructure
Ventilation Shafts
Platform
Access Roads
Borrow Pits
Text point



APPENDIX 5 - IMPACT TABLES

PLANNING AND DESIGN PHASE

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
ENVIRONMENTAL POLICY														
Legal and policy compliance	All Alternatives	During the planning and design phase, failure to adhere to existing policies and legal obligations and obtain the necessary authorisations could lead to the project conflicting with local, provincial and national policies, legislation, etc. This could result in lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.	Negative	Direct	Severe	National	Long-term	Possible	Reversible	Resource will not be lost	Achievable	HIGH -	<ul style="list-style-type: none"> All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. These should include (but are not restricted to): NEMA and Local Municipal bylaws. All relevant permits and authorisations including Water Use Licences or General Authorisations, Building Plan Approvals and plant removal permits must be in place prior to commencement of construction. 	LOW -
BUILT ENVIRONMENT														
Infrastructure	All Alternatives	During the planning and design phase, planning and placement of structures and associated infrastructure in sensitive areas could lead to the damage and degradation of natural areas as well as to the structures themselves.	Negative	Direct	Moderate	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> Planning for and placement of infrastructure must be done so as to avoid sensitive areas as far as possible. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Stormwater management	All Alternatives	During the planning and design phase, inadequate planning for stormwater during the construction and operational phases within the site could result in erosion and contamination of the soil and surrounding watercourses if there are not appropriate stormwater management structures in place.	Negative	Direct, Cumulative	Moderate	Study area	Medium-term	Possible	Reversible	Resource will be partly lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> A method statement must be developed by the project manager or contractor prior to construction, including considerations for stormwater, erosion, waste and alien vegetation management, as well as site rehabilitation and maintenance considerations. This method statement must be approved by the appointed ECO. This method statement should include stormwater management considerations to control runoff prevent erosion of the site and its surroundings, and mitigate the unnecessary loss of soil and sedimentation of watercourses during all phases of the project. Regular monitoring of implementation of this method statement for the rehabilitation of disturbed areas must be conducted. Appropriate stormwater structures, in alignment with the method statement, must be designed to minimise erosion of the surrounding environment to the extent required 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Waste management	All Alternatives	During the planning and design phase, failure to plan for the storage, handling and disposal of general and hazardous waste during the construction and operation phase may lead to littering and pollution of the surrounding environment, unsanitary conditions and health risks.	Negative	Direct, Indirect	Moderate	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> A method statement must be developed by the project manager or contractor prior to construction, including considerations for stormwater, erosion, waste and alien vegetation management, as well as site rehabilitation and maintenance considerations. This method statement must be approved by the appointed ECO. This method statement should include waste management considerations for handling onsite general and hazardous waste during the construction and operation phases must be developed and implemented during construction. An appropriate area must be identified where waste can be stored before disposal. All hazardous substances such as paints, diesel and cement must be stored in a secure bunded area with an impermeable surface beneath them. 	LOW -
SOCIO-ECONOMIC														
Job creation	All Alternatives	During the planning and design phase, there will be some temporary job opportunities associated with planning and design of the proposed Anglo Borwa Ventilation Shafts and associated infrastructure.	Positive	Direct	Slight	Localised	Short-term	Definite	N/A	Resource will not be lost	Easily Achievable	LOW +	N/A	LOW +
Health and safety	All Alternatives	During the planning and design phase, failure to plan for potential health and safety risks during the construction and operation phase may result in the harm of labourers, staff, surrounding landowners and the public.	Negative	Direct, Indirect	Moderate	Study area	Short-term	Possible	Irreversible	Resource will be lost	Achievable	MODERATE -	A health and safety plan in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) must be drawn up by and HSE officer prior to construction to ensure workers safety.	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
On-site fire risk	All Alternatives	During the planning and design phase, failure to plan for accidental fires during the construction and operation phase could result in potential harm to the public and/or surrounding landowners and their property.	Negative	Direct	Moderate	Study area	Medium-term	Possible	Irreversible	Resource will be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> Emergency preparedness must be in place for both the construction and operational phases and before these phases commence. This should form part of the method statement. Anglo American Platinum must plan for and put measures in place to prevent and deal with fires including the provision of firefighting equipment. 	LOW -
Traffic	All Alternatives	During the planning and design phase, inadequate planning for the transportation of mast materials and specialist construction equipment to the site could cause traffic congestion.	Negative	Direct	Moderate	Regional	Short-term	Possible	Reversible	Resource will not be lost	Easily Achievable		MODERATE -		Consultation with the local Road Traffic Unit should be done early in the planning phase and if deemed necessary, road traffic permits should be obtained for transporting parts, containers, materials and construction equipment to the site to the extent required. Make provision for traffic accommodation where construction activities impact on existing roads.	LOW -
REHABILITATION AND MAINTENANCE														
Inadequate rehabilitation and maintenance	All Alternatives	During the planning and design phase, inadequate planning for rehabilitation and maintenance of infrastructure could lead to degradation of the study area and surrounding areas.	Negative	Direct, Indirect	Moderate	Study area	Medium-term	Possible	Reversible	Resource will be partly lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
TERRESTRIAL BIODIVERSITY														
<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 5.93 ha of SMB vegetation and faunal habitat during the construction phase.</p> <p>The consequence and significance of this impact depends on the pre-construction SEI of the vegetation and habitat.</p>	Preferred	<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.60 ha of high SEI vegetation (natural and near-natural SMB) during the construction phase.</p> <p>Given the high SEI of the vegetation, the relatively large extent of clearance and generally well-developed vegetation cover within this type, the consequence and overall significance of impact will be severe and high, respectively.</p>	Negative	Direct, cumulative	Severe	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	HIGH -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> The proposed layout of ventilation and emulsion shafts precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Please refer to offset mitigation below. The siting and layout of supporting infrastructure (e.g. access roads and powerlines) must follow existing disturbed corridors (i.e. existing access roads and servitudes) as far as possible to avoid further impact. Please also refer to minimization and rehabilitation mitigation below. It is recommended that the location of borrow pits 02-06 be moved to a semi-natural or already-degraded area. This will prevent the loss of 1.68 ha of natural to near-natural SMB vegetation and habitat. If this is not feasible, the below measures must be implemented to minimize impacts and rehabilitate the area. 	HIGH -
		<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 1.02 ha of medium SEI vegetation (semi-natural).</p> <p>Given the medium SEI and localised extent of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively.</p>	Negative	Direct, cumulative	Slight	Localised	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> During the planning and design phase, the development footprint must be designed to minimize the loss of natural to semi-natural indigenous vegetation as far as possible. The development footprint must be clearly demarcated by a qualified ECO prior to the commencement of construction. Only vegetation within the approved footprint may be 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.31 ha of low SEI vegetation (degraded).</p> <p>Despite a relatively large area of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively, given the low SEI.</p>	Negative	Direct, cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -	<p>removed. Vegetation outside of these areas may not be cleared.</p> <ul style="list-style-type: none"> Footprint creep must not occur. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. <p>Offset impact:</p> <ul style="list-style-type: none"> A biodiversity offset plan must be compiled by an ecologist with experience in undertaking and facilitating offsets in consultation with key stakeholders. The objective of the offset must be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss. 	LOW -
Non-compliance with permitting requirements	Preferred Alternative	<p>During the planning and design phase, the inadequate planning for search and rescue operations and permitting for the removal of any SCC may result in non-compliances being issued and the unintended loss of SCC.</p> <p>The following SCCs have a high likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> <i>Combretum petrophilum</i> (rare), <i>Searsia sekhukhuniensis</i> (rare), <i>Polygala sekhukhuniensis</i> (VU), <i>Sensitive Species A</i> (VU), and <i>Sensitive Species B</i> (rare). 	Negative	Direct, indirect	Moderate	Study Area	Long-term	May occur	Irreversible	Resource could be partially lost	Achievable	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> Planning for any search and rescue operations must be conducted prior to the commencement of construction activities. All necessary permits must be obtained for the removal of any identified SCC prior to the commencement of construction activities. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disruption of Ecosystem Function and Processes	Preferred Alternative	The planned layout and siting of construction activities and infrastructure will result in the disruption of ecosystem functions and processes, including the loss of ecological connectivity and edge disturbance impacts.	Negative	Direct, indirect	Moderate	Study Area	Medium-term	Probable	Reversible	Resources could be partially lost	Achievable	MODERATE -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> During the planning and design phase, the development footprint must be designed to minimize edge disturbance impacts. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the planning and design phase, the failure to plan for the removal and management of alien vegetation could result in the invasion of alien vegetation in sensitive areas during the construction and operational phases.	Negative	Indirect	Moderate	Study Area	Long-term	Probable	Reversible	Resources will not be lost	Easily Achievable	MODERATE -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> An Alien Vegetation Management Plan must be developed by the Contractor prior to construction to mitigate the establishment and spread of undesirable alien plant species during all phases of the project. The Alien Vegetation Management Plan must be approved by the appointed ECO prior to implementation. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -

CONSTRUCTION PHASE

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
ENVIRONMENTAL POLICY														
Legal and policy compliance	All Alternatives	During the construction phase, failure to adhere to existing policies and legal obligations and obtain the necessary authorisations could lead to the project conflicting with local, provincial and national policies, legislation, etc. This could result in lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.	Negative	Direct	Severe	National	Long-term	Possible	Reversible	Resource will be partly lost	Achievable	HIGH -	<ul style="list-style-type: none"> All construction related conditions in the Environmental Authorisation, EMPr and other permits must be adhered to. Anglo American Platinum must employ an independent Environmental Control Officer (ECO) for the construction phase to ensure that construction is implemented according to specifications in the EA and EMPr. Copies of all applicable licenses, permits and managements plans (EA, EMPr, etc.) must be available on-site at all times. Environmental Awareness Training must be included in site meetings/talks with all workers. 	LOW -
BUILT ENVIRONMENT														
Infrastructure	All Alternatives	During the construction phase, the disturbance/clearing of vegetation and construction activities within or within close proximity to sensitive areas may result in degradation of the surrounding environment.	Negative	Direct, Indirect	Severe	Study area	Long-term	Definite	Reversible	Resource will be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> Vegetation clearance must be limited to the area within the footprint of the designated area. Vegetation disturbance outside of the development footprint should be minimized. 	LOW -
Material stockpiling	All Alternatives	During the construction phase, inappropriate location and management of material stockpiles may result in erosion.	Negative	Direct, Indirect	Moderate	Localised	Short-term	Possible	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> Material stockpiles must be located away from sensitive areas and they must be monitored for erosion and alien vegetation. Material stockpile locations must be approved by the ECO. 	LOW -
Stormwater management	All Alternatives	During the construction phase, failure to implement effective stormwater management measures may result in increased surface soil erosion and contamination of stormwater and resulting surrounding watercourses.	Negative	Direct, Indirect	Moderate	Study area	Long-term	Possible	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> The construction site must be managed in a manner that prevents pollution to downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants. Berms and swaths must be placed in areas that may be prone to erosion. Temporary cut-off drains and berms may be required to capture storm water and promote infiltration. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Waste management	All Alternatives	During the construction phase, poor management of handling, disposal and storage of general and hazardous waste may lead to the pollution of the surrounding environment.	Negative	Direct, Indirect	Moderate	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> All general waste must be disposed of in bins/waste skips labelled "general waste". Sufficient waste bins must be provided throughout the construction site for collecting waste. All general waste collected on site must be disposed of at a licensed general waste disposal site. All hazardous waste generated on site must be placed in a temporary impermeable bunded containment area which must be disposed of at a hazardous landfill site or be collected by the appropriate service provider. Proof of receipt of hazardous waste by a licenced service provider must be maintained on the site. Adequate sanitary facilities must be provided for construction workers and they must be properly secured to the ground. Maintenance of the chemical toilets should be done on a regular basis to prevent any leakages. 	LOW -
		During the construction phase, the mixing of cement on site could result in ground water contamination from compounds in the cement. In addition, a large number of cement mixing stations on site could increase the presence of impermeable areas which in turn could increase rates of run-off and thereby increase the risk of localized flooding, soil erosion, silting, gully formation, etc.	Negative	Direct, Indirect	Severe	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> Concrete and cement must take place on an impermeable surface, and dried waste concrete and cement must be disposed of with building rubble. No concrete mixing must take place within 32 m of any watercourse. 	LOW -
SOCIO-ECONOMIC														
Job creation	All Alternatives	During the construction phase, there will be some temporary job opportunities associated with building of the proposed Anglo Borwa Ventilation Shafts and associated infrastructure.	Positive	Direct	Slight	Localised	Short-term	Definite	N/A	Resource will not be lost	Easily Achievable	LOW +	<ul style="list-style-type: none"> N/A 	LOW +
Health and safety	All Alternatives	During the construction phase, failure to comply with health and safety policies and protocols may result in the harm of labourers, staff, surrounding landowners and the public.	Negative	Direct, Indirect	Moderate	Study area	Short-term	Possible	Irreversible	Resource will be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> A health and safety plan in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) must be adhered to and enforced by a HSE officer to ensure workers safety. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Air quality and dust control	All Alternatives	During the construction phase, dust generated by construction vehicles and construction activities could result in significant dust during windy conditions.	Negative	Direct	Moderate	Study area	Short-term	Definite	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> During windy periods un-surfaced and un-vegetated areas must be dampened down. Vegetation must be retained where possible as this will reduce dust travel. 	LOW -
	All Alternatives	During the construction phase poor maintenance and servicing of construction plant and vehicles may result in an increase in vehicle emissions in the areas.	Negative	Indirect	Moderate	Study area	Short-term	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> Any complaints or claims emanating from dust issues must be attended to immediately and noted in the complaints register. Vehicles and construction plant must be serviced regularly so as to reduce excessive vehicle emissions. 	LOW -
On-site fire risk	All Alternatives	During the construction phase inadequate attention to fire safety awareness and fire safety equipment could result in uncontrolled fires, posing a threat to animals, vegetation and the surrounding landowners.	Negative	Direct	Moderate	Study area	Long-term	Possible	Irreversible	Resource will be lost	Easily Achievable	MODERATE -	<p>In order to reduce the risk of fires:</p> <ul style="list-style-type: none"> All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. Smoking must not be permitted near flammable substances. All cooking must be done in demarcated areas that are safe in terms of runaway or uncontrolled fires. No open fires must be allowed on site. Fire extinguishers must be available onsite. 	LOW -
REHABILITATION AND MAINTENANCE														
Inadequate rehabilitation and maintenance	All Alternatives	During the construction phase inadequate provision and implementation of rehabilitation measures may lead to the degradation of the surrounding environment.	Negative	Direct, Indirect	Moderate	Study area	Medium-term	Possible	Reversible	Resource will be partly lost	Easily Achievable	MODERATE -	The rehabilitation plan must be implemented during and after the construction has been completed.	LOW -
TERRESTRIAL BIODIVERSITY AND ECOLOGY IMPACTS														
Loss of 5.93 ha of SMB vegetation for the construction / establishment of the ventilation shafts, emulsion shaft, borrow pits,	Preferred	Loss of approximately 2.60 ha of high SEI vegetation (natural and near-natural SMB). Given the high SEI of the vegetation, the relatively large extent of clearance and generally well-developed vegetation cover within this type, the consequence and overall significance of impact will be severe and high, respectively.	Negative	Direct, cumulative	Severe	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	HIGH -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> Construction activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint. 	HIGH -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
pylons and access roads. The consequence and significance of this impact depends on the pre-construction SEI of the vegetation.		Loss of approximately 1.02 ha of medium SEI vegetation (semi-natural). Given the medium SEI and localised extent of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively.	Negative	Direct, cumulative	Slight	Localised	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -	<ul style="list-style-type: none"> Construction vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint. Lay down areas must not be located within any watercourses or drainage lines. 	LOW -
		Loss of approximately 2.31 ha of low SEI vegetation (degraded). Despite a relatively large area of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively, given the low SEI.	Negative	Direct, cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -		<p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> Topsoil (20 cm, where possible) must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas). Only indigenous species must be used for rehabilitation. The alien invasive management plan for the site must be implemented.	LOW -
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with the vegetation continuing to degrade.	Negative	Direct	Slight	Study Area	Long-tern	Possible	N/A	N/A	N/A	LOW -	<p>Offset impact:</p> <ul style="list-style-type: none"> A biodiversity offset must be implemented in during the construction phase and continued during the operational phase in accordance with the approved offset plan to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss. The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO. 	N/A

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Loss of Plant Species of Conservation Concern	Preferred Alternative	The permanent loss of plant SCCs may occur. The following SCCs have a high likelihood of occurring within the project area: <i>Combretum petrophilum</i> (rare), <i>Searsia sekhukhuniensis</i> (rare), <i>Polygala sekhukhuniensis</i> (VU), <i>Sensitive Species A</i> (VU), and <i>Sensitive Species B</i> (rare). It is possible that these species may be lost should the development proceed.	Negative	Direct, Indirect	Moderate	Regional	Permanent	Possible	Irreversible	Resource could be partially lost	Achievable	MODERATE -	Avoid/prevent impact: <ul style="list-style-type: none"> A botanical walkthrough of the development area, by an experienced botanist with knowledge of the SCC identified as possibly occurring within the site, must be undertaken during the flowering season. All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating SCC identified. If restricted range SCC populations are found, the development must be moved to avoid these populations. The ECO must monitor for potential additional plant SCCs not found during search and rescue activities. Plant SCCs must not be removed from the development footprint unless the relevant permits have been obtained. 	LOW -
		If populations of SCC with restricted ranges are present within the site and are impacted by the placement of infrastructure, the cumulative impact will be moderate as some SCC have already been lost as a consequence of historical and current land uses in the region. This impact can be reduced if a thorough botanical walkthrough of the site is undertaken during the optimum flowering season.	Negative	Cumulative	Moderate	Study area	Permanent	May occur	Irreversible	Resource will be lost	Achievable				MODERATE -	LOW -
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with the vegetation continuing to degrade.	Negative	Direct	Slight	Study area	Long term	Probable	N/A	N/A	N/A	LOW -		N/A
Impact on faunal species of conservation concern	Preferred Alternative	The loss of animal species of conservation concern may occur during the construction phase. The following SCCs have a moderate likelihood of occurring within the project area: <ul style="list-style-type: none"> <i>Chrysospalax villosus</i> ((Rough-haired Golden Mole), <i>Cloeotis percivali</i> (Percival's Short-eared Trident Bat, <i>Crocidura maquassiensis</i> (Makwassie musk shrew), <i>Dasymys robertsii</i> (Robert's Shaggy Rat, VU), <i>Felis nigripes</i> (Black-footed Cat, VU), <i>Panthera pardus pardus</i> (Leopard, VU), and <i>Rhinolophus cohenae</i> (Cohen's Horseshoe Bat, VU). It is possible that these species may be lost should the development proceed.	Negative	Direct, Indirect	Moderate	Localised	Permanent	May occur	Irreversible	Resource may be partially lost	Achievable	MODERATE -	Avoid/prevent impact: <ul style="list-style-type: none"> All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating slower moving faunal species e.g. tortoises. This team should focus on checking termite mounds, burrows and dens in particular for small mammals, such as the Black-footed Cat, moles and rats. Sensitive species C – Intact habitat patches where these species are known to occur should be buffered (30 m minimum, 100 m recommended) from disturbance taking into account connectivity to other similar habitat, or at least habitats that these species will utilise for migration and dispersal purposes. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		If populations of SCC with restricted ranges are present within the site and are impacted by the placement of infrastructure, the cumulative impact will be moderate as some SCC have already been lost as a consequence of historical and current land uses in the region.	Negative	Cumulative	Slight	Study area	Permanent	May occur	Irreversible	Resource will be lost	Achievable	MODERATE -		LOW -
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study area	Long term	Probable	N/A	N/A	N/A	LOW -		N/A
Reduced Faunal Habitat	Preferred Alternative	During the construction phase, the construction related activities will result in the loss and/or degradation of natural habitats for fauna.	Negative	Indirect, Cumulative	Moderate	Study Area	Long-term	Definite	Reversible	Resource will be partially lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The contractor must ensure that vegetation clearance of near-natural, semi-natural and wetland vegetation is restricted to the approved development footprint only. Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible. Clearing of trees should take place in winter months, to prevent birds and bats establishing nesting grounds and starting to breed and rear young in the spring and summer months. Employees must be prohibited from making open fires during the construction phase. The ECO must monitor that all construction activities are conducted within the development footprint. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resources will not be lost	Achievable	LOW -		
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study Area	Medium-term	Probable	N/A	N/A	N/A	LOW -	Remediate/rehabilitate impact: <ul style="list-style-type: none"> All impacted areas must be rehabilitated as per the Rehabilitation Plan, as soon as construction has been completed within each area. 	N/A

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disruption of Ecosystem Function and Process	Preferred Alternative	<p>Construction activities will result in the disruption of ecosystem functions and processes, including the loss of ecological connectivity and edge disturbance impacts.</p> <p>Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. It also impacts on fauna as it separates habitats and necessitates fauna having to move across exposed areas like roads to get to another section of their habitat or territory. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors.</p> <p>Given the small footprint of individual powerline pylons and the degraded nature of the proposed substation site, a low significance impact on ecosystem functions and processes is anticipated.</p>	Negative	Direct, Indirect	Slight	Localised	Medium term	Possible	Reversible	Resource will be partially lost	Achievable	LOW -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> The contractor must ensure that vegetation clearance of natural, near-natural and semi-natural vegetation is restricted to the approved development footprint only. Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible. Employees must be prohibited from making open fires during the construction phase. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be implemented during construction and operation phases. All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	LOW -
		<p>Given the relatively high degree of fragmentation across the project area as the result of historical and current land uses, the cumulative impact of the proposed pylons and substation will carry a moderate significance.</p>	Negative	Cumulative	Moderate	Study area	Long term	Possible	Reversible	Resources will not be lost	Achievable	MODERATE -		LOW -
	No-go alternative	<p>Under the no go alternative, habitat fragmentation has already occurred and will continue to do so.</p>	Negative	Direct	Moderate	Study Area	Permanent	Possible	N/A	N/A	N/A	MODERATE -		N/A
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	Preferred Alternative	<p>Faunal species will be disturbed during construction due to noise and vibrations of construction machinery. Faunal species that vacate the immediate area may return following completion of construction or new individuals or species may inhabit the area. Construction machinery may cause unintentional mortalities of faunal species.</p> <p>Even with the mitigations applied, the construction will still have an impact on faunal species.</p>	Negative	Direct	Moderate	Study area	Long term	Probable	Reversible	Resource will be partially lost	Achievable	MODERATE -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> Vehicles and machinery must meet best practice standards in terms of noise and vibration. Staff and contractors' vehicles must comply with speed limits of 40 km/hr Project must start and be completed within the minimum timeframe, i.e. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Long-term	Probable	Reversible	Resources will not be lost	Achievable	LOW -	<p>may not be started and left incomplete.</p> <ul style="list-style-type: none"> ECO must walk ahead of clearing construction machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat. Any faunal species that may die as a result of construction must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI. Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist. Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite. 	LOW -
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study Area	Long term	Probable	N/A	N/A	N/A	LOW -		N/A
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the construction phase, the removal of natural vegetation creates open habitats that favour the establishment of undesirable alien plant species. The infestation of alien plant species will result in the displacement of indigenous vegetation and possible local extinctions of species. This pre-mitigation impact is of moderate significance but can easily be managed through the implementation of an alien invasive management plan.	Negative	Indirect	Moderate	Study Area	Long-term	Probable	Reversible	Resources will not be lost	Easily Achievable	MODERATE -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> The Contractor must implement the Alien Vegetation Management Plan. The ECO must monitor for the adequate implementation of this plan. The ECO must monitor the site for the presence of alien invasive plant species and take immediate action when these are recorded. It is recommended that the ECO prepare a photo guide of all invasive plant species likely to occur on site. This will aid in the identification of undesirable species. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> All previously infested areas must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as construction has been completed within each area. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the construction of the proposed substation and associated powerlines. This will be of moderate significance.	Negative	Cumulative	Moderate	Study Area	Long-term	Probable	Irreversible	Resources will not be lost	Achievable	MODERATE -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	Negative	Direct	Moderate	Study Area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
HERITAGE IMPACTS														
Loss of archaeological feature	All Alternatives	The study did not identify any archaeological receptors which will be directly impacted by the proposed project and no impact on archaeological sites or features is anticipated.	Negative	Direct	Slight	Study Area	Short term	Definite	Irreversible	Resources will not be lost	Achievable	LOW -	No mitigation Required	LOW -
Loss of historically significant building and structures All	All Alternatives	The study identified no buildings or structures of historical or heritage significance. For the rest of the project area, the general landscape holds varied significance in terms of the built environment as the area comprises historical farming remnants and relatively newly established industrial zones, settlements and townlands. However, no impact on built environment sites is anticipated.	Negative	Direct	Slight	Study Area	Short term	Definite	Irreversible	Resource will not be lost	Achievable	LOW -	No Mitigation Required	LOW -
Alteration of cultural landscape	All Alternatives	Generally, the proposed project area and its surrounds are characterised by open fields and farmlands. Further away from the project area, the landscape is typical of the rural north Gauteng with undulating hills with flatter plains in-between. This landscape stretches over many kilometres and the proposed project is unlikely to result in a significant impact on the landscape.	Negative	Direct	Slight	Study Area	Short term	Unlikely	Irreversible	Resource will not be lost	Achievable	LOW -	No Mitigation Required	LOW -

Disturbance to graves/human burial sites	All Alternatives	<p>No graves of human burial places were noted during the site investigation the project footprint. In the rural areas of the Gauteng Province graves and cemeteries sometimes occur within settlements or around homesteads but they are also randomly scattered around archaeological and historical settlements. The probability of additional and informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface.</p> <p>Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.</p>	Negative	Direct	Slight	Study Area	Short term	Definite	Irreversible	Resource will not be lost	Achievable	LOW -	No Mitigation Required	LOW -
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POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
RIVER AND WETLAND IMPACTS														
Direct ecosystem modification or destruction / loss impacts	Preferred	Direct disturbance and removal of riparian soil and vegetation during the construction of the overhead lines and access roads. The access roads will impact the watercourses most directly as there are a number of stream crossings.	Negative	Direct	Moderate	Study area	Medium-term	Probable	Reversible	Resource will be partially lost	Achievable	MODERATE -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - Construction materials must not be stored within the moderate sensitivity areas. - Stockpiles must not be stored within the moderate sensitivity areas. - Optimally, a buffer of 50 m should be maintained between the riparian edge and the edge of the ventilation shafts, emulsion shaft and borrow pits. Should this not be feasible, a minimum buffer of 30 m should be maintained. - The following best practice powerline crossing alignment measures must be implemented: <ul style="list-style-type: none"> o The number of stream / river crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, a minimum buffer of 30 m should be maintained between the riparian edge and the edge of the road as far as practically possible. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Alteration of hydrological and geomorphological processes	Preferred Alternative	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation shafts, emulsion shaft, borrow pits and at access / service road crossings due to catchment land cover and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	Negative	Indirect, cumulative	Moderate	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	MODERATE -	<p>Minimize/reduce:</p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Appropriate stormwater structures must be implemented during construction to control run-off and minimize erosion. 	LOW -
		Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings during construction. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.	Negative	Indirect, cumulative	Slight	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<ul style="list-style-type: none"> - Vegetation clearing must be kept a minimum and only to the site footprint. - Erosion controls and sediment trapping measures must be put in place. - Stockpiles must be monitored for erosion and mobilisation of materials towards watercourses. - Stockpiles must not exceed 1.5m in height. Stockpiles must be covered during windy periods. - Best practice powerline crossing alignment measures must be implemented. Where wetland and stream / river crossings are required, every effort should be made to minimize the impacts by considering the following: <ul style="list-style-type: none"> o Crossing points should be aligned along areas or corridors of existing disturbance e.g. along existing road crossings. o The length of wetlands and rivers / streams crossed at each crossing must be minimised by adjusting alignments to coincide with narrower sections and ensuring that crossings cross perpendicular to flow. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. <p>All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable.</p>	VERY LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Ecological connectivity and edge disturbance impacts	Preferred	Temporary reduction of ecological connectivity between sections of watercourse units during construction, associated with the use of existing crossings and/or establishment and use of temporary crossings.	Negative	Direct	Slight	Localised	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p><u>Avoid/prevent:</u></p> <ul style="list-style-type: none"> - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, a minimum buffer of 30 m should be maintained between the riparian edge and the edge of the road as far as practically possible. <p><u>Minimize/reduce:</u></p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Vegetation clearing must be kept a minimum and only to the site footprint. <p><u>Remediate/rehabilitate:</u></p> <ul style="list-style-type: none"> • All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	VERY LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Water pollution impacts	Preferred	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during construction e.g. oil and diesel leaks and spills.	Negative	Direct	Slight	Localised	Long-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p><u>Avoid/prevent:</u></p> <ul style="list-style-type: none"> - No concrete mixing must take place within 32 m of any watercourse. - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p><u>Remediate/rehabilitate:</u></p> <ul style="list-style-type: none"> • Emergency plans must be in place in case of spillages onto bare soil or within water courses. 	VERY LOW -

OPERATIONAL PHASE

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
ENVIRONMENTAL POLICY														
Legal and policy compliance	All Alternatives	During the operation phase, failure to adhere to all permits, authorisations and regulations may lead to financial penalties and closure of the proposed Anglo Borwa Ventilation Shafts and associated infrastructure.	Negative	Direct	Severe	National	Long-term	Possible	Reversible	Resource will be partly lost	Achievable	HIGH -	<ul style="list-style-type: none"> The proponent must ensure that operations of the Anglo Borwa Ventilation Shafts is compliant with the relevant legislation and policy. These should include (but are not restricted to): NEMA, EA, EMPr and any other permits/authorisations. 	LOW -
BUILT ENVIRONMENT														
Infrastructure	All Alternatives	During the operation phase, the Anglo Borwa Ventilation Shafts will provide air in an efficient and sustainable manner, including its generation, transmission and distribution and retail.	Positive	Direct, Indirect	Moderate	Regional	Long-term	Definite	Reversible	Resource will not be lost	Easily Achievable	MODERATE +	<ul style="list-style-type: none"> Regular maintenance and inspections of all infrastructure and services must be undertaken. 	MODERATE +
Stormwater management	All Alternatives	During the operation phase, failure of the stormwater system and or lack of maintenance of the stormwater system may result in the erosion and or pollution of the surrounding environment should the stormwater be contaminated.	Negative	Direct, Indirect	Moderate	Study area	Long-term	Possible	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	<ul style="list-style-type: none"> Stormwater management measures such as attenuation structures, channels, etc. must be properly maintained and monitored. If the stormwater management measures put in place are deemed insufficient, a qualified engineer must be approached to assist with additional storm water attenuation mechanisms and remediation. 	LOW -
SOCIO-ECONOMIC														
Job creation	All Alternatives	During the construction phase, there will be some temporary job opportunities associated with building of the proposed Anglo Borwa Ventilation Shafts and associated infrastructure.	Positive	Direct	Slight	Localised	Short-term	Definite	N/A	Resource will not be lost	Easily Achievable	LOW +	<ul style="list-style-type: none"> N/A 	LOW +
Health and safety	All Alternatives	During the construction phase, failure to comply with health and safety policies and protocols may result in the harm of labourers, staff, surrounding landowners and the public.	Negative	Direct, Indirect	Moderate	Study area	Short-term	Possible	Irreversible	Resource will be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> A health and safety plan in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) must be adhered to and enforced by a HSE officer to ensure workers safety. 	LOW -
Air quality and dust control	All Alternatives	During the construction phase, dust generated by construction vehicles and construction activities could result in significant dust during windy conditions.	Negative	Direct	Moderate	Study area	Short-term	Definite	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> During windy periods un-surfaced and un-vegetated areas must be dampened down. Vegetation must be retained where possible as this will reduce dust travel. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
	All Alternatives	During the construction phase poor maintenance and servicing of construction plant and vehicles may result in an increase in vehicle emissions in the areas.	Negative	Indirect	Moderate	Study area	Short-term	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> Any complaints or claims emanating from dust issues must be attended to immediately and noted in the complaints register. Vehicles and construction plant must be serviced regularly so as to reduce excessive vehicle emissions. 	LOW -
On-site fire risk	All Alternatives	During the construction phase inadequate attention to fire safety awareness and fire safety equipment could result in uncontrolled fires, posing a threat to animals, vegetation and the surrounding landowners.	Negative	Direct	Moderate	Study area	Long-term	Possible	Irreversible	Resource will be lost	Easily Achievable	MODERATE -	<p>In order to reduce the risk of fires:</p> <ul style="list-style-type: none"> All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. Smoking must not be permitted near flammable substances. All cooking must be done in demarcated areas that are safe in terms of runaway or uncontrolled fires. No open fires must be allowed on site. Fire extinguishers must be available onsite. 	LOW -
REHABILITATION AND MAINTENANCE														
Inadequate rehabilitation and maintenance	All Alternatives	During the operation phase inadequate rehabilitation of disturbed areas and lack of maintenance of infrastructure may lead to the degradation of the surrounding environment.	Negative	Direct, Indirect	Moderate	Study area	Medium-term	Possible	Reversible	Resource will be partly lost	Easily Achievable	MODERATE -	Disturbed areas will be rehabilitated/prepared to allow natural re-vegetation.	LOW -
TERRESTRIAL BIODIVERSITY AND ECOLOGY IMPACTS														
Disruption of Ecosystem Function and Processes	Preferred Alternative	Operational activities, such as routine maintenance, may result in the disruption of ecosystem functions and processes, including the disturbance of vegetation and faunal habitats, as well as edge disturbance impacts. Assuming the appropriate mitigation measures are adopted during the planning and design and construction phases, the severity of the operational phase impacts will be relatively low.	Negative	Direct, Indirect	Moderate	Localised	Medium term	May occur	Reversible	Resource will be partially lost	Achievable	MODERATE -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> Monitoring and maintenance vehicles must not be permitted outside of the development footprint, as much as practically possible. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> The rehabilitation plan must be implemented during operation phases. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		Portions of habitat have already been lost due to historical and current land uses occurring on site. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resources will not be lost	Achievable	LOW -		LOW-
	No-go alternative	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study Area	Medium term	Probable	N/A	N/A	N/A	LOW -		N/A
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the operation phase, the failure to manage alien vegetation could result in the widespread invasion of alien vegetation.	Negative	Direct	Moderate	Study Area	Long-term	May Occur	Reversible	Resources could be partly lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The Alien Vegetation Management Plan must continue to be implemented. The site must be monitored on a regular basis to ensure that no alien vegetation establishes on site. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Any alien vegetation found during monitoring must be removed as per the Alien Vegetation Management Plan and the area must be appropriately rehabilitated in alignment with the Rehabilitation Plan. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the operation of the proposed infrastructure. This will be of low significance.	Negative	Cumulative	Moderate	Study Area	Long-term	Probable	Irreversible	Resources will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	Negative	Direct	Moderate	Study Area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A
RIVER AND WETLAND IMPACT														
Alteration of hydrological and geo-morphological processes	Preferred	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation and emulsion shaft and borrow pits and at access / service road crossings due to stormwater management and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	Negative	Indirect, cumulative	Moderate	Localised	Permanent	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	Minimize/reduce: <ul style="list-style-type: none"> All surface runoff / stormwater must be discharged back into the freshwater systems in a manner that does not increase the rates of erosion and sedimentation within the receiving systems. 	LOW -

		<p>Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.</p>	Negative	Indirect, cumulative	Moderate	Localised	Permanent	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> - Stormwater infrastructure must be maintained and monitored for effectiveness with respect to controlling and minimising erosion and sedimentation of watercourses. - The following best practice stormwater management measures must be adhered to: <ul style="list-style-type: none"> o All ventilation shafts and the emulsion shaft must be protected from the ingress and interception of surface runoff and subsurface interflow through the establishment of adequate berms and subsoil drains. o The ventilation shaft and emulsion shaft walls should be sealed to minimise interflow and groundwater interception. o Stormwater generated by the upgraded and new roads should be discharged at regular intervals and many small outlets should be favoured over few large. o Stormwater outlets must not be established within wetlands or riparian zones. o As far as practically possible, stormwater conveyance should be via open drains rather than pipes and conveyance from the road drains to the outlets should via open drains with vegetated or rough surfaces that are armoured with erosion protection. o All outlets must be designed to dissipate the energy of outgoing flows to levels that present a low erosion risk. In this regard, suitably designed energy dissipation (e.g. stilling basins) and erosion protection structures (Reno-mattresses) will need to be installed at appropriate locations. o All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground-level. 	LOW -
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POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Ecological connectivity and edge disturbance impacts	Preferred	Inadequate rehabilitation of disturbed areas may lead to the reduction of ecological connectivity and degradation of the surrounding environment.	Negative	Direct, indirect	Slight	Study area	Long-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<u>Remediate/rehabilitate:</u> <ul style="list-style-type: none"> The site must be monitored for erosion and should be rehabilitated where applicable. Disturbed areas should be rehabilitated and re-vegetated. 	VERY LOW -
Water pollution impacts	Preferred	Operational risk of emulsion use may lead to the contamination of surface water, soil and/or groundwater, impacting upon the water quality of the riparian ecosystems in the broader area.	Negative	Direct	Moderate	Localised	Long-term	Possible	Reversible	Resource will not be lost	Achievable	MODERATE -	<u>Avoid/prevent impact:</u> <ul style="list-style-type: none"> The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, etc.) needs to be administered. Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of stormwater. No machinery must be parked overnight within 32 m of the rivers/wetlands. All stationary machinery must be equipped with a drip tray to retain any oil leaks. Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <u>Remediate/rehabilitate:</u> <ul style="list-style-type: none"> Emergency plans must be in place in case of spillages onto bare soil or within watercourses. All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. 	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		Routine maintenance may lead to the introduction of chemical / hazardous substances (e.g. oil spills from vehicles, etc.) into the watercourse, soil and/or groundwater, adversely affecting the aquatic ecosystems in the broader area.	Negative	Direct	Slight	Localised	Long-term	Possible	Reversible	Resource will not be lost	Easily achievable	LOW -	<ul style="list-style-type: none"> - Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site. • Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. 	VERY LOW -

DECOMMISSIONING PHASE

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
TERESTRIAL BIODIVERSITY AND ECOLOGY IMPACTS														
Loss of Indigenous Vegetation	Preferred Alternatives	The decommissioning of the infrastructure and removal of materials will require laydown areas and will disrupt vegetation that has re-established around the areas that were disturbed during the construction phase. The loss of vegetation will be similar to the construction phase impacts.	Negative	Direct	Moderate	Localised	Permanent	Probable	Irreversible	Resource will be lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Decommissioning activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint. Vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint. Lay down areas must not be located within any watercourses or drainage lines. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Topsoil (20 cm, where possible) during decommissioning must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the decommissioning phase (e.g. laydown areas). Only indigenous species must be used for rehabilitation after decommissioning. The alien invasive management plan for the site must be implemented. 	LOW -
	No-go	Should the project not proceed then the current land use will remain the same. Vegetation will likely continue to degrade under current land uses.	Negative	Indirect	Slight	Study area	Long-term	Possible	N/A	N/A	N/A	LOW -		N/A
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	Preferred Alternative	Faunal species will be disturbed during decommissioning due to noise and vibrations of machinery. Faunal Species that vacate the immediate area may return following completion of construction or new individuals or species may inhabit the area. Machinery may cause unintentional mortalities of faunal species.	Negative	Direct	Moderate	Study Area	Permanent	Definite	Reversible	Resource will not be lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Vehicles and machinery must meet best practice standards in terms of noise and vibration. Staff and contractors' vehicles must comply with speed limits of 40 km/hr Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Short term	Definite	Reversible	Resource will not be lost	Achievable	LOW -		LOW -

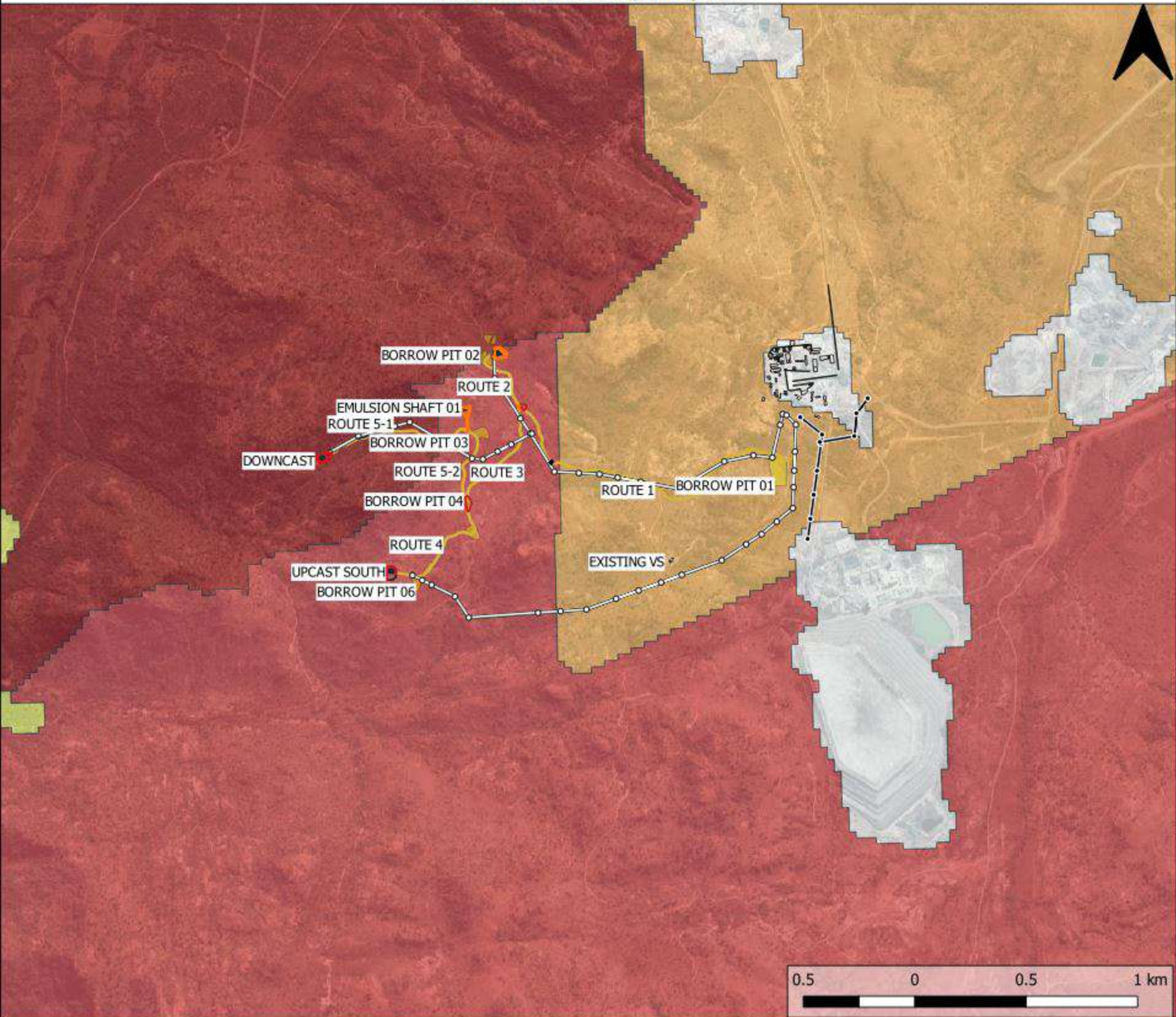
POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study area	Medium term	Probable	N/A	N/A	N/A	LOW -	<ul style="list-style-type: none"> ECO must walk ahead of machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat. Any faunal species that may die as a result of decommissioning must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI. Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist. Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite. 	N/A
Establishment and/or spread of Alien Plant Species	Preferred Alternative	During the decommissioning phase, the disturbance of natural vegetation creates open habitats that favour the establishment of undesirable alien plant species. The infestation of alien plant species will result in the displacement of indigenous vegetation and possible local extinctions of species. This pre-mitigation impact is of moderate significance but can easily be managed through the implementation of an alien invasive management plan.	Negative	Indirect	Moderate	Study area	Long term	Probable	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	Remediate/rehabilitate impact: <ul style="list-style-type: none"> All areas previously infested by alien plant species must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as decommissioning has been completed within each area. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the decommissioning of the proposed infrastructure. This will be of low significance.	Negative	Cumulative	Moderate	Study area	Long-term	Probable	Irreversible	Resource will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	Negative	Direct	Slight	Study area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A
RIVER AND WETLAND IMPACT														
Direct ecosystem modification or destruction / loss impacts	Preferred Alternative	Direct disturbance and removal of riparian soil and vegetation during the decommissioning of the proposed infrastructure.	Negative	Direct	Slight	Study area	Medium term	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> Construction materials must not be stored within the moderate to very high sensitivity areas. Stockpiles must not be stored within the moderate to very high sensitivity areas. <p>Minimize/reduce:</p>	LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Alteration of hydrological and geo-morphological processes	Preferred Alternative	Alteration of sections of watercourse units downstream of crossings during decommissioning.	Negative	Indirect, cumulative	Slight	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<ul style="list-style-type: none"> - Decommissioning activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Appropriate stormwater structures must be implemented during decommissioning to control run-off and minimize erosion. - Erosion controls and sediment trapping measures must be put in place. 	VERY LOW -
Ecological connectivity and edge disturbance impacts	Preferred Alternative	Temporary reduction of ecological connectivity between sections of watercourse units during decommissioning.	Negative	Direct	Slight	Localised	Medium-term	Possible	Reversible	Resource will not be lost	Achievable				LOW -	Remediate/rehabilitate: - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. • All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable.	VERY LOW -

POTENTIAL ISSUE	ALTERNATIVES	SOURCE OF ISSUE	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Water pollution impacts	Preferred Alternative	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during decommissioning e.g. oil and diesel leaks and spills.	Negative	Direct	Slight	Localised	Long-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> • Emergency plans must be in place in case of spillages onto bare soil or within water courses. 	VERY LOW -

APPENDIX 6 – SENSITIVITY MAP

**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
LIMPOPO CPLAN (2018) MAP**



Proposed infrastructure

Ventilation Shafts

- Design
- Concrete
- Water Containers
- Platform Infrastructure
- Platform

Borwa-South & North VS & Down-Cast

- Structure points
- Overhead line

Mototolo-Lebowa North-Toff Borwa

- Structure points
- Overhead line
- Access Roads
- Borrow Pits

Existing infrastructure

- Mine infrastructure
- Vent shaft
- Text point

Terrestrial Biodiversity

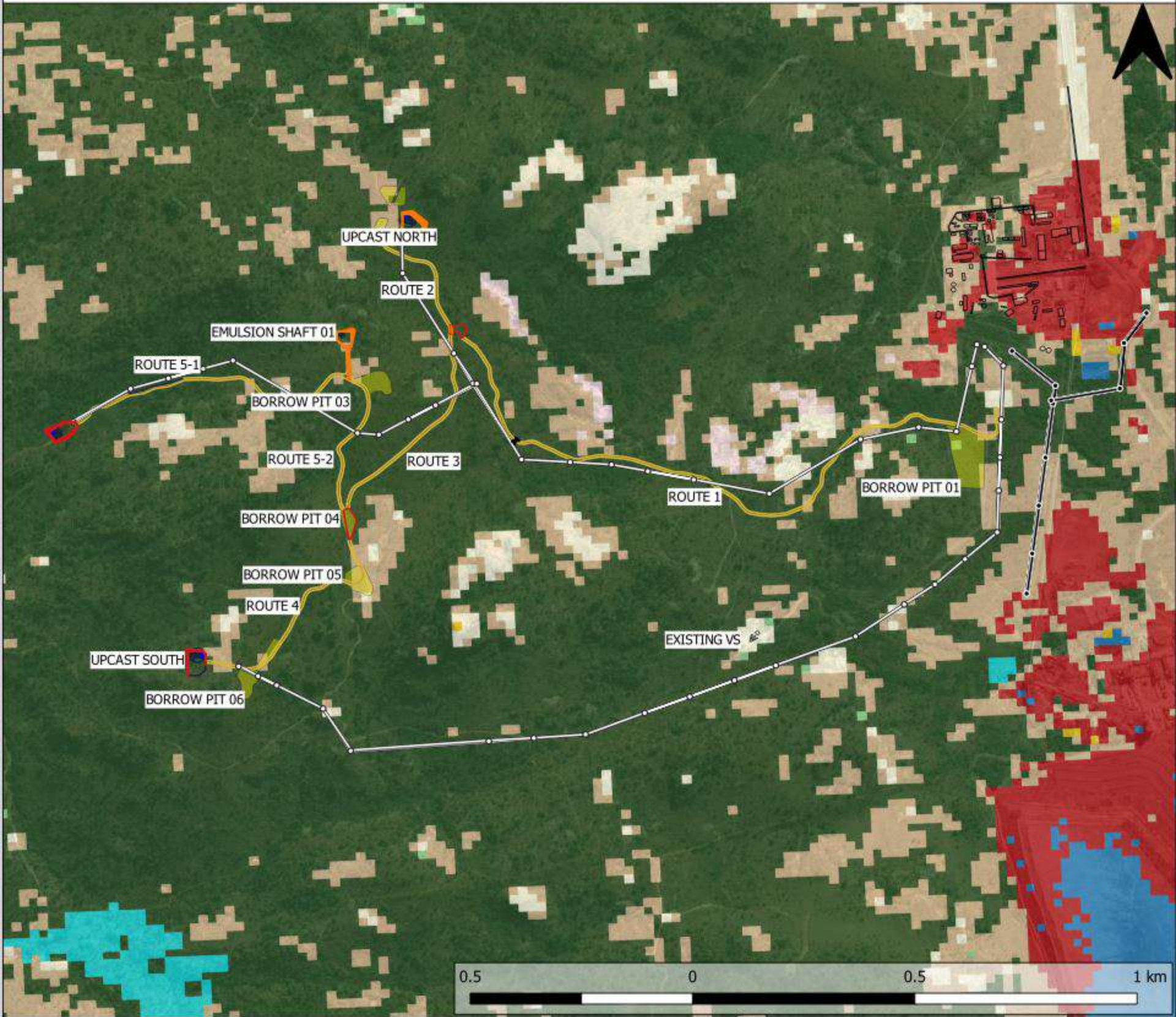
Limpopo CPLAN (2018)

- Critical Biodiversity Area 1
- Critical Biodiversity Area 2
- Ecological Support Area 1
- Ecological Support Area 2
- No Natural Remaining



PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE

NATIONAL LAND COVER MAP



Proposed infrastructure

Ventilation Shafts

- Design
- Concrete
- Water Containers
- Platform Infrastructure
- Platform

Borwa-South & North VS & Down-Cast

- Structure points
- Overhead line

Mototolo-Lebowa North-Toff Borwa

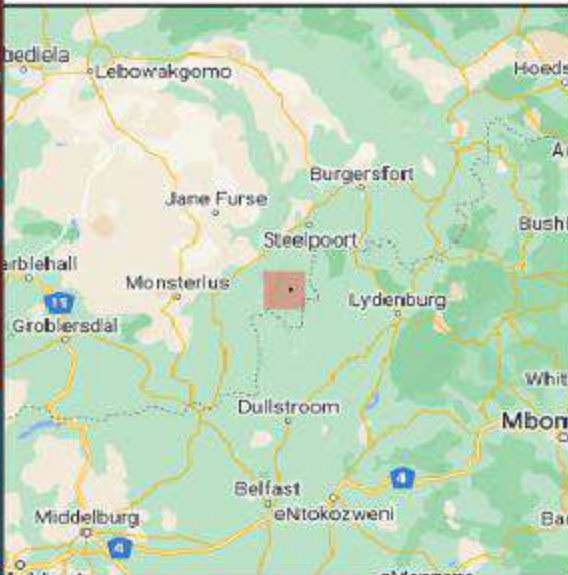
- Structure points
- Overhead line
- Access Roads
- Borrow Pits

Existing infrastructure

- Mine infrastructure
- Vent shaft
- Text point

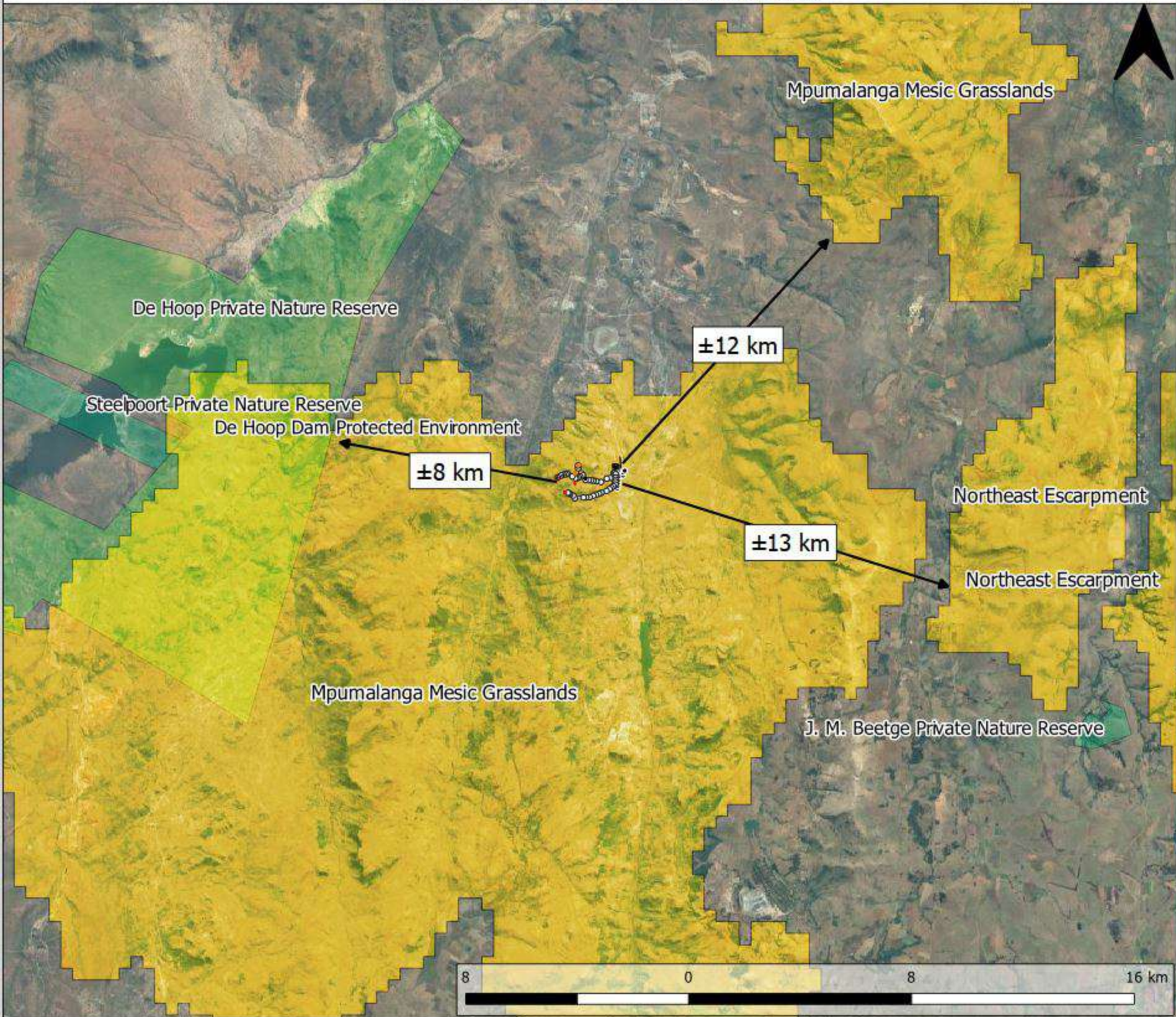
National Land Cover (NLC 2018)

- Forests & Woodlands
- Sparsely Wooded Grassland
- Natural Grassland
- Artificial Dams & Ponds
- Herbaceous Wetlands
- Natural Rock Surfaces
- Eroded Lands
- Other Bare
- Villages
- Mining



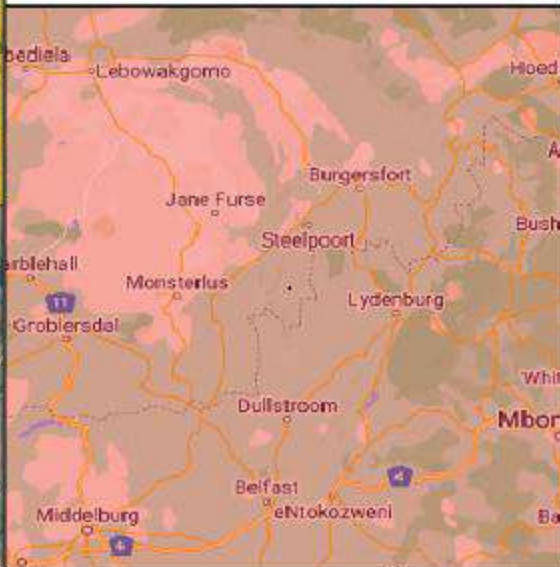
PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE

PROTECTED AND PRIORITY AREAS MAP

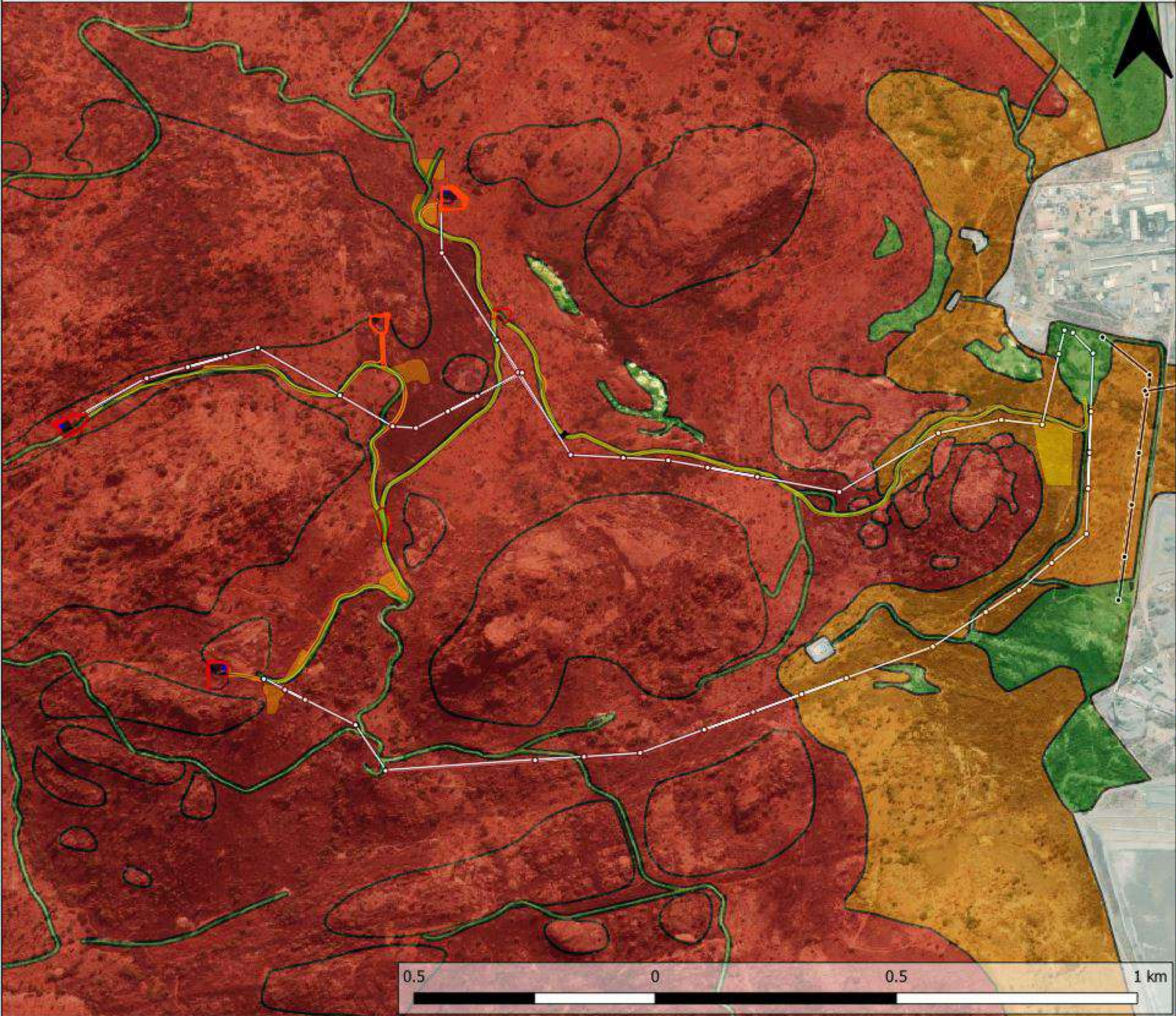


Proposed infrastructure

- Ventilation Shafts**
 - Design
 - Concrete
 - Water Containers
 - Platform Infrastructure
 - Platform
- Borwa-South & North VS & Down-Cast**
 - Structure points
 - Overhead line
- Mototolo-Lebowa North-Toff Borwa**
 - Structure points
 - Overhead line
 - Access Roads
 - Borrow Pits
- Existing infrastructure**
 - Mine infrastructure
 - Vent shaft
- Terrestrial Biodiversity**



PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
SITE ECOLOGICAL IMPORTANCE (SEI) MAP



Site Ecological Importance

- High
- Medium
- Low
- Very low

Proposed infrastructure

Ventilation Shafts

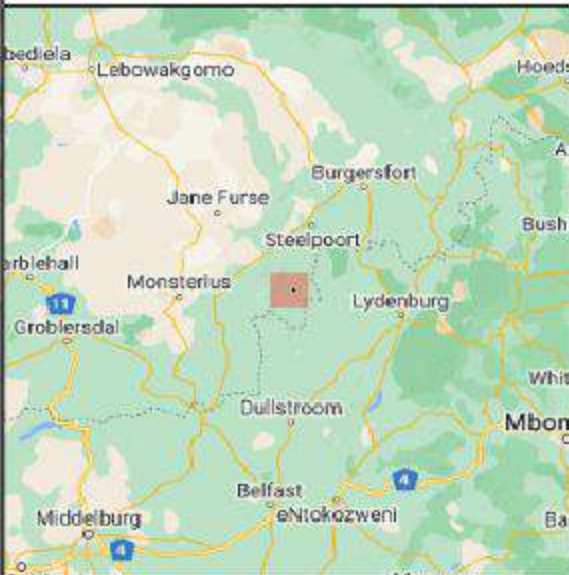
- Design
- Concrete
- Water Containers
- Platform Infrastructure
- Platform

Borwa-South & North VS & Down-Cast

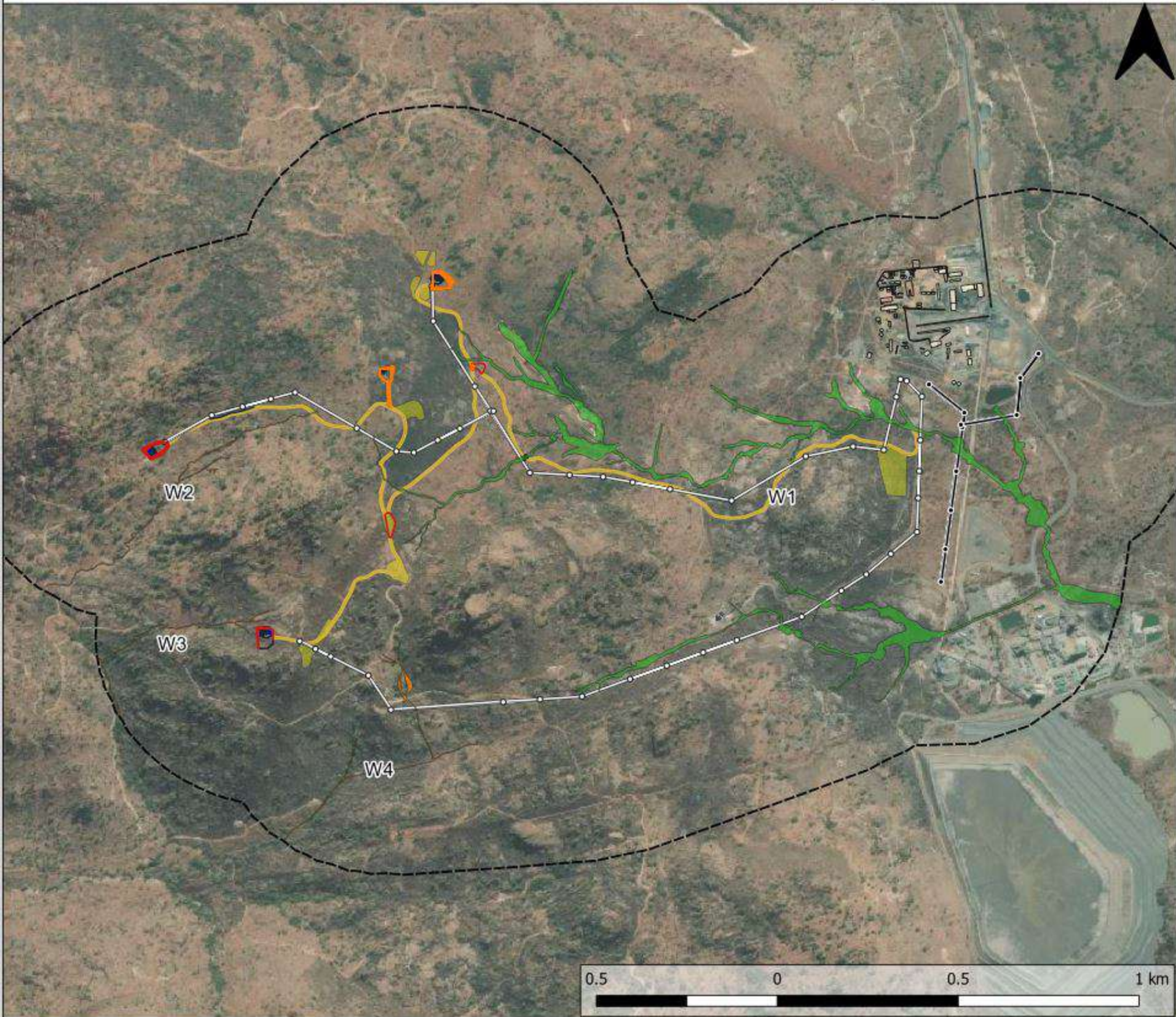
- Structure points
- Overhead line

Mototolo-Lebowa North-Toff Borwa

- Structure points
- Overhead line
- Access Roads
- Borrow Pits



PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT MOTOTOLO MINE, LIMPOPO PROVINCE
ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS)



Ecological Importance and Sensitivity

- Moderate
- Low

Proposed infrastructure

Ventilation Shafts

- Design
- Concrete
- Water Containers
- Platform Infrastructure
- Platform

Borwa-South & North VS & Down-Cast

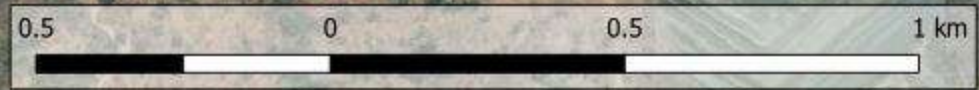
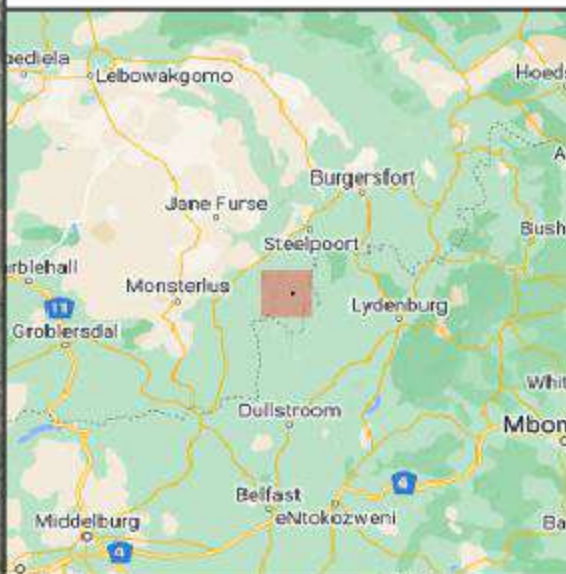
- Structure points
- Overhead line

Mototolo-Lebowa North-Toff Borwa

- Structure points
- Overhead line
- Access Roads
- Borrow Pits

Existing infrastructure

- Mine infrastructure
- Vent shaft
- Buffer (500 m)



APPENDIX 7 – FINANCIAL QUANTUM AND CLOSURE PLAN AND LIABILITY REPORT

**PROPOSED DEVELOPMENT OF VENTILATION SHAFTS AND
ASSOCIATED INFRASTRUCTURE AT MOTOTOLO MINE, LIMPOPO
PROVINCE**

QUANTUM CALCULATION FOR FINANCIAL PROVISION

Prepared for:



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April 2022

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ACRONYMS AND ABBREVIATIONS

ACRONYM:	DESCRIPTION:
DMRE	Department of Mineral Resources and Energy Note: Currently this Department is known as the Department of Mineral Resources and Energy, DMRE.
DWS	Department of Water and Sanitation Note: this department was formerly known as the Department of Water Affairs and Forestry, DWAF.
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EMPr	Environmental Management Program
FP Regulations	Financial Provisioning Regulations, 2015 (as amended)
Ha	Hectares
Mamsl	metres above mean sea level
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MRA	Mining Right Area
MRDS	Mine Residue Disposal Site
NAEIS	National Atmospheric Emissions Inventory System
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
PCD	Pollution Control Dam
PPP	Public Participation Process
ROM	Run of Mine
RWD	Return Water Dam
WMA	Water Management Area

LIST OF DEFINITIONS

	DEFINITIONS
Care and maintenance	This involves the maintaining and corrective action as requires as well as conducting the required inspection and monitoring to demonstrate achievement of success of the implemented measures.
Closure	This involves the application for closure certificate and initiation of transfer of on-going care and maintenance to third parties.
Closure Planning	A process that begins during the pre-feasibility phase of a project and continues throughout the operations to closure certification. It sets clear objectives and guidelines, makes financial provision, and establishes effective stakeholder engagement leading to closure.
Contingencies	This allows for making reasonable allowance for possible oversights/omissions and possible work not foreseen at the time of compilation of the closure costs. Allowance of between 10 percent and 20 percent would usually be made based on the accuracy of the estimations. The South African Department of Mineral Resources Guideline (January 2005) requires an allowance of 10 percent.
Decommissioning	This relates to the situation after cessation of operations involving the deconstruction/removal and/or transfer of surface infrastructure and the initiation of general site rehabilitation.
Environmental Management Programme	A legal document capturing the current state of the mine, mine progress as to the agreed state and the interim arrangements made during the course of each year of the mine's operation, as contemplated in Section 39 of the MPRDA.
Financial Provision	Section 1 of the MPRDA defines financial provision as meaning the insurance, bank guarantee, trust fund or cash that applicants for or holder of a right of a right or permit must provide in terms of section 41 and 89 guaranteeing the availability of sufficient funds to undertake the agreed work programmes and to rehabilitate the prospecting, mining, reconnaissance, exploration, or production areas, as the case may be.
Life of Mine	An assessment of realistically assumed geological, mining, metallurgical, economic, marketing, legal, environmental, social, governmental, engineering, operational and all other modifying factors, which are considered in order to derive the year for which a mine can still operate economically.
Post-closure	The period of on-going care and maintenance, as per arrangement with third parties.
Preliminary and Generals (P&Gs)	This is a key cost item which is directly related to whether third party contractors are applied for site rehabilitation. This cost item comprises both fixed and time-related charges. The former makes allowance for establishment (and de-establishment) of

	contractors on site, as well as covering their operational requirements for their offices (electricity/water/communications), latrines, etc. Time-related items make allowance for the running costs of the fixed charged items for the contract period.
Reserve	The economically mineable material derived from a measured and/or indicated resource (SAMREC, 2007).
Rehabilitation:	The re-instatement of a disturbed area into a usable state (not necessarily its pre-mining state) as defined by broad land use and related performance objectives.
Remediation	To assist in the rehabilitation process by enhancing the quality of an area through specific actions to improve especially bio-physical site conditions.
Scheduled closure	Closure that happens at the planned date and/or time horizon.
Site relinquishment	Receipt of closure certificate and handover to third parties for on-going care and maintenance, if required.
Unscheduled closure	Immediate closure of a site, representing decommissioning and rehabilitation of the site in its present state.

1. INTRODUCTION

Anglo America Platinum, - Mototolo Mine has applied for the Environmental Authorisation for the establishment of vent shafts and associated infrastructure. The application area is situated on Remainder of Farm Malokela 370 KT, Remainder of Farm Thorncliffe 374KT, Portion 0 of the farm Malokela 370KT, Portion 7 of the farm Thorncliffe 374K, in the Mpumalanga Province (hereafter referred to as the “study site”) (Figure 1).

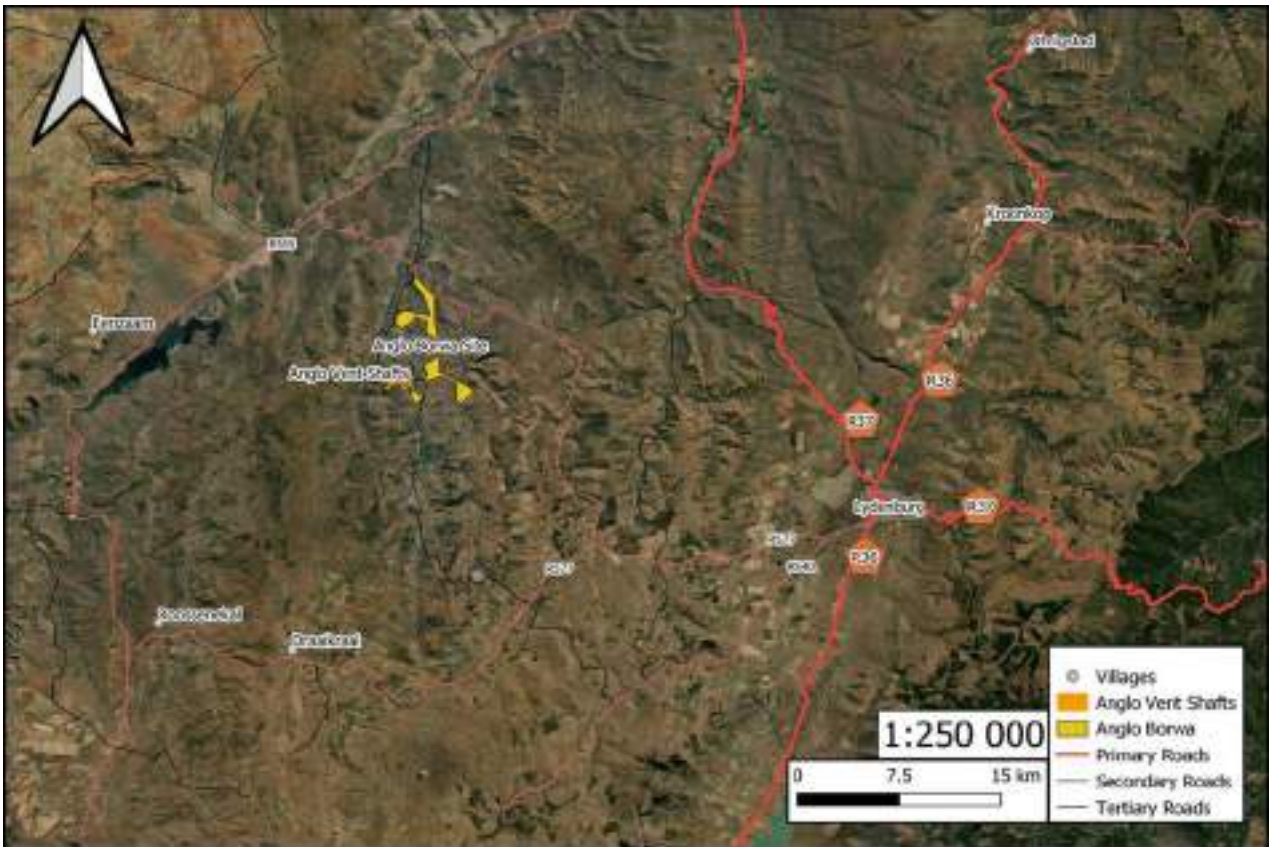


Figure 1: Regional Location of mine

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) prescribes that Mines must comply with the prescribed financial provision for the rehabilitation, closure and on-going post-decommissioning management of negative environmental impacts arising from the mining operation. This Report aims to meet the NEMA requirements and has been prepared in terms of the NEMA Financial Provisioning Regulations, 2015 (as amended).

According to the regulations, financial provision must be made for annual rehabilitation, final rehabilitation, decommissioning and closure activities at the end of prospecting, exploration, mining, or production operations; and remediation and management of latent or residual environmental impacts which may become known in the future. In order to address these requirements this document includes an annual rehabilitation plan, a final rehabilitation, decommissioning and closure plan, and an environmental risk assessment report.

1.1.MINE CONTACT DETAILS

Table 1: Mine contact details

Name of Company	Anglo American Platinum
Name of Project	Preliminary: Closure and Financial Provision Assessment – Proposed Development of Ventilation Shafts and Associated Infrastructure at Mototolo Mine
Contact Person	Corrie Retief

1.2. CLOSURE ASSESSMENT PRACTITIONER

This closure plan was compiled by Corrie Retief. Contact details are provided below.

Table 2: Contact details for Closure Assessment Practitioner

Name of Company	Coastal Environmental Services
Address	Route 21 Business Park, 72 Regency Drive, Centurion, 0178
E-mail	Corrie.retief@cesnet.co.za
Cellular nr	0828522134

The specialist who contributed to the closure planning process, and the relevant professional registrations and experience, are listed in Table 3.

Table 3: Details of specialist

Specialist	Task	Professional Registrations/Experience
Corrie Retief	Closure Plan compilation	BA Environmental Managed Hons BA Geography <i>Pr.Sci.Nat</i> Reg.EAP (EAPASA) 16 years' experience

2. GUIDING PRINCIPLES

The following broadly accepted principles have been adopted to guide the preliminary closure planning for project:

- Providing the vision, objectives, targets and criteria for final rehabilitation, decommissioning and closure of the project;
- Outlining the design principles for closure;

- Explaining the risk assessment approach and outcomes and link closure activities to risk rehabilitation;
- Detailing the closure actions that clearly indicate the measures that will be taken to mitigate and/or manage identified risks and describes the nature of residual risks that will need to be monitored and managed post closure;
- Committing to a schedule, budget, roles and responsibilities for final rehabilitation, decommissioning and closure of each relevant activity or item of infrastructure;
- Identifying knowledge gaps and how these will be addressed and filled;
- Detailing the full closure costs for the life of project at increasing levels of accuracy as the project develops and approaches closure in line with the final land use proposed; and
- Outlining monitoring, auditing and reporting requirements;

According to the NEMA GNR 1147 the objective of the final rehabilitation, decommissioning and closure plan, is to identify a post-mining land use that is feasible.

- Rehabilitation and Closure Planning must comply with relevant legislation, as well as with generally accepted good practices;
- Closure objectives must be realistic and achievable;
- Closure related rehabilitation of land disturbed by mining must be conducted to allow for pre-determined post-mining land uses, as agreed with stakeholders. In this regard, the rehabilitated areas must be safe, stable and non-polluting for integration into the existing land uses;
- Closure actions / measures conceptualised and implemented must limit the potential adverse effects of the closed mine site on the receiving environment, and thereby ensure that the quality of life of the surrounding / resident communities is not compromised after closure by possible threats to the health and safety of people and animals;
- Closure measures must be sustainable under foreseeable natural events;
- Priority must be given to the use of locally available natural materials and / or vegetation as opposed to imported / synthetic material and / or exotic vegetation. The measures provided must be appropriate for the site conditions;
- Manage activities within the study area in order to maintain and/ or improve ecological integrity of the study area;
- Maximise the service provision and ecological function of the watercourse
- The success, performance and sustainability of the closure measures must be demonstrated and confirmed by suitable monitoring and measurement for an adequate period post closure;
- A site with limited residual care-and-maintenance requirements must be sought. In this regard, proven sustainable passive measures must be favoured over measures that require ongoing maintenance and / or active care post-closure;

- Involvement of stakeholders must be undertaken in a meaningful manner to inform Closure planning by reflecting local requirements, priorities, and preferences, as well as the requirements as stipulated in local and provincial planning as well as the municipal Integrated Development Plans / frameworks; and
- Closure should be achieved as efficiently and cost effectively as possible.

3. APPROACH

The approach adopted in undertaking closure planning for the proposed for Vent Shat Project as further refinement to the guiding principles documented above, is based on the following key planning foci:





1. The application of an iterative closure planning/ design process





This iterative process underpins the principle that planning for closure should occur throughout the life of the mine, with solutions continually being evaluated through the process cycle.

2. Key Closure Objectives

<p style="text-align: center;">physical stability</p>	<p>To create a physically stable, safe, rehabilitated landscape that limits long term environmental degradation, erosion, and failure / collapse of unavoidably remnant mining residue which are present on the mine site post closure, thus enabling the successful establishment of the planned post-mining land use</p>
---	--

 <p>environmental quality</p>	<p>To ensure that local environmental quality is not adversely affected by possible physical effects and chemical contamination arising from the mine site or individual facilities, as well as to sustain catchment yield as far as possible after closure</p>
 <p>healthy and safety</p>	<p>To limit the possible health and safety threats to humans and animals using the rehabilitated mine site as it becomes available</p>
 <p>land capability/land use</p>	<p>To re-instate a suitable land capability over the mine site to facilitate the progressive implementation of the planned post-mining land use</p>
 <p>landscape vitality</p>	<p>To create a landscape that is self-sustaining and over time will converge to the desired ecosystem structure, function, and composition</p>
	<p>To encourage, where appropriate and as aligned to the planned post-mining land use, the re-establishment of native vegetation on the rehabilitated mine site such that the terrestrial biodiversity is largely re-instated over time</p>

 <p>biodiversity</p>	
 <p>socio-economic resilience</p>	<p>To ensure that there is constructive engagement and alignment with local communities and regulatory authorities regarding the proposed end land use</p>

3. Tiered Risk-based Process

The application of a tiered risk-based process to allow for an understanding of the challenges and opportunities that need to be addressed and refining, abstracting, and prioritising essential issues. The structure of this report is presented below in Figure 2.

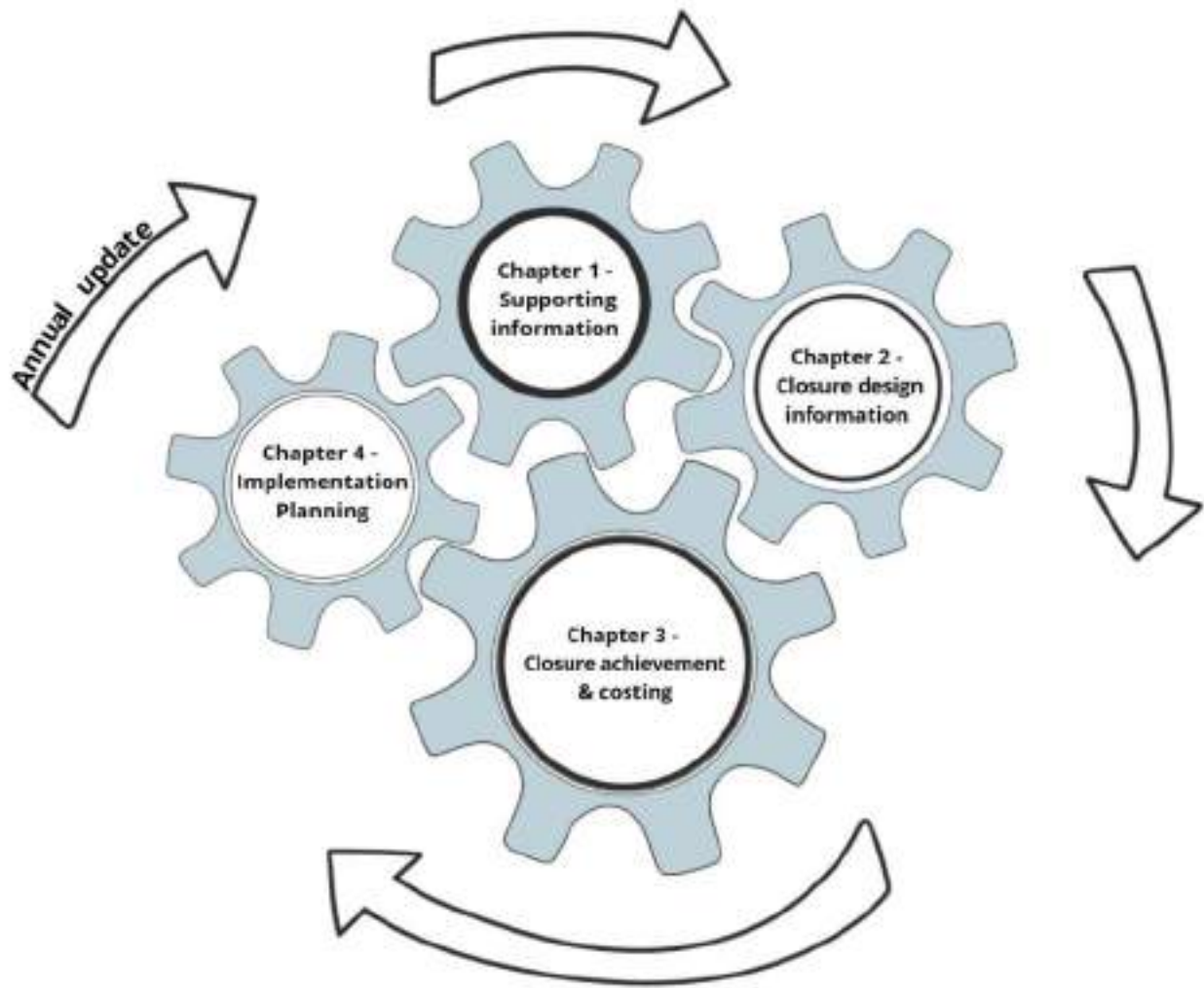
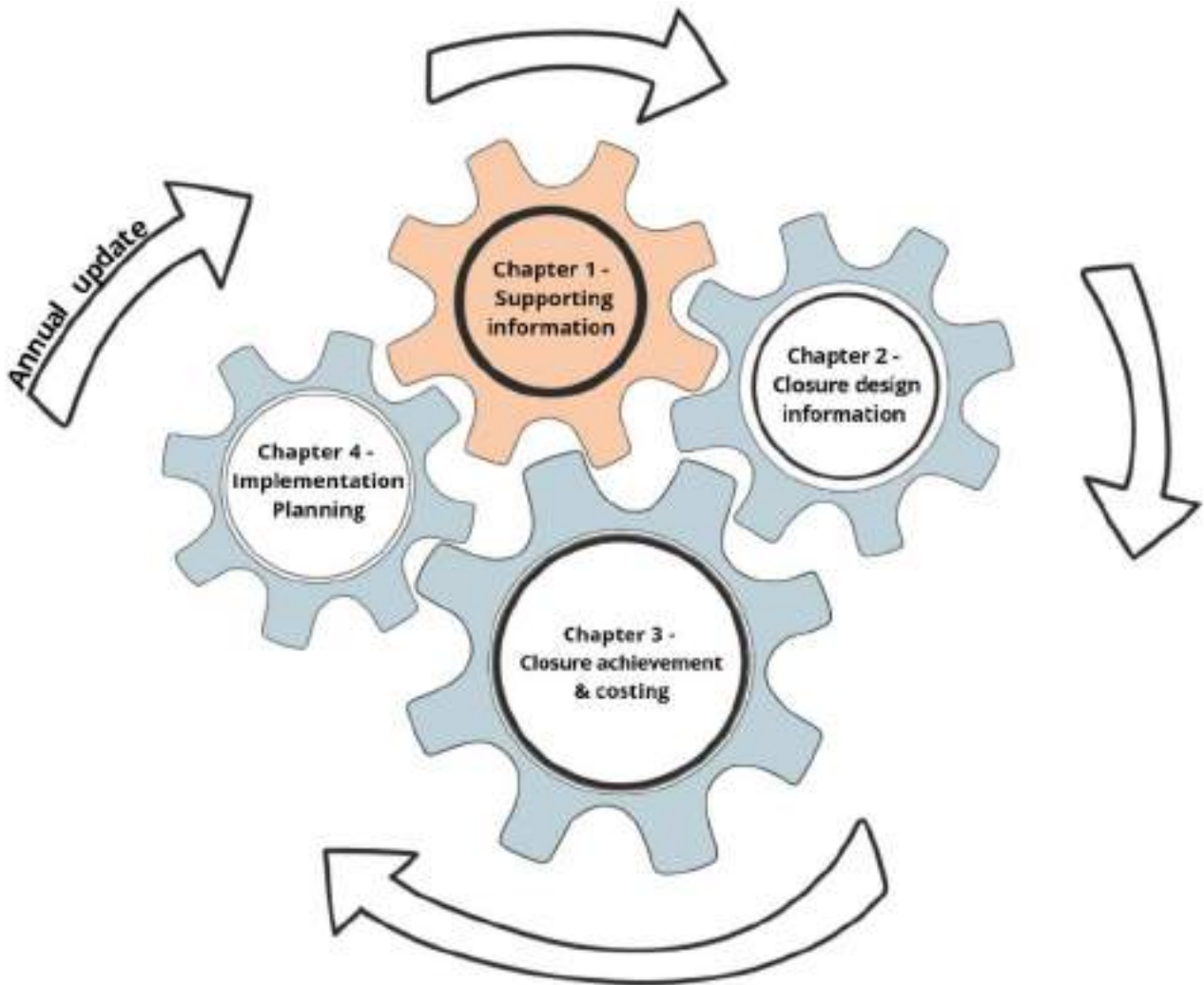


Figure 2: Approach to closure plan compilation

CHAPTER 1: SUPPORTING INFORMATION



Chapter 1: Review and documentation of relevant project information:

- A description of the mine – material information and issues that have guided the development of the plan;
- A summary of the legal and governance framework and interpretation of these requirements for the closure design principles.
- Environmental and Social Context.

4. MINE DESCRIPTION

4.1. STUDY AREA – REGIONAL SETTING

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine’s Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of

Lydenburg (Mpumalanga). The Project Background, farm portions that fall within the project area and including details on the location of the operation is summarized in Table 4.

Table 4: Project Summary

Company Name	Anglo American Platinum
Commodity:	PGM
Life of Mine	Estimated 10 years of LOM extension.
Mining Method(s):	Underground Mining
Farm Name	The project is proposed on the following properties: Remainder of Farm Malokela 370 KT Remainder of Farm Thorncliffe 374KT Portion 0 of the farm Malokela 370KT Portion 7 of the farm Thorncliffe 374KT
Application Area (Ha)	3.78
Magisterial District	Sekhukhune District Municipality
Distance and direction	Anglo American Mines is situated approximately 32 km south of Steelpoort and approximately 65 km north-west of the town of Mashishing (Lydenburg) in the Limpopo province.
21-digit Surveyor General Code	TOKT00000000037000000 TOKT00000000037400000 TOKT00000000037400007

4.2. DESCRIPTION OF PROPOSED ACTIVITY

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine’s Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga) (Figure 3).

Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method. Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and -pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³/s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is sub-optimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures,

flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and associated infrastructure, including the establishment of two borrow pits for material sourcing and the upgrading of access roads and powerlines.

4.2.1. VENTILATION SHAFTS AND EMULSION BOREHOLE

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole. The following details are currently available for the proposed ventilation shafts and emulsion borehole.

The proposed Downcast Shaft will be located at the western extent of the project area, approximately 2.2 km west of the main Borwa Shaft (Figure 4). The technical report from Bluhm Burton Engineering Pty Ltd estimated the position of the downcast shaft to be at the bottom of current excavations below South Strike 17. This shaft needs to be moved into the laterals to lessen the impact on the mine operation and traffic management plan and to get the most favourable position on surface to make the drilling operation safer and easier. The following additional requirements are noted for the Downcast Shaft:

- All power will be supplied via Diesel generator, due to it only being a downcast shaft no permanent power is required.
- Polluted water control processes will need to be established.
- Preparation of underground site for access control and removing of chips while reaming.
- Site establishment by Raise bore drilling contractor and start drilling.
 - Area must be bunded where drill will be positioned.
 - Drill pilot hole for raise bore.
 - Drill hole for communication to underground.

The proposed North Exhaust (Upcast) Shaft will be located to the north-east of the Downcast Shaft, approximately 1.4 km west of the main Borwa Shaft (Figure 5). After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Exhaust shaft. The whole process will be the same as for the downcast shaft but after completion of the drilling operation, ventilation structures will be erected with ventilation fans over the excavation. After completion the ventilation fans will be commissioned. The proposed South Exhaust (Upcast) Shaft will be located to the south-east of the Downcast Shaft, approximately 2.1 km south-west of the main Borwa Shaft (Figure 6). After the completion of the raise boring at the North Exhaust shaft, raise boring will move over to the Southern Exhaust shaft. After the completion of the raise

boring at the Downcast Shaft, raise boring will move over to the Northern Upcast Shaft, then to the Southern Upcast Shaft.

The proposed Emulsion Shaft will be located en route to the Downcast Shaft, approximately 1.5 km west of the main Borwa Shaft (Figure 7). This point will be required to be accessed by a SASOL Emulsion tanker every 2-3 days. Emulsion will be gravity fed down a hole at this point into the workings below. It will also be constructed at the same time as the access roads to ventilations shafts.

An existing ventilation shaft occurs within the project area, located approximately 1.1 km south-west of the main Borwa Shaft (Figure 8).

4.2.2. BORROW PITS

Construction materials will be sourced from two borrow pits, namely:

- **Borrow pit 01**, located near the entrance to the project area, immediately to the south of the main Borwa Shaft mining area, which will encompass an area of 10 086 m² (**Figure 3**);
- **Borrow pit 02**, located near the Northern Upcast Vent Shaft (**Figure 3**), which will encompass an area of 4 444 m²;
- **Borrow pit 03**, located near the emulsion borehole, which will encompass an area of 3 168 m² (**Figure 3**);
- **Borrow pit 04 and borrow pit 05**, located en route to the Southern Upcast Vent Shaft (**Figure 3**), which will encompass areas of 2 037 m² and 3 135 m², respectively; and
- **Borrow pit 06**, located near the Southern Upcast Vent Shaft (**Figure 3**), which will encompass an area of 4 045 m².

4.2.3. ACCESS ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole and will be included in the applications (Figure 3). Access will be required to enable construction of the ventilation shaft and for future inspections. Road will need to be designed to accommodate environmental and physical vehicle requirements to lessen effect on the environment and enable safe use of the road by vehicles. The proposed upgrades need to accommodate the following:

- The raise bore drill and ancillary equipment need to go up and down on the road;
- The roads are to be used by water trucks and diesel tankers to supply water for drilling operations and diesel for power generator requirements, respectively;
- Concrete trucks need to use road to supply concrete for civil work;
- Other materials required for drilling operation and construction need to be to the sites via the proposed roads; and

- Although not a direct requirement for the project, but for cost savings, the road needs to accommodate the emulsion tanker and allow pumping of emulsion directly underground to a new transfer station underground through a planned hole on surface.

Route 1 runs westwards from the site entrance, splitting towards each of the proposed ventilation and emulsion shaft sites. Access to the the Downcast Shaft will be achieved via the proposed upgrade of Routes 3 and 5-1. The designs for Route 2, 4 and 5-2 will include the road to the finalised position of the Northern Upcast, Southern Upcast and Emulsion Shafts, respectively. All access roads will be built at the same time.

4.2.4. POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including:

- The Ventilation Line South (Borwa-South), 2 600 m in length;
- The Ventilation Line North (Borwa-North), 2 000 m in length; and
- The Downcast Line, 1200 m in length (Figure 3).

4.2.5. CONSTRUCTION SITE CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination, etc.

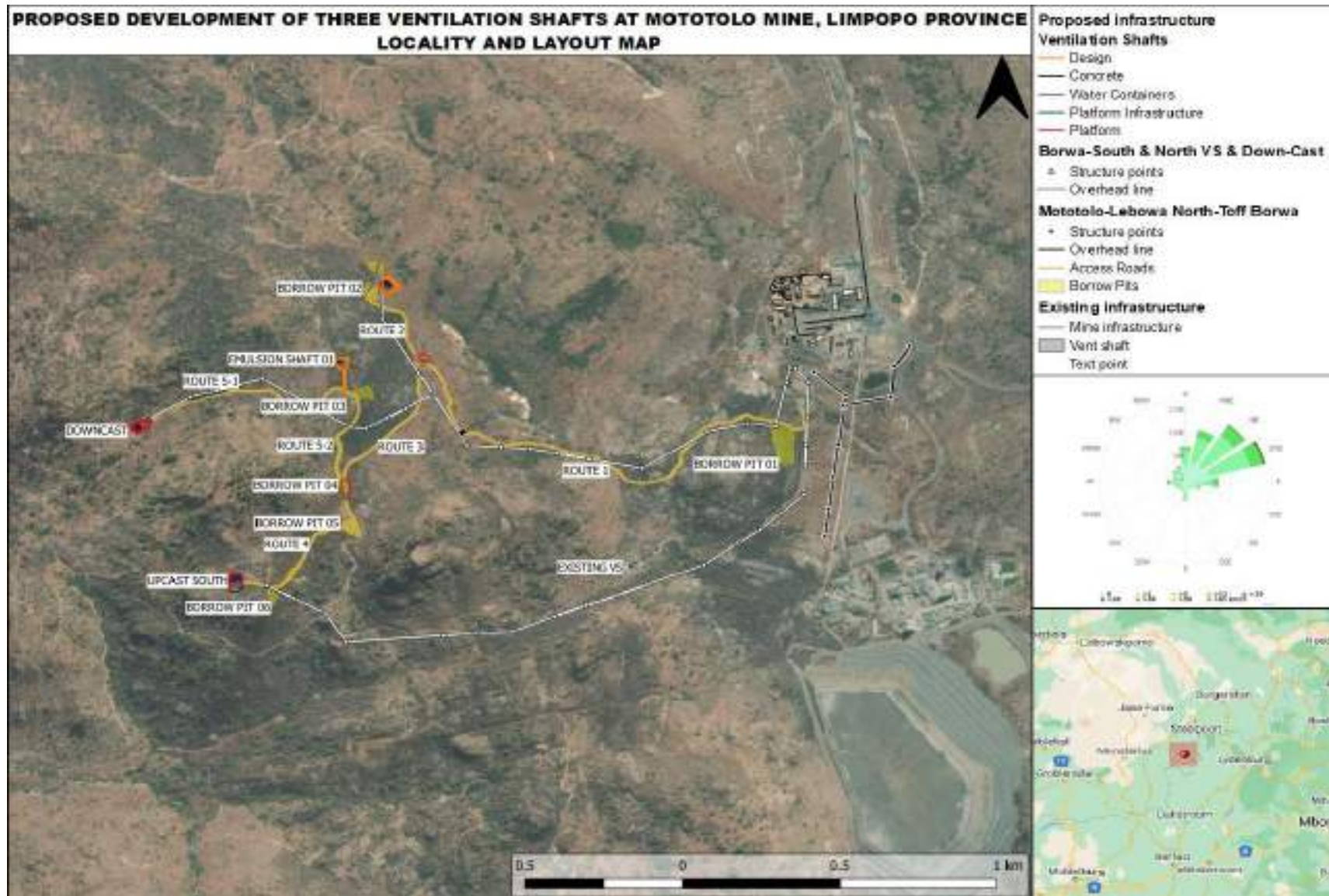


Figure 3: Locality and layout map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 4 Layout map of the proposed downcast ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

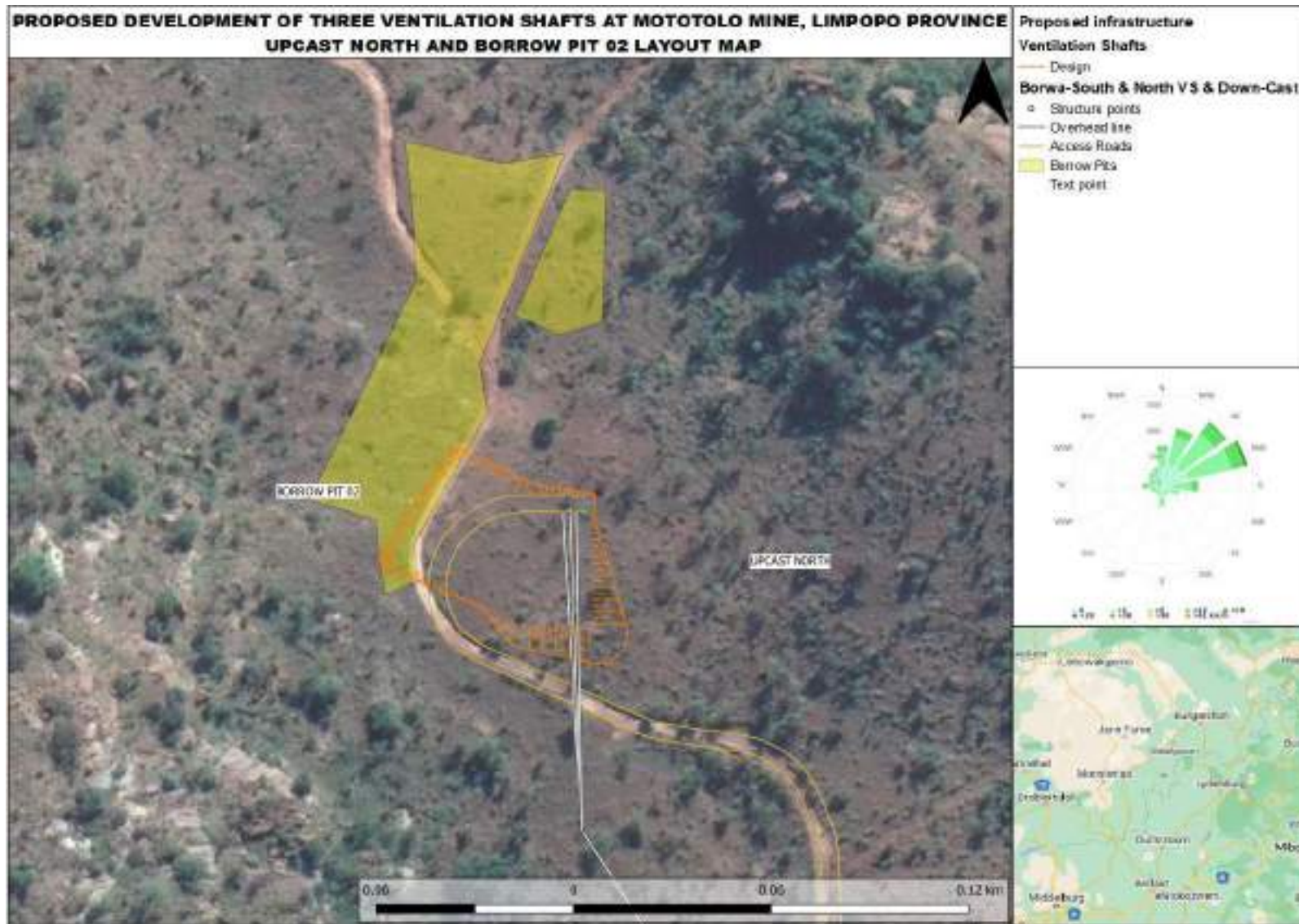


Figure 5 : Layout map of the proposed upcast north ventilation shaft and borrow pit 02 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 6 : Layout map of the proposed upcast south ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

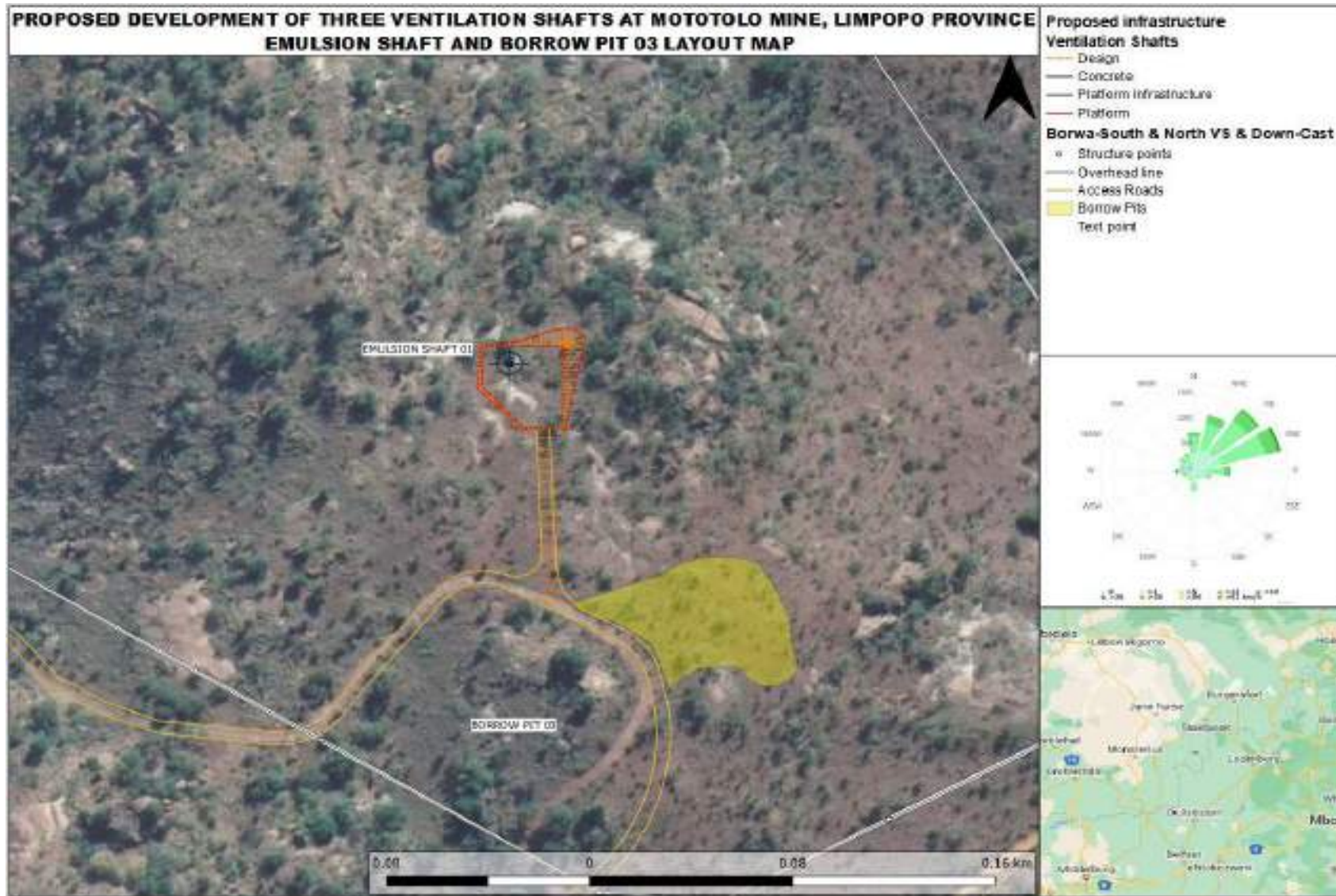


Figure 7 : Layout map of the proposed emulsion shaft and borrow pit 03 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 8 : Layout map of the existing ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 9 : Locality map of the proposed borrow pit 01 at the Anglo American Mototolo Borwa Shaft, Limpopo Province

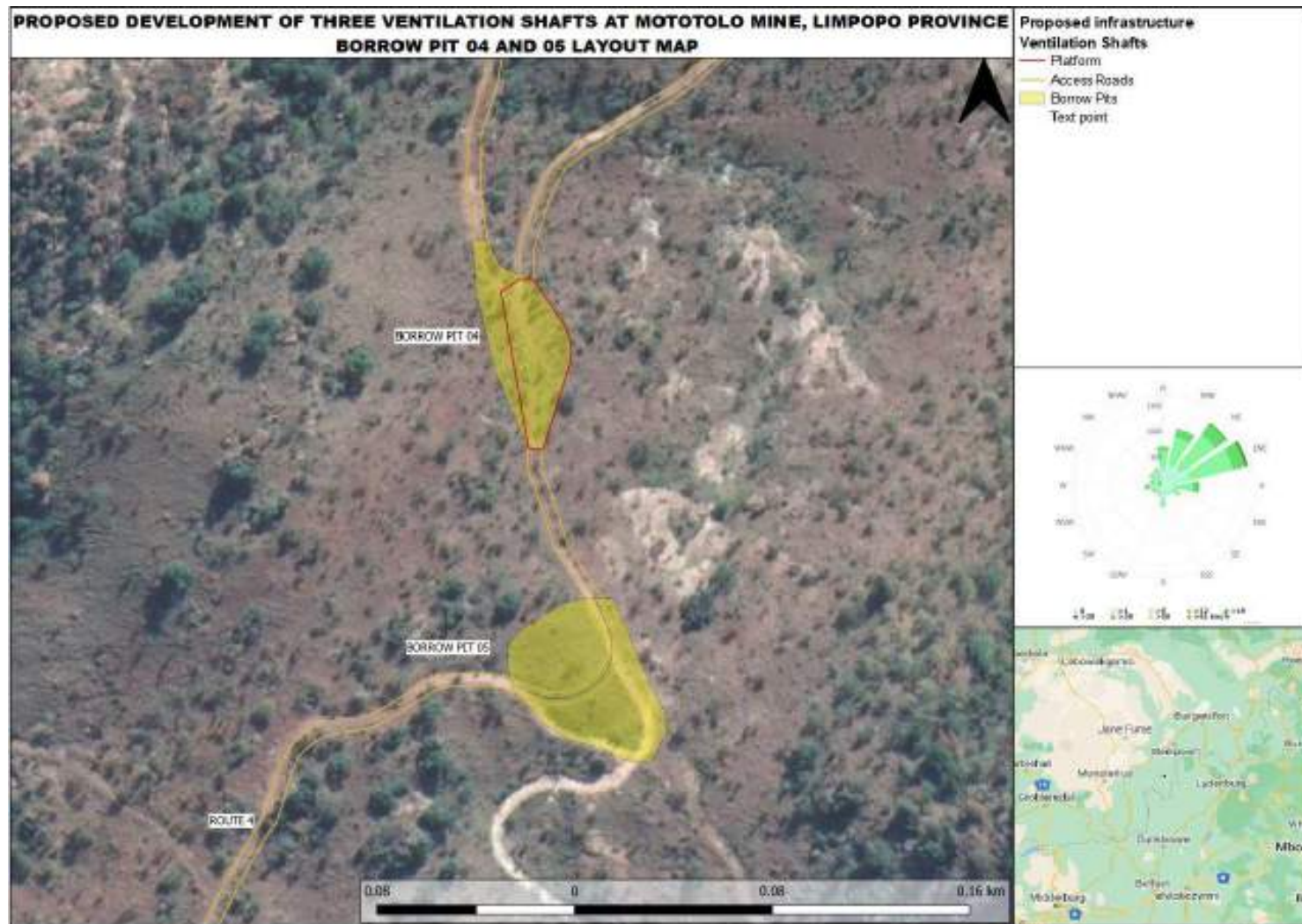


Figure 10 :Layout map of the proposed borrow pits 04 and 05 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

5. LEGAL AND GOVERNANCE FRAMEWORK

NEMA Regulations GNR 1147

This closure plan will be progressively updated to comply with Appendix 4 of the NEMA Regulations (GNR. 1147), 20 November 2015. This report is aligned to the requirements pertaining to the content of the closure plan as required by Appendix 4 of GNR. 1147, with references to the sections where the given requirement is addressed in the report as presented in Table 1.

The purpose of these Regulations is to regulate the determine and making of financial provision as contemplated in the Act for the costs associated with the undertaking of management, rehabilitation, and remediation of environmental impacts from prospecting, exploration, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. The Regulations also include detailed descriptions of the wording required in the documentation to support the provisioning for liability using Bank Guarantees and Trust Funds. Finally, the legislation also provides detail on the information to be contained in the following plans: Annual rehabilitation plan Final rehabilitation, decommissioning and mine closure plan Environmental risk assessment report

Other National Regulations

Minerals Petroleum and Resources Development Act No. 28 2002 (MPRDA), Section 43:

A holder of a prospecting right, mining right, retention permit or mining permit remains responsible for any environmental liability, pollution or ecological degradation and the management thereof, until the Minister has issued a closure certificate to the holder concerned.

National Environmental Management Act, No. 107 of 1998 (NEMA):

If it is determined that a mine, having regard to its known ore reserves, is likely to cease mining operations within a period of five years, the owner of that mine must promptly notify the Minister in writing -

- of the likely cessation of those mining operations; and
- of any plans that are in place or in contemplation for-
- the rehabilitation of the area where the mining operations were conducted after mining operations have stopped; and
- The prevention of pollution of the atmosphere by dust after those operations have stopped.

Duty of care (Section 28 of NEMA) to take reasonable measures to prevent significant pollution or degradation of the environment from occurring, continuing, or re-occurring or where such pollution or degradation cannot

be reasonably stopped or avoided, such person must take reasonable measures to minimize and rectify such pollution or degradation.

Section 28. (1) Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing, or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

In terms of section 28, the mine is required to obtain authorisation by Law and to provide proof that the degradation can be rehabilitated and or remediated after mining. In terms of the Financial Provision Regulations (GNR 1147) the cost associated with environmental damages should be provided from in some form of a financial guarantee.

Environmental Impact Assessment Regulations, 2014 (as amended):

Regulation 19 (6): *“A closure plan must contain the information set out in Appendix 5 to these Regulations, and, where the application for an environmental authorisation is for prospecting, exploration, or extraction of a mineral or petroleum resource, including primary processing, or activities directly related thereto, the closure plan must address the requirements as set in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of prospecting, exploration, mining or production operations, made in terms of the Act”.*

Regulation 19(7A): *“The content of a closure plan may be combined with the relevant plan contemplated in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of prospecting, exploration, mining or production operations, made in terms of the Act, on condition that the requirements of both those Regulations and Appendix 5, respectively, are met”.*

An application for an environmental authorisation must be submitted for the decommissioning of any activity requiring -

- A closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or
- A prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.

NEMA Principles

In terms of section 38 of the MPRDA, holders of reconnaissance permissions, prospecting rights, mining rights, mining permits or retention permits must promote compliance with the principles set out in section 2 of the NEMA, which provide that -

- the disturbance of ecosystems and loss of biological diversity is avoided, or, wherever it cannot altogether be avoided, is minimised and remedied;
- pollution and degradation of the environment is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- the disturbance of landscapes and sites that constitute a nations cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
- a risk-averse and cautious approach is applied, which considers the limits of current knowledge about the consequences of decisions and actions; and
- Negative impacts on the environment and on people’s environmental rights be anticipated and prevented, and when they cannot be altogether prevented, are minimised and remedied.

The National Water Act (NWA), Act No. 36 of 1998:

A duty is imposed on the owner of land, a person in control of land or a person who occupies or uses the land to take all reasonable measures to prevent the pollution of a water resource from occurring, continuing or recurring;

Regulations on the Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources, GNR R704;

Any person in control of an existing mine must notify the Department of Water and Sanitation (DWS) 14 days before the temporary or permanent cessation of the operation of the mine;

Any person in control of a mine must at temporary or permanent cessation of mining operations, ensure that -

- Any person in control of a mine or activity must at temporary or permanent cessation of operations ensure that all pollution control measures have been designed, modified, constructed, and maintained in accordance with GNR 704; and
- Any person in control of a mine or activity must ensure that the in-stream and riparian habitat of any water resource, which may be affected or altered by the mine or activity, is remedied so as to comply with GNR 704.

Provision is made for, *inter alia* -

- Regulation 4: Restrictions on locality regarding infrastructure;
- Regulation 5: Restrictions on use of material;
- Regulation 6: Capacity requirements of clean and dirty water systems; and
- Regulation 7: Protection of water resources.

Regulation 7 of GNR 704:

Every person in control of a mine or activity must take reasonable measures to -

- Prevent water containing waste or any substance which causes or is likely to cause pollution of a water resource from entering any water resource and must retain or collect such substance or water for use, re-use, evaporation or for purification and disposal in terms of the Act;
- Cause effective measures to minimise the flow of any surface water or floodwater into mine workings, opencast workings, other workings, or subterranean caverns, through cracked or fissured formations, subsided ground, sinkholes, outcrop excavations, adits, entrances or any other openings; and
- Prevent the erosion or leaching of materials from any residue deposit or stockpile from any area and contain such material or substances so eroded and leached in such area by providing effective suitable barrier dams, evaporative dams, or any other effective measures to prevent this material or substance from entering and polluting any water resources.

Conservation of Agricultural Resources Act No. 43 of 1983:

Regulation 15 of the Conservation of Agricultural Resources (CARA), Act No. 43 of 1983 provides a list of Category 1 plants (Weeds) and Category 2 and Category 3 plants (invaders) that must be controlled. Category 1, 2 and 3 plants may not occur on any land or inland water surface other than in biological control reserves and must be controlled by means of the methods prescribed in the regulations (unless exemption granted).

Constitution of the Republic of South Africa, Act No. 108 of 1996, Section 33:

- Everyone has the right to administrative action that is lawful, reasonable and procedurally fair;
- Everyone whose rights have been adversely affected by administrative action has the right to be given written reasons;
- Any application for, for example, a closure certificate or an application for transfer of liabilities and responsibilities in terms of the MPRDA must be considered by the relevant authority according to the criteria contained in Section 33 of the Constitution;
- Where the relevant authority has been given a discretion that discretion must be exercised in a reasonable manner and without bias, prejudice, or any personal agenda; and
- Failure, the decision may be set aside by way of an application to court or any internal procedures prescribed by the empowering legislation.

South African good practice

The Department of Water Affairs and Sanitation (DWS) formerly known as the Department of Water Affairs and Forestry (DWAF) – commissioned a series of Best Practice Guidelines (BPG), in partnership with industry,

to assist with aspects of DWAF's water management hierarchy. BPG5: Water Management Aspects for Mine Closure, includes the following principles:

- Management measures at closure should primarily be of a passive nature with minimal long-term maintenance and operating costs;
- The final landform must be sustainable, must be free-draining, must minimise erosion and avoid ponding;
- Concurrent rehabilitation must be undertaken in a manner that supports the final closure landform to ensure/avoid that rehabilitation does not need to be redone at a later stage;
- Land use plan which is directly interlinked with water management issues insofar as water is required to support the intended land use and the land use itself may have an impact on the water; and
- Biodiversity plan will address issues that are interrelated with the mine water management plan, particularly regarding the environmental water balance and the effects that mining may have thereon.

The Guidelines for the rehabilitation of mined land developed by the Chamber of Mines (updated 2007) was developed by key industry role players with focus on aspects of opencast mine rehabilitation. Pertinent aspects include:

- Stripping topsoil per a dedicated stripping plan and utilizing the correct equipment to minimise compaction, over stripping and mixing of horizons;
- Implementing concurrent rehabilitation, constructing a post mining landform free of ponding and prioritizing the live stripping and placement of topsoil where possible;
- Limiting topsoil management activities to dry seasons as increased moisture content can also increase the potential for compaction;
- Implementing effective strategies for topsoil stripping, placement and stockpiling to limit compaction; and
- Implementing a soil amelioration and revegetation strategy based on dedicated soil sampling and analysis.

Draft National Mine Closure Strategy 2021 (GN 446, 21 May 2021)

The aim of the strategy is to prevent or minimize adverse long term environmental and social-economic impacts, and to create a self-sustaining natural ecosystem or alternate land use. The Regional closure strategy will therefore set specific standards for all mines and promote the alignment of individual mine closure plans and regional mine closure plans, including the requirements for application for closure, requirements for Environmental Management Programmes/Plans and Financial Provision. A Regional Mine Closure Strategy (RMCS) is different to a Mine Closure Plan. The regional mine closure strategy considers the various issues that are relevant to mine closure on a broader integrated level and develops a strategic framework within which individual mine-closure plans will fit. RMCS therefore do not replace a mine closure plan.

The objectives of National Mine Closure Strategy are:

- To manage the closure of mine in a demarcated area in an integrated and sustainable manner, hence ensuring that these mines work together to achieved self-sustaining ecosystem after closure.
- To ensure that mines do not impact negatively on the livelihood of adjacent/interconnected mines in a demarcate area.
- To promote a strategic approach to managing water at mining and minerals processing sites so that water is more efficiently managed and value and to develop a post closer mine water strategy for an area.
- To make provision for post-closure stewardship and socio-economic sustainability, to continue monitoring the implementation of individual and regional mine closure plans.
- Integrated environmental management and related closure activities with socio-economic interventions and aligning these with development of a post-closure economy, by rationalising current wasteful spending on Environmental Management Programme (EMPr), Social and Labour Plan (SLP) and Corporate Social Investment (CSI) by reducing duplication of efforts and spending and aggregating available funding for coordinated regional projects.

The identification of Mine Closure Regions

The identification of closure regions is a multi-contextual process and requires consideration of social, environmental, and economic impact geared towards sustainable post closure support for dependent communities. The initiative requires the identification of closure regions suitable for integrated development strategies. The identification of these closure regions should be made within the existing provisions of the MPRDA. The selection of logical mine closure regions will enable the aggregation of development and rehabilitation funds unto common regional economic development programmes underpinned by substantial financial capacity. This, in turn, provides the basis for collaborative regional development between mining companies, local government and other sectors. Examples of these regions are shown in the figure below.

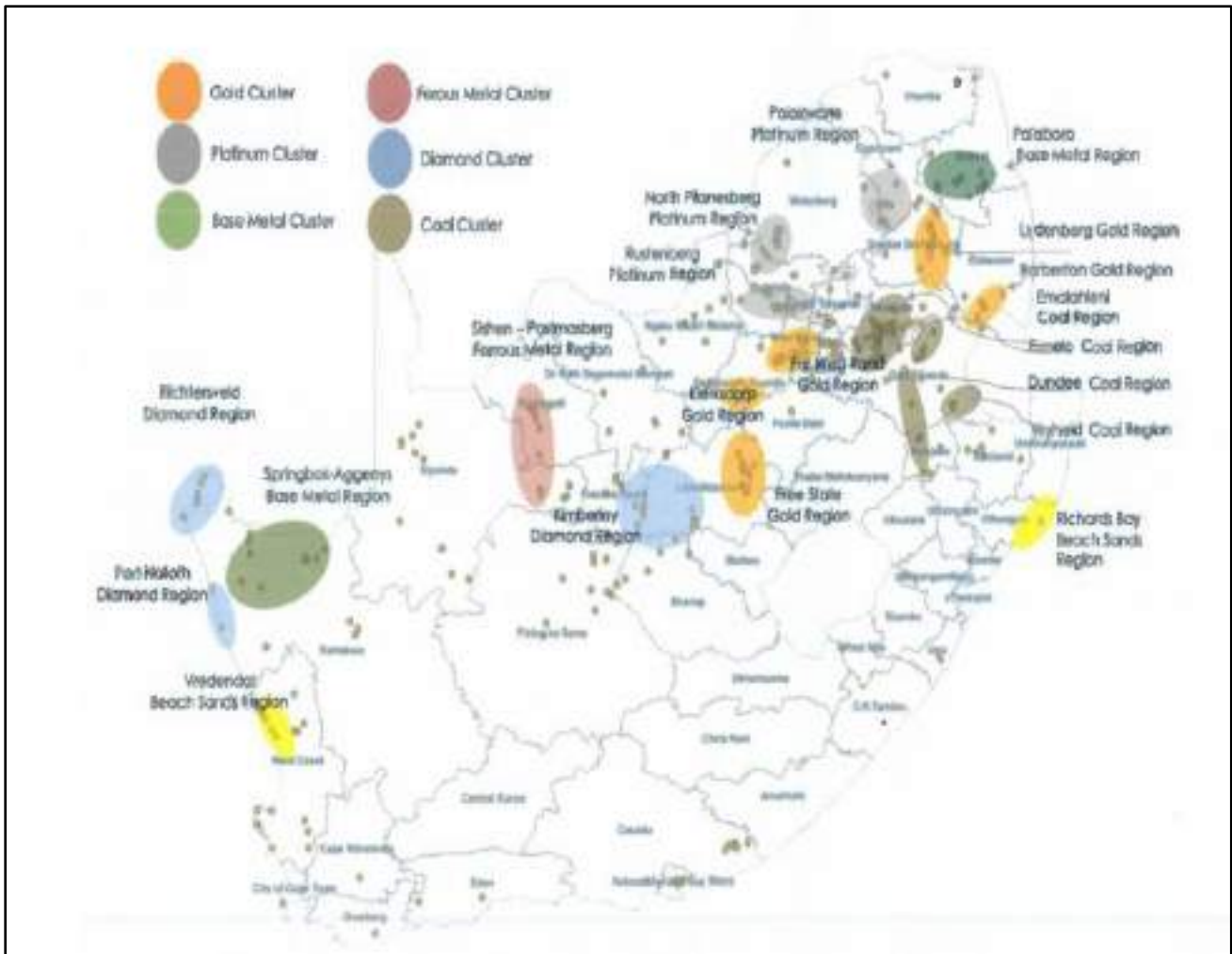


Figure 11: Regional Mine Cluster

6. ENVIRONMENTAL AND SOCIAL CONTEXT

An overview of the biophysical and socio-economic context within which closure will be implemented, is included. The summary is based on a review of the information made available for this closure plan. Several implications related to the information collected are provided along with linkages with the seven key closure objectives.

The study area falls within the jurisdiction of the Fetakgomo Greater Tubatse Local Municipality (FGTLM), part of Sekhukhune District Municipality, in the Limpopo Province. Anglo American Mines is situated approximately 32 km south of Steelpoort and approximately 65 km north-west of the town of Mashishing (Lydenburg) in the Limpopo province at the following coordinates in the centre of the property:

- Latitude: 25° 0'12.20"S
- Longitude: 30° 5'53.24"E

6.1.SUMMARY OF ENVIRONMENTAL AND SOCIAL CONTEXT OF THE

PROJECT

The pertinent environmental and social conditions at the Site are summarised in Table 5.

Table 5: Environmental and Social Context

Aspect	Description
Climate	The proposed development is adjacent to Mototolo Mine’s Borwa Shaft, Limpopo Province. The region is characterised by a strongly seasonal summer rainfall, with very dry winters (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). The Mean Annual Precipitation (MAP) and Mean Annual Potential Evaporation (MAPE) of the area is 609 mm and 2 043 mm, respectively (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). The Annual Precipitation Coefficient of Variation (APCV) of the area is recorded at 28 % (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018), with the highest average rainfall occurring in December (122 mm) and lowest in July (3 mm) (Meteoblue, 2022). The Mean Annual Temperature (MAT) of the area is 17.5 °C (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018), with the highest mean daily temperatures occurring in December and January (29 °C), and lowest occurring in July (7 °C) (Meteoblue, 2022). An average of 5 days of frost is recorded in the area per year (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018)
Topography	The topography of the area is characterised by rugged terrain, with steep slopes and incised valleys (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018). The topographic gradient is steep, averaging 18-29 %, and reaching maximum slopes of 60 % in areas. Elevations ranging from 978-1 394 m above mean sea level (mamsl)
Surface Water	The proposed development falls entirely within Quaternary Catchment B41G, which drains the Groot- and Klein-Dwars Rivers, tributaries of the Steelpoort River within the Olifants Water Management Area (WMA). The Groot- and Klein-Dwars Rivers main channels flow in a northerly direction, approximately 1.3-1.5 km to the east and west of the site, respectively. Several smaller drainage lines fall within the project area, crossing the proposed access roads and powerlines. According to the National Wetland Map Version 5 (2018), no natural wetlands occur within 500 m of the proposed development area. Only one artificial wetland, an open reservoir, within 500 m of the proposed development area. Numerous natural and artificial wetlands occur within the quaternary catchment. No NFEPA wetland clusters fall within the quaternary catchment.
Geology and Soils	The geology of the area consists of the “ultramafic intrusives of the lower, critical and main zones of the eastern Rustenburg Layered Suite of the Bushveld Igneous Complex (Vaalian)” (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018, p. 481). More specifically the proposed development falls across the Dsjante and Dwarsrivier subsuites, comprised of Gabbro, Norite, Pyroxenite and Anorthosite lithologies. The soils are generally shallow, rocky and clayey, varying between soils of a colluvial nature i.e., Glenrosa, Family Dumisa to Mispah

	<p>form, Family Myhill, with lime occurring in low-lying areas (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018, p. 481). Rocky areas often lack soil, especially in steep slopes (Mucina & Rutherford, The Vegetation of South Africa, Lesotho and Swaziland, 2018, p. 481). According to the SOTER soil association map, the area is dominated by G1 type soils, namely “rock with limited soils (association of Leptosols, Regosols, Durisols, Calcisols and Plinthosols)”.</p>
Land Use	<p>The land cover of the area consists of primarily mountain woodland, with patches of natural grassland, sparsely wooded grasslands, rock surfaces and eroded areas. Mining and associated land uses occupy the adjacent area to the east. Scattered fallow lands and old fields occur within the broader surrounding area to the north and south-east, with commercial annual crop cultivation occurring to the west.</p>
Biodiversity	<p>According to the SANBI Vegetation Map of South Africa (Mucina & Rutherford, 2018), the project area falls entirely within the Sekhukune Mountain Bushveld (SMB) vegetation type. Its range includes the Limpopo and Mpumalanga Provinces, distributed along the mountains, undulating hills and steep slopes of the Leolo Mountains, Dwars River Mountains, Thaba Sekhukune and isolated smaller mountains, as well as the small hills of the Steelpoort River valley (Mucina & Rutherford, 2018).</p> <p>In terms of the conservation status, Mucina and Rutherford (2018) classify the SMB as a LEAST THREATENED vegetation type. The NSBA Conservation Target for this vegetation type is 24 %. More than 15 % of SMB vegetation has been transformed for cultivation and urban/built up areas, with an increase in mining activities. The vegetation type is frequently invaded by syringa (<i>Melia azedarach</i>).</p> <p>The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) provides a National List of Ecosystems that are threatened and in need of protection – GN 1002 of 2011. According to the NEMBA List of threatened ecosystems, the proposed development site falls within an Endangered ecosystem, namely the Sekhukune Mountainlands.</p> <p>The nearest nature reserve is located 15 km to the north and the nearest protected area, as identified by the South African Protected Areas Database (SAPAD, 2020), is located approximately 25 km to the north of the project area</p> <p>According to POSA, eight plant species of conservation concern (SCC) could potentially occur within the project area and surroundings, including four vulnerable and four rare species in terms of the Red List. A full list of the potential species found within the study area is included in Terrestrial Biodiversity Report.</p> <p>South Africa is a faunally diverse country, with approximately 1 663 terrestrial vertebrate faunal species of which 850 species are birds, 343 species are mammals, 350 species are reptiles and 120</p>

	<p>species are amphibians spread across seven biomes and 122 million km². The Limpopo Province is home to approximately 234 reptile species, 63 amphibian species, 299 mammal species and 675 bird species (ADU, 2022; Lepage, 2021)</p> <p>.</p>
Socio-Economic	<p>The proposed site falls within the Fetakgomo-Greater Tubatse Local Municipality (FGTLM) area which forms part of the Sekhukhune District Municipality. FGTLM has a council that consists of a total of 77 councillors. Of these, 39 are ward councillors while 38 were proportionally elected. The Executive Committee of the municipality is led the Mayor while the municipal Speaker presides over the Council in terms of Section 49 and 37 of the Local Government: Municipal Structures Act 117 of 1998 respectively. This large municipality comprises of 39 wards and 297 villages. The municipality is largely dominated by rural landscape with only 06 (six) proclaimed townships. The area of jurisdiction of FGTLM is approximately 4 550 km² (2016/17 Draft Consolidated IDP for Fetakgomo Greater Tubatse Municipality). According to the FGTLM the northern part has inferior social and engineering infrastructure which impacts on the stability of the economy in this area. This may be attributed to the rural nature of the area. As such, upliftment in the area is of critical importance. There is also virtually no economic base in the northern part of the area and the area is solely dependent on government handouts and migrant labour income for survival.</p>
Heritage and Archaeology	<p>A number of academic archaeological and historical studies have been conducted in this section of the Limpopo Province and these studies all infer a rich and diverse archaeological landscape, representative of most phases of human and cultural development in Southern Africa. The cultural landscape of the Sekhukhune region encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. Sekhukhune is rich in archaeological sites, dating from the Early Iron Age (800AD) to the Pedi occupation of the area. This is most probably due to the safety the valley offered from outside attacks, but also as a result of the deep and rich sedimentary soils of the low-lying area. It is also of historical importance due to the activities of the Berlin Missionary Society who entered the area in the time of Chief Sekwati.</p>

7. Knowledge Gaps

The following specialist studies and investigations are proposed to address the knowledge gaps relating to the project:

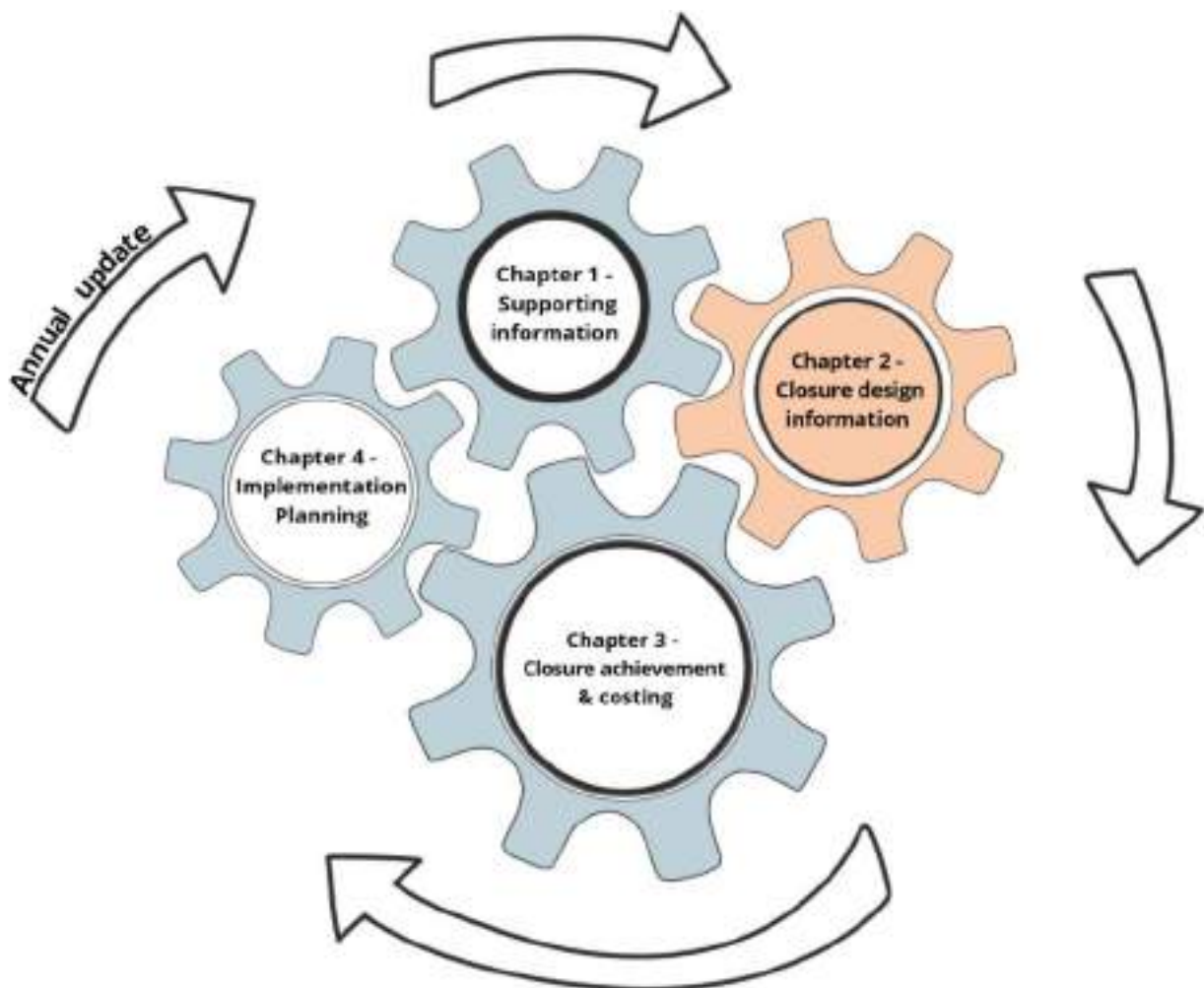
- A detail topsoil assessment, quantity and quality must be undertaken during the operational phase to establish if sufficient topsoil is available to establish the final landform.
- The final landform and land-use to be determined during the operational phase.

Further the financial provisioning regulations requires that the FRDCP be revisited, assessed, and revised on an annual basis. This annual review must aim to ensure that the gaps identified above are addressed, as applicable, and the relevant financial provisioning updated.

8. Concerns Raised by Interest and Affected Parties

The main concerns raised during the community engagement process, either through participation in public meetings or via electronic submission, are listed within the Basic Assessment. Please see the Basic Assessment for the full Public Participation Report.

CHAPTER 2: CLOSURE DESIGN INFORMANTS



Chapter 2, addresses the key closure design informants and develops the preceding survey data via analysis and synthesis. This part includes:

- The current post-mining end land use plan;
- The findings of, and commentary on, operational rehabilitation to date, as well as planned rehabilitation;

- Outcomes of closure-related stakeholder engagement, where applicable;
- An initial assessment of closure options / alternatives, along with a motivation for the preferred option and the formulation of the anticipated closure scenario and vision; and
- A summary of the environmental risk assessment undertaken in accordance with the requirements of GN. R. 1147, with a key focus on the formulation of mitigation measures which are further refined in the core section of this planning process.

9. NEXT LAND USE

9.1.Land Use Objective

The land use objective must be realistic, achievable and must be established through consultation with the landowners and I&AP's. The final land use is essential the end land use to which Anglo America Platinum would like to return the land affected by mining activities.

In support of achieving this post closure vision there are certain key rehabilitation, decommissioning and closure objectives. 'Well-conceptualised rehabilitation objectives will allow assessment of the risks associated with achieving these objectives and guide the setting of suitable rehabilitation actions to be taken to mitigate these risks at every stage of the mine's life.

Rehabilitation objectives describe 'what' needs to be achieved to reach the mine's rehabilitation goal. These objectives should be aligned to site-specific characteristics that are within the mine's control. Rehabilitation objectives should be as specific, measurable, achievable, and realistic as possible. They should also define a time period against which they can be measured. Driven by the closure vision and with due consideration of the project context, the closure objectives are presented below.

To progressively reinstate a post mining landscape that:

- Is physically and chemically stable and supports the pre-mining land capability of wilderness.
- Slopes are stable and non-erosive;
- The benches and rock face must be stable;
- Focus on establishing a functional post-mining landscape;
- Utilise closure strategies that promote a self-sustaining condition with little or no need for ongoing care and maintenance; and
- Comply with local, district and national regulatory requirements.

10. Closure Options

The project, from a closure perspective, has a low complexity, and most of the risks and impacts associated with the project are well understood. A preliminary best fit post closure land use option has been proposed within the context described. The rehabilitation measures proposed for this project are consistent with legislation and what is considered industry good practice in restoring the desired post mining land use. The following alternatives were considered:

10.1. Pre-mining natural ground level option

The post mining landform would be consistent with the surrounding topography instead of a modified slope. This alternative was not considered for implementation due to the following uncertainties:

- Available backfill material to establish the natural ground level after mining.
- Backfill material will have to be obtained from other areas.
- Bulking and settlement factors unknown of fill material.
- Chemical properties unknown of fill material to be imported.
- Long term monitoring will be required.

10.2. Preferred Closure Option

Based on the type of mining and the associated risk that could occur post closure, the following recommendations have been made as a result of the outcomes of the Environmental Risk Assessment (ERA) conducted:

The preferred option for current closure planning is:

- Removal Construction Camp (After Construction Phase Completed)
- Rehabilitation of access roads
- Breaking down and removal of infrastructure (including ventilation fan, fence etc)
- Sealing of Shafts
- Topsoil placement, levelling and rehabilitation of ventilation shaft footprint area
- Removal of Powerlines
- Water management
- Backfill the borrow pits with the available overburden to create a free-draining post mining landform;
- Plant naturally occurring grasses to prevent erosion, to provide a limited grazing potential.

The preferred closure option will result in a stable slope with minimal erosion problem. This will create a landform that is stable and have a low risk for humans and animals. The vent infrastructure will be dismantled

and removed. All concrete foundations and slabs will be demolished and removed. Roads will be ripped and revegetated. Available overburden and waste rock will be utilised to establish slopes, the foot of the slope, to shape the borrow pits and create free draining areas. Topsoil will be place on slope and erosion provision measures will be implemented to ensure that topsoil is not eroded from the slopes. Measure to include geotextile, bio-degradable synthetic mats and rock cladding.

11. Closure Assumptions

Information currently available will need to be supplemented during the operational phase and closure phase of the project. As additional information will be collected during operations and these assumptions will need to be reviewed and revised.

The assumptions used to prepare this report are the following:

- The closure period will commence once the last planned ore has been extracted from the area, concurrent rehabilitation forms part of the operational phase.
- The plant will only be decommissioned and removed from site after all resources have been process.
- The mine plan, design and layout have been adhered to.
- Water quality monitoring will be governed by the WUL.
- The overburden and waste rock are Classified as Type 4 waste and can be used in rehabilitation and backfill of the opencast area.
- There are limited opportunities for post closure infrastructure for community uses. All information (houses and structures) will remain after mining and will not be removed. All non-permit structures (containers and plant) will be removed during rehabilitation. The SLP will be updated to include the structures that can be hand-over to the community during closure. These items will be removed from the closure schedule.
- All demolition rubble is considered General Waste as per the definition of Demolition waste in Category B of Schedule 3 of the National Environmental Management Waste Amendment Act (NEMWAA) and based on the classification as General can therefore be incorporated into the backfill.
- The past closure land use will be wilderness. No agricultural activities will be undertaken after mining.
- Drainage lines will be constructed with energy dissipaters and a rock mattress
- All hazardous and domestic waste will be transported offsite for disposal in licenced landfills.
- Some of the roads constructed to access the site will be needed for post-closure monitoring and cannot be closed as part of normal closure actions.
- The mine will align the closure plan with the regional closure strategy when the strategy for the area has been developed.

12. Closure Scenario

Leading on from the closure option analysis and the motivation of the preferred option, the closure scenario is formulated to provide the context within which decommissioning, and closure activities will occur, i.e. a “snapshot” view of the last day of operations, taking account of operational mine and rehabilitation planning.

Table 6: Closure Scenario

Aspect	Description
VENTILATION SHAFTS AND EMULSION BOREHOLE	<ul style="list-style-type: none"> • All ventilation shaft infrastructure will be decommissioned and removed • Vent shafts will be sealed for safety • Topsoil will be replaced from the topsoil berm onto the backfilled and slopes. • The topsoil berms will be dozed over the roads, plant, and other areas. • The top-soiled areas will be cross ripped, to alleviate compaction, scarified and revegetated; • Contaminated soils will have been identified and addressed as they arise during operations, leaving only limited potentially contaminated soils / areas requiring clean-up at cessation of operations; and • Borrow Pit filled with overburden and sloped to ensure free draining landform.
BORROW PITS	<ul style="list-style-type: none"> • Borrow pits to be filled with excavated overburden and as much as possible. • Borrowpits must be sloped and covered with topsoils • Revegetation must be conducted
ACCESS ROADS	<ul style="list-style-type: none"> • The haul roads will be deep ripped, profiled, and vegetated.
POWERLINES	<ul style="list-style-type: none"> • Powerlines removed if no other use at the time is required for the power lines.
CONSTRUCTION SITE CAMP	<ul style="list-style-type: none"> • The construction camp will be removed after the completion of the construction phase.

12.1. Closure Vision

Closure and rehabilitation are a continuous series of activities that begin with planning prior to the project’s design and construction, and end with achievement of long-term site stability and the establishment of a self-sustaining ecosystem. Not only will the implementation of this concept result in a more satisfactory environmental conclusion, but it will also reduce the financial burden of closure and rehabilitation.

The preliminary closure vision is proposed for the mining area, is as follows:

- To create non-contaminating, secure and physically stable landforms and rehabilitated areas that contribute to the selected land use mix, biodiversity of the area and which are aesthetically acceptable.

13. OPERATIONAL REHABILITATION

A key mine closure principle is concurrent (progressive) rehabilitation. This includes the development and implementation of rehabilitation plans aligned with mining programmes. The specific aim is to minimise closure costs and liabilities and reduce environmental risks during operation and at closure of the mine through to post mining.

It is anticipated that vent shafts roads and powerlines will be dismantled and removed during end of the life of mine. The construction camp and borrow pits however can be rehabilitated after the construction phase is completed.

13.1. Vision for the Operational Period

The operational period will include rehabilitation activities that have a direct impact on the quality of rehabilitation attained at closure, particularly the management of soils. A proposed vision for the development and operation of the mining area are:

- To limit the development footprint as far as possible.
- Implement stormwater measures according to GNR 704;
- Strip and store soils prior to any development;
- Implement concurrent rehabilitation as soon as possible;
- Prevent mixing of soil profiles;
- Re-vegetate topsoil stockpiles and berm to maintain soil fertility; and
- Prevent contamination of topsoil.

13.2. Planned Rehabilitation

13.2.1. Final Landform Design

In order to achieve the final landform design, the closure objectives and relinquishing criteria must be met. This will require that, slopes and surfaces will be stabilised to prevent subsequent rehabilitation and revegetation from being less effective and maintenance being prolonged.

Final landform design will take the following factors into consideration:

- Erosion potential of material on site;
- Recognition of pre-mining surface flow;
- Alignment with existing topographical features;
- Slope angles and length to be visually compatible with the surrounding area and stable under local rainfall patterns and erosion processes;

- Recognition that unconsolidated material from disturbed areas will require greater protective measures to minimise erosion;
- Drainage pattern for the overall site should be planned as part of the overall landscaping, with drainage patterns and densities monitored during the operation phase on, and near site providing a guide to site requirements.

The annual rehabilitation requirements have been established based on the production rate of the plant and the area of the that can be rehabilitated. The final landform design will be developed during the operational phase. The landform will be altered as the area can not be backfilled to original topographic levels. The visual impact must be limited during closure and rehabilitation.

13.2.2. Steps for the next year (2023-2033)

The proposed surface layout of the infrastructure is in **Figure 3 - Figure 9**. The development will consist out of four phases (i.e. Construction, operational, decommissioning and Closure). The first phase, consist out of the construction phase. During the first phase no concurrent rehabilitation can be undertaken. However, incorrect establishment of the vent shafts and associated infrastructure will result in concurrent rehabilitation and final rehabilitation begin problematic, resulting in excessive liability. The following actions are critical for future rehabilitation to be possible:

- Stripping and stockpiling of all topsoil.
- Stripping and stockpiling of subsoil.
- Topsoil stripped from roads must be used as berms (to be replaced during rehabilitation)
- Topsoil stockpiles to be re-vegetated.

13.3. INFRASTRUCTURE AND REHABILITATION

13.3.1. CONSTRUCTION CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination, etc.

The camp will be completely removed after the completion of the construction phase.

13.3.2. VENTILATION SHAFTS AND EMULSION BOREHOLE

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole.

Venthsafts and associated infrastructure will be dismantled and removed and sealed for safety.

13.3.3. ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole.

None of the roads constructed will be surfaced with tar or any form of hydrocarbons. For this reason, the roads will be rehabilitated by ripping and placement of topsoil.

Financial provision has been made for the upgrade of roads. No additional closure liability uptake is required for roads.

13.3.4. STOCKPILES AND OVERBURDEN

Overburden and stockpiles (topsoil and subsoil) normally have a low pollution potential and hence only need to be shaped to create a stable landform. Stockpiles (Topsoil and subsoil) and overburden stockpiles are in and will be utilised. Topsoil will from the stormwater berms at the top of the slope and to act as diversion berms.

Subsoil and hard overburden will be place on the existing stockpile or will be utilised in concurrent rehabilitation. No additional closure liability uptake is required for overburdens and stockpiles.

13.3.5. POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa

The Powerlines will be removed if not other use for them is required at the time of closure of the mine.

13.3.6. VENT SHAFTS AND ASSOCIATED INFRASTRUTURE

The plant is an existing area, and no new plant or stockpiles will be created. No additional structures are required for the proposed extension of the mining area.

13.3.7. BORROWPIT

Construction materials will be sourced from two borrow pits, namely:

- Borrow pit 01, located near the entrance to the project area, immediately to the south of the main Borwa Shaft mining area, which will encompass an area of 10 086 m²
- Borrow pit 02, located near the Northern Upcast Vent Shaft which will encompass an area of 4 444 m²;
- Borrow pit 03, located near the emulsion borehole, which will encompass an area of 3 168 m²
- Borrow pit 04 and borrow pit 05, located en route to the Southern Upcast Vent Shaft, which will encompass areas of 2 037 m² and 3 135 m², respectively; and
- Borrow pit 06, located near the Southern Upcast Vent Shaft which will encompass an area of 4 045 m².

On completion of construction borrow pits will be covered with excavated overburden where possible and sloped and revegetated.

13.3.8. CLEAN AND DIRTY WATER MANAGEMENT

The mine will construct a stormwater management system in compliance with GN704. Clean and dirty water channels will be constructed. Clean water channels will consist of a cut off trench and a berm. Energy dissipation systems will be constructed where the channels spill into the receiving environment.

A number of structures will remain after rehabilitation. The clean water channels will be rehabilitated through dozing of the berm back into the channel and re-vegetation. A clean water berm will remain at the top of the slope and surrounding the mining area to prevent water inflow. The berms will be established during the operational phase and will be re-vegetated during this phase. No additional closure liability uptake is required for clean and dirty water management.

During the monitoring and aftercare phase, erosion monitoring and water monitoring will take place. The monitoring will take place for 2-3 years after closure. The aftercare and maintenance for the site can be stopped when the relinquishment criteria is met.

13.3.9. GENERAL SURFACE REHABILITATION

General surface rehabilitation will consist out of the cross ripping of all areas, placement of topsoil ripping of any compacted topsoil and seeding of topsoil. All areas impacted during mining, apart from the areas/ infrastructure that will remain after closure requires general rehabilitation.

Limited amount of topsoil is available on site. If required sub-soil can be tested and ameliorated to supplement topsoil. This can only be done on areas that will be restored to wilderness. The final landform design will be

developed during the operational phase and a topsoil balance will be developed to ensure that sufficient topsoil is available.

All the disturbed and void areas that have been filled, top soiled and levelled, will be prepared for planting.

The recommended approach, for which this costing has been derived, is as follows:

- Lime and superphosphate are applied to the surface;
- These ameliorants are then incorporated by deep ripping, which penetrated 100 mm through the soil into the underlying overburden material;
- Compound (NPK + Zn) fertilizer is applied, and disced in as part of seedbed preparation;
- A grass seed mix is then planted, usually with first rains, or after rains have commenced; and
- The site is then mulched using locally obtained grass; this is to stimulate the long-term establishment of indigenous vegetation and to reduce erosion during early plant growth.

13.3.10. MAINTENANCE AND AFTERCARE

Maintenance and aftercare must be planned for 2-3 years after the land preparation and replanting of vegetation has been completed. Maintenance will specifically focus on fertilizing the rehabilitated area annually, control of alien plants and general maintenance, including rehabilitation of cracks, subsidence, and erosion gullies. Continuous erosion monitoring of rehabilitated areas and slopes should be undertaken and zones with excessive erosion should be identified.

Surface monitoring will take place as part of the aftercare and maintenance. No long-term pollution or AMD is expected from the infrastructure area.

14. Operational monitoring plan

An operational monitoring plan should be developed for the mining area, this should include the requirements of the EMPR and WUL. The proposed parameters to be monitored, frequency of monitoring and period of monitoring are indicated in Table 8 below.

Table 7: Proposed operational monitoring plan

Proposed operational monitoring plan			
Aspect	Parameters	Frequency	Responsibility
Material Balance – Topsoil	Soil stripping depth, soil stockpiling, soil placement depth and maintaining the life of mine topsoil balance. Verifying the actual overburden bulking factor	Active daily management of operations; and A monthly survey consolidation	Site environmental manager and the surveyor
Topsoil and subsoil quality	Soil physical and chemical properties, accurate implementation of soil management practices to reduce mixing and compaction	As topsoil stripping and placement occurs; and active daily management of stripping, stockpiling and placement activities	Site environmental officer and soil scientist
Dust	Source and receptor monitoring	Monthly	Environmental Control Officer
Surface quality	Upstream and downstream of mining area. In accordance with Water Use License requirements	Quarterly	Environmental Control Officer
Post mining landform	Non-erosion slopes, correct slope to be establish	Active daily management of operations	Site environmental manager and the surveyor

15. Environmental Risk Assessment

The key to closure planning is not deferring the rehabilitation / closure costs but eliminating future closure activities through integrated closure and LOM planning. This includes a process of closure-focused risk assessment, strategic planning, and development of robust and applicable closure criteria to meet the closure vision. The objective of the risk assessment is outlined in the Financial Provisioning Regulations, 2015. The objective is to:

- Ensure timeous risk reduction through appropriate interventions;

- Identify and quantify the potential latent environmental risks related to post closure;
- Detail the approach to managing the risks;
- Quantify the potential liabilities associated with the management of the risks; and
- Outline monitoring, auditing, and reporting requirements.

15.1. Risk Screening Methodology

The approach to identifying potential risks is summarised as follows:

- High level discussions were held with regarding the prevailing conditions at the proposed site;
- A preliminary site visit was conducted to become familiarized with the site location, soil conditions, topography, vegetation and surface water bodies;
- A document review was done of available background information to inform the screening level risk assessment;
- The key potential risks were identified for relevant closure-related aspects. The focus is placed on the risk (change) and not the activity causing the risk; and
- The risks were arranged within a matrix format.

15.2. Risk Rating Methodology

The Environmental Impact Assessment (EIA) 2014 Regulations [as amended] promulgated in terms of Sections 24 (5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA), requires that all identified potential impacts associated with the project be assessed in terms of their overall potential significance on the natural, social, and economic environments. The criteria identified in the EIA Regulations (2014) include the following:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact
- Probability of the impact occurring;
- Degree to which impact can be reversed;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated; and
- Cumulative impacts.

The impact assessment methodology used to determine the significance of impacts prior and after mitigation is presented Appendix A.

15.3. Comparative Risk Assessment

The following steps were taken to compile a comparative risk assessment, between the pre-and post-mitigation scenarios:

- Devise measures, based on accepted industry best practice and experience, to mitigate consequences and impacts. The measures should be implemented concurrently during the LoM or at closure;
- Re-calculate the post-mitigation (residual risk), thus assuming reasonable effectiveness of the recommended measures;
- Highlight the risks that scored as highly negative or moderately negative in the pre-mitigation assessment, arrange in a table and indicate the proposed mitigation measures. This action highlights the priority measures associated with pre-emptively mitigating the risks;
- Discuss the potential post closure residual and latent risks based on the outcomes of specific specialist studies;
- Include and further develop the risks assessment findings in the Closure plan to ensure that:
 - The closure objectives have clearly defined actions to address the identified risks;
 - Feasible post-mining land uses are proposed, thus taking account of the identified risks;
 - Design principles for closure are adjusted to include uncertainties and to adequately scope potential further work to reduce the level of uncertainty; and
 - All potential risks are pro-actively managed / controlled.

Table 8: Risk Assessment

Potential Impact	Extent		Duration		Intensity		Reversibility		Irreplaceability (Extent + Duration + Intensity + Reversibility)	Probability		Significance without mitigation		Mitigation Efficiently		Significance with mitigation		Mitigation measures
Loss of topsoil through erosion at stockpiles, borrowpit edges and rehabilitated areas	Footprint	1	Long term	4	Medium	3	Partly reversible	3	11	Highly likely	4	Medium	44	Medium	0,6	Low	26,4	Disturbed areas must be re-vegetated as soon as possible to reduce the risk of erosion; Ensure that all stockpiles have a storm water diversion berm for protection against erosion and contamination by dirty water; Vegetate long-term soil stockpiles.
Insufficient topsoil to cover all disturbed areas during rehabilitation	Footprint	1	Long term	4	High	4	Nearly irreversible	4	13	Highly likely	4	Medium	52	Low	0,8	Medium	41,6	Optimise the limited topsoil resources available on site; Utilise the stored topsoil for the sole purpose of rehabilitation, no topsoil should be used for landscaping or construction purposes such as roads or embankments.

Ineffective soil amelioration resulting in poor vegetation establishment	Footprint	1	Long term	4	High	4	Partly reversible	3	12	Highly likely	4	Medium	48	Medium	0,6	Low	28.8	Investigate soil quality through representative sampling and specialist analysis of laboratory results; Define remediation measures and correct soil fertility prior to establishing vegetation on rehabilitated soil; Conduct follow up soil sampling and analysis to inform further remediation should it be required; Conduct regular visual inspections and preventative care and maintenance.
Deterioration of surface water quality because of runoff (siltation)	Site	2	Medium term	3	High	4	Nearly completely reversible	2	11	Possible	2	Low	22	Medium	0,6	Very Low	13.2	Based on the geohydrological report decant is not expected or any formation of AMD. Stormwater management system to be maintained. Run off water to be contained to prevent siltation of rivers.

Insufficient profiling of the topography of the mining area during rehabilitation may lead to erosion	Site	2	Medium term	3	Medium	3	Nearly irreversible	4	12	Highly likely	4	Medium	48	Low	0,8	Medium	38,4	Profiling of topography should be deigned to reduce erosion; Erosion control measures to be implemented concurrent with rehabilitation. Visual monitoring of erosion to be undertaken throughout decommissioning phase until Closure Certificate is gained; Any erosion detected must be remediated and erosion control measures to be implemented where necessary.
Excessive dust/erosion from unvegetated areas	Local	3	Short term	1	Medium	3	Nearly completely reversible	2	9	Likely	3	Low	27	Medium to high	0,4	Very low	10,8	Develop and maintain dust suppression practices during the rehabilitation phase; Revegetate rehabilitated areas as soon as possible; Ensure sufficient financial provision for monitoring, care, and maintenance of rehabilitated areas.

Insufficient control of alien invasive species on rehabilitated land	Local	3	Medium term	3	Low	2	Nearly completely reversible	2	10	Highly likely	4	Medium	40	High	0,2	Very low	8	Compile AIP management plan to be implemented throughout LoM and decommissioning phase; Monitoring of AIP to be undertaken annually.
Lack of stakeholder buy-in on rehabilitated landscapes	Region	4	Long term	4	Medium	3	Nearly completely reversible	2	13	Possible	2	Low	26	Low to medium	0,8	Low	20,8	Update, audit and submit the closure plan and associated closure documentation to the regulators as prescribed by legislation; Undertake regular engagement to present the planning process and ensure alignment; Develop a post mining land use plan considering the local spatial development framework (SDF) and Integrated Development Plan.
Visual impact as a result of poor rehabilitation and no landform design	Region	4	Long term	4	Medium	3	Nearly irreversible	4	15	Likely	3	Medium	45	Medium	0,6	Low	27	Final landform to be design. Slope stability to be design by rock engineer. Visual impact to be limited by blending exposed areas into

																		the surrounding landform. The rock colour to be changed to blend into surrounding areas.
Changes in surface hydrology as a result of rehabilitation	Local	3	Medium term	3	Low	2	Nearly completely reversible	2	10	Highly likely	4	Medium	40	Medium	0,6	Low	24	Implement final landform design; Limit steep slopes; Establish free draining landscape; Re-instate drainage lines and low laying areas.
Reduction in land capability after rehabilitation.	Footprint	1	Long term	4	Medium	3	Nearly irreversible	4	12	Highly likely	4	Medium	48	Medium	0,6	Low	28,8	Optimise the limited topsoil resources available on site; Utilize the stored topsoil for the sole purpose of rehabilitation, no topsoil should be used for landscaping or construction purposes such as roads or embankments; Analysis of topsoil for fatality and apply require amelioration where required; Apply agricultural lime and fertiliser to soil profile Rehabilitation to be in line with the final land-use requirements.

Uncertainty regarding the latent and residual risks due to site specific knowledge gaps	Local	3	Medium	3	High	4	Nearly irreversible	4	14	Likely	3	Medium	42	Medium	0,6	Low	25,2	No ADM will be produce by the waste material or any material on site. The stability of the rock face to be established. The benches to be design as required to ensure stability. Erosion protection will be required on steep sloped.
Potential inadequate budget for the rehabilitation of the mine	Local	3	Permanent	5	High	4	Nearly completely reversible	2	14	Low	2	Low	28	High	0,2	Very low	6	Financial liability must be provided before any mining right is approved. The Rehabilitation and Financial liability are updated annual and submitted to the Department.
Uncontrolled access during closure phase	Region	4	Permanent	5	High	4	Nearly completely reversible	2	15	Likely	3	Medium	42	Medium	0,6	Low	25,2	The mining area will be accessed through a single access point. The area will remain fenced off to prevent access to the dam area.

15.4. Proposed Mitigation Measures

The risks with pre-mitigation significance ratings of Medium are indicated in Table 10 below. The risk classification provides an insight into the key aspects requiring management and intervention during the operations and into closure.

Table 9: Proposed mitigation applied in the risk assessment

Risk	Proposed Mitigations
Insufficient topsoil quality and quantity	<ul style="list-style-type: none"> • Optimise the limited topsoil resources available on site; • Strip all available soils within the mining area boundary, shaft fringe (5m buffer), road footprints prior to mining and store in the berm and stockpile; and • Utilize the stored topsoil for the sole purpose of rehabilitation, no topsoil should be used for landscaping or construction purposes such as roads or embankments. • Subsoil must be tested and ameliorated, to be used as topsoil.
Ineffective soil amelioration resulting in poor vegetation establishment	<ul style="list-style-type: none"> • Investigate soil quality through representative sampling and specialist analysis of laboratory results; • Define remediation measures and correct soil fertility prior to establishing vegetation on rehabilitated soil; • Conduct follow up soil sampling and analysis to inform further remediation should it be required; and • Conduct regular visual inspections and preventative care and maintenance. • Subsoil must be tested and ameliorated, to be used as topsoil.
Loss of topsoil through erosion at stockpiles, borrowpit edges and rehabilitated areas	<ul style="list-style-type: none"> • Strip all available soils off the borrowpit fringe; and • Disturbed areas must be re-vegetated as soon as possible to reduce the risk of erosion. • Ensure that all stockpiles have a storm water diversion berm for protection against erosion and contamination by dirty water; • Vegetate long-term soil stockpiles.
Compaction and sterilization of undisturbed topsoil underneath the topsoil berm	<ul style="list-style-type: none"> • Limit the height of the topsoil berm to below 3.0 meters; • Limit the heavy vehicle traffic over the topsoil berm; • Upon berm removal, cross rip the footprint with an agricultural ripper and scarify to alleviate compaction; and • Revegetate the footprint.

<p>Compaction and decline in topsoil structure during, stripping, stockpiling and topsoil re-placement</p>	<ul style="list-style-type: none"> • Limit the traffic over in situ or stockpiled soils as far as possible; • Develop a soil stripping and placement traffic management plan to ensure that no heavy wheel-based vehicles traverse over in situ or replaced topsoil; • Care should be taken to tip enough soil per square unit to reinstate the total required post mining soil depth at once; • Spreading of soil over far distances and repeated traversing of heavy mechanical equipment should be avoided to prevent compaction.
<p>Excessive dust/erosion from un-vegetated areas</p>	<ul style="list-style-type: none"> • Develop and maintain dust suppression practices during the rehabilitation phase; • Revegetate rehabilitated areas as soon as possible; and • Ensure sufficient financial provision for monitoring, care, and maintenance of rehabilitated areas
<p>Reduction in land capability after rehabilitation.</p>	<ul style="list-style-type: none"> • Optimise the limited topsoil resources available on site; • Strip all available soils within the boundary, borrowpit fringe (5m buffer), road footprints prior to mining and store in the berm and stockpile; and • Utilize the stored topsoil for the sole purpose of rehabilitation, no topsoil should be used for landscaping or construction purposes such as roads or embankments. • Analysis of topsoil for fatality and apply require amelioration where required. • Apply agricultural lime and fertiliser to soil profile. • Rehabilitate areas in line with final land use requirements.
<p>Changes in surface hydrology as a result of rehabilitation</p>	<ul style="list-style-type: none"> • Implement final land form design; • Limit steep slopes; • Establish free draining landscape; • Re-instate drainage lines and low laying areas.
<p>Lack of stakeholder buy-in on rehabilitated landscapes</p>	<ul style="list-style-type: none"> • Update, audit and submit the closure plan and associated closure documentation to the regulators as prescribed by legislation; • Undertake regular engagement to present the planning process and ensure alignment; • Develop a post mining land use plan considering the local spatial development framework (SDF) and Integrated Development Plan.
<p>Deterioration of surface water quality</p>	<ul style="list-style-type: none"> • Develop and maintain a surface monitoring program in line with the WUL requirements and specialist studies; • Maintain stormwater measures during operational phase;

	<ul style="list-style-type: none"> • Contain any runoff on the rehabilitated area to prevent siltation and contamination of surface water;
Uncertainty regarding the latent and residual risks.	<ul style="list-style-type: none"> • Undertake stability assessment by rock engineer • Determine design parameters for benches and slope gradients. • Determine erosion factor of soil and the design angle of slopes.

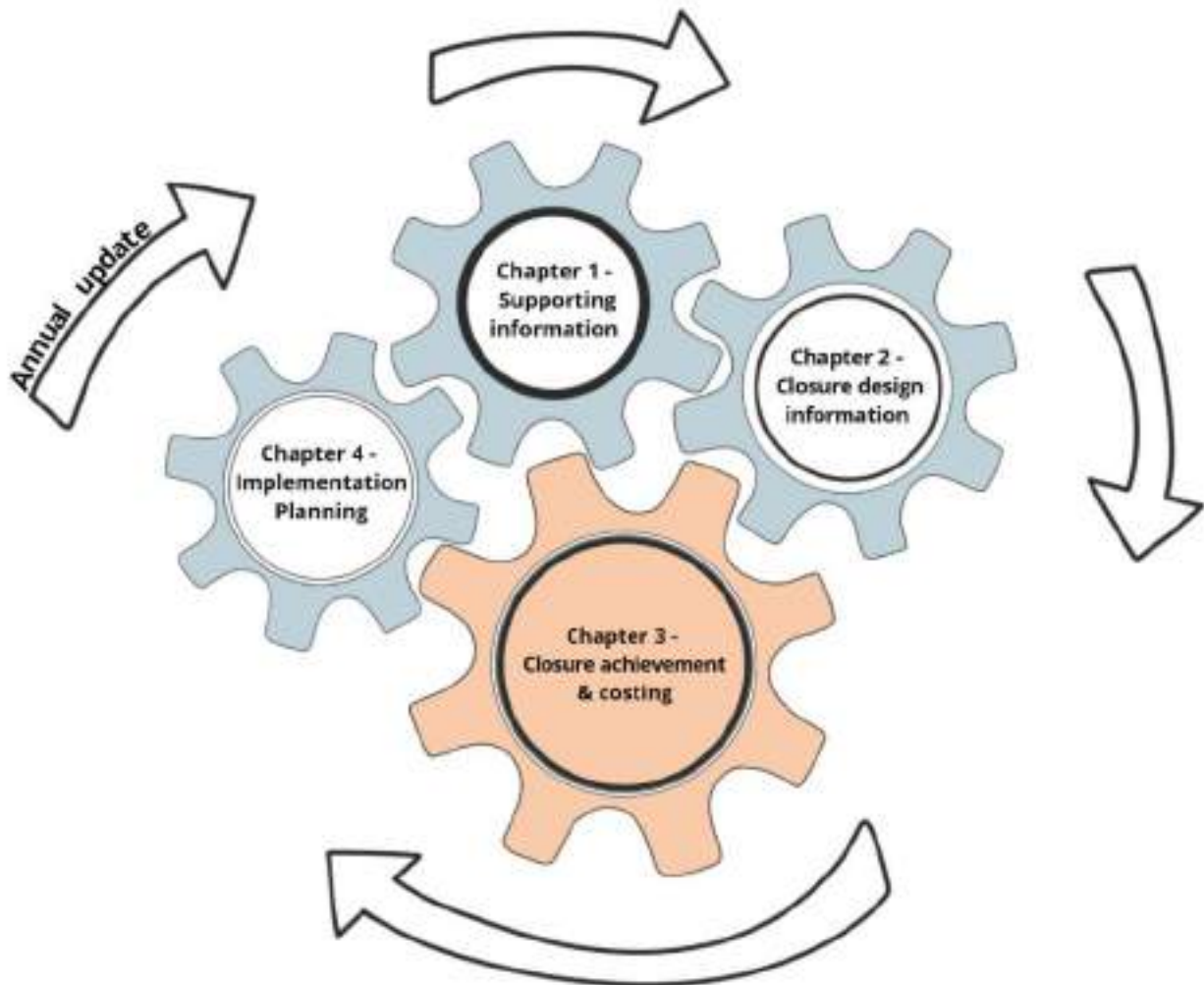
15.5. Threat Opportunities and Uncertainties

The specialist studies for this site and the knowledge gaps that exist should be taking into consideration. It is envisaged that through the operational phase of this project many further specialist studies may be required, update of studies and improvements in technology will take place and as such, it is recommended this plan be revisited and updated with these findings as an annual requirement of GNR 1147. As presented in the risk assessment, the uncertainty, indicated as having a low significance, associated with the latent and residual risks after mitigation measures have been implemented. The following have been identified, with respect to threats, opportunities, and uncertainties with respect to the compilation of this plan to define any additional work that is needed in order to reduce the level of uncertainty.

- Ongoing engagement with communities surrounding the area, with respect to the closure vision of the mine and tacking these issues into account when closure is being considered;
- Final landform and land use to be determined during the operational phase.
- Rock stability assessment to be undertaken;
- Slope stability assessment to be undertaken;
- Erosion potential of soil and slope angle to be determined.
- Adopting closure recommendations as identified in the respective specialist reports, with particular emphasis on social, water and biodiversity related aspects; and

Further update and review of the rehabilitation, decommissioning and closure plan based on new information may highlight further gaps in the plan, however, this plan includes information available at present.

CHAPTER 3: CLSOURE ACTIONS AND COSTING



Chapter 3 is the combination of the findings of Chapter 1 and 2 and forms the core of the plan:

- The general closure actions (measures) aimed at achieving the seven key objectives;
- Refined into the specific closure actions for infrastructure, mining areas, general surface rehabilitation and post-closure aftercare and monitoring; and
- The closure cost determination based on the specific closure actions.

16. CLOSURE ENVIRONMENTAL MANAGEMENT PLAN

The main aim in developing the Final Rehabilitation, Decommissioning and Mine Closure Plan is to minimise and mitigate the impacts caused by mining and industrial activities and to restore land back to a satisfactory standard. It is best practice to develop the Plan as early as possible so as to ensure the optimal management of rehabilitation and closure issues that may arise. It is critical that a mine's Final Rehabilitation, Decommissioning and Mine Closure Plan is defined and understood from before mining progresses and is complimentary to the

objectives and goals set. Rehabilitation and closure objectives need to be tailored to the project at hand and be aligned with the Environmental Management Program (EMPr).

The Final Rehabilitation, Decommissioning and Mine Closure Plan aims to inform on the actions required to rehabilitate the project to ensure that the area is socially and environmentally safely and sustainably closed. Importantly, the Rehabilitation Plan consists of direct activities associated with rehabilitation of various infrastructure components. This EMP should inform how the mine infrastructure is either handed over legally or removed from site. During the operational phase it is recommended that an assessment be undertaken of the infrastructure to determine if some of the infrastructure can be utilised post closure.

The rehabilitation and closure actions for the particular infrastructure are detailed below and separated into phases. Although concurrent rehabilitation occurs during the operational phase, it has been included in this section as it directly impacts on final rehabilitation and closure.

16.1. Closure Actions

The conceptual mitigations proposed in the initial risk assessment is refined into a specific rehabilitation approach and sequence of actions. The striping of topsoil from the area before mining or construction start if the basis of many of the general actions. If insufficient topsoil is stripped before construction additional actions, mitigation and management measures will be required. Table 11 provide the General Closure Actions for the mine.

Table 10: General Closure Actions

Aspect	Closure Action
Physical Stability	<ul style="list-style-type: none"> • Manage available soil carefully during the life of mine to limit the damage to an already scarce and denuded resource; • Design construct a post mining landform to specified elevations, ensuring a free draining topography; • Replace topsoil to specified depths on prepared areas and rip with an agricultural ripper to alleviate compaction and revegetate. • Ensure that all rehabilitated areas on the mine site are free draining. • Inspection to be performed as part of closure phase and any affected area to be rehabilitated.
Environmental Quality	<ul style="list-style-type: none"> • Clean up sources of possible surface water contamination still present on the mine site to protect the downstream receiving environment; • Ensure that the rehabilitated project site is free-draining;

	<ul style="list-style-type: none"> • Demonstrate by means of suitable sampling and analysis that the rehabilitated area is not causing contamination; • Monitor surface against water quality limit and baseline to determine if any pollution plume is developing.
Health and Safety	<ul style="list-style-type: none"> • Limit dust generation on the rehabilitated mine site that could cause nuisance and / or health effects to surround communities; • Revegetate all bare areas as soon as possible; and • Demonstrate by means of suitable sampling and analysis that the threshold levels of wind-borne dust and associated contaminants are acceptable. • Ensure rock stability • Fence off dam area to prevent humans and animals from entering • The dam must have a walk out area.
Land Capability Land Use	<ul style="list-style-type: none"> • Ensure that the rehabilitated portions of the project sites are safe and physically and chemically stable in the long-term; • Limit the loss of topsoil by stripping all areas to be disturbed and the opencast fringes; • Replace soils to specified depths; • Define physical and chemical amelioration based on soil fertility analysis and interpretation by a suitable qualified professional; • The area will be restored to wilderness. • Conduct rehabilitation monitoring of soils and vegetation for three years; and • Conduct a post closure land use and capability assessment after year 3 to demonstrate the achieved end land use.
Landscape viability	<ul style="list-style-type: none"> • Establish rehabilitated slopes on post mining landform to preserve vital resources such as growth medium and nutrients, as far as possible, and stabilising disturbed areas to prevent erosion in the short- to medium-term until a suitable vegetation cover has established; • Benches to be established to limit erosion; • Replace soils to specified depths; and • Establish vegetation based on dedicated fertility sampling, analysis, and specifications. • Rocks must be treated to form part of surrounding area. Reduce visual impact.
Biodiversity	<ul style="list-style-type: none"> • Monitor, control, eradicate and manage declared Category 1, 2 and 3 invader plant species; • Establish a biodiversity management plan for rehabilitation; and

	<ul style="list-style-type: none"> Establish viable self-sustaining vegetation communities that will encourage the reintroduction of local natural fauna as far as possible.
Socio-economic	<ul style="list-style-type: none"> Mange the implementation and the expectations of various stakeholders throughout the process. Update SLP to include structure that will be handed over to the community during final closure.

16.2. Specific Closure Actions

Specific rehabilitation and closure actions forming the basis of the rehabilitation and closure operations. The actions are aligned with the mitigations defined in the comparative risk assessment. These actions are planned to comply with the requirements of the vision and objectives. The closure actions form the basis for the closure liability assessment. The actions are indicated according to the following categories:

- Ventilation Shafts And Emulsion Borehole
- Borrow Pits
- Access Roads
- Powerlines
- Construction Site Camp;
- Topsoil and Overburden
- Clean and dirty water management system
- Topsoil Berm;
- General surface rehabilitation and water management.

Topsoil forms the basis of rehabilitation and if insufficient topsoil is stripped before construction additional actions, mitigation and management measures will be required. The concurrent rehabilitation during the operations described in this report with the final rehabilitation actions.

Construction Camp

The construction camp will be removed after construction phase and area revegetated.

Topsoil and Overburden

The overburden from borrowpits will be utilised in the backfill of the project area. Topsoil will be used as final cover for rehabilitation. After clearance of the overburden and topsoil berm and stockpiles, the area should be shaped considering surface water drainage and erosion risk considerations.

- Load, haul topsoil or shovel overburden into backfilled areas;
- Load, haul topsoil from the topsoil berm, tip at the correct spacing and level to the specified depths;

- Cross rip replaced soils with an agricultural ripper to alleviate compaction and scarify the area;
- Conduct fertility sampling, have the soils analysed at an accredited laboratory and define amelioration measures based on the results; and
- Establish vegetation (includes specified amelioration and seed mix application).

Upgraded roads

Roads will remain intact and be utilised during the final rehabilitation. Rehabilitation will commence after topsoil has been replaced on all areas and no more access with high equipment is required. The following actions will be implemented.

- Remove all signage;
- Re-establish natural drainage;
- Rip haul roads with construction equipment to a depth of at least 0.5 m, and over-rip with agricultural equipment to create suitable conditions for vegetation establishment;
- Profile to be free draining and emulate the natural surface topography;
- Conduct fertility sampling, have the soils analysed at an accredited laboratory and define amelioration measures based on the results; and
- Establish vegetation (includes land preparation, specified amelioration and seed mix application).

Vent Shafts, Power Lines and Associated Infrastructure

All infrastructures that cannot be removed will remain to be utilised by the landowner. All rest will be removed and the footprint rehabilitated and re-vegetated.

Closure actions as detailed in the “Guidelines for the Rehabilitation of Mined Land” include:

- All power and water services to be disconnected and certified as safe prior to commencement of any demolition works;
- Salvageable equipment will be removed and transported offsite prior to the commencement of demolition;
- All fittings, fixtures and equipment within buildings will be dismantled and removed to designated temporary disposal yards;
- All tanks, pipes and sumps containing hydrocarbons to be flushed or emptied prior to removal to ensure no hydrocarbon/ chemical residue remains;
- All above ground electrical, water and other service infrastructure and equipment to be removed and placed in designated temporary salvage yards, to be sold as scrap;
- Electrical, water and other services that are more than one metre below ground surface will remain;

- All pipes and structures deeper than one metre need to be sealed to prevent possible ingress and ponding of water;
- Non-hazardous concrete slabs and footings will be broken. This concrete (and metal) will be broken up and disposed of in the base of the mining area;
- Soils beneath the plant, storage tanks and chemical storage areas will be sampled. Any contaminated soils found will be removed for disposal;
- Sacrificial layer underplant will be removed;
- Plant and equipment will be removed from site and concert will be removed and used as backfill (be placed more than 1m under surface level); and
- All excavations resulting from demolition of plant, buildings, roads, etc. and earth structures will be left in a safe manner.

Operational storm water measures

The measures are assumed to be limited to shallow trenching and berm construction. All berms, trenches and paddocks will be flattened by backfilling the excavations or dozing the structures to a functioning topography, except where they have been positioned prevent additional water flowing onto rehabilitated area. The berms will be utilised to divert water away from the opencast area and to limit water flow. The following will be undertaken:

- Shape the area and slopes to be free-draining
- Cross rip in-situ soils with an agricultural ripper to alleviate compaction;
- Conduct fertility sampling have the soils analysed at an accredited laboratory and define amelioration measures based on the results; and
- Establish vegetation (includes land preparation, specified amelioration and seed mix application).

General Surface Rehabilitation

The general surface rehabilitation measures for the proposed mining area are limited to the following:

- Seeding of areas with natural grasses;
- Development of free draining profile as per land form design;
- Maintaining of area to prevent erosion;
- Soils, which should have been stripped according to form, should be replaced according to a pre-existing plan;
- Compaction should be minimised by use of appropriate equipment and replacing soils to the greatest possible thickness in single lifts;
- Soils should be moved when dry to minimise compaction. If they have to be moved when wet, shovel and truck should be used as bowl scrapers create massive compaction when moving wet soils;

- Where multi-layer soil profiles are re-created, running over the lower layers with heavy equipment should be minimised;
- Minimise compaction during smoothing of replaced soils by using dozers rather than graders;
- Following placement, all soils should be ripped to full rooting depth; and
- Where natural revegetation is not possible, the soils should be tilled to produce a seed-bed suitable for the plant species selected for seeding.
- Lime and superphosphate are applied to the surface;
- These ameliorants are then incorporated by deep ripping, which penetrated 100 mm through the soil into the underlying overburden material;
- Compound (NPK + Zn) fertilizer is applied, and disced in as part of seedbed preparation;
- A grass seed mix is then planted, usually with first rains, or after rains have commenced; and
- The site is then mulched using locally obtained grass; this is to stimulate the long-term establishment of indigenous vegetation and to reduce erosion during early plant growth.

Borrowpits Rehabilitation

Borrowpit rehabilitation will consist out of two areas as described in section 14.3.6. The main rehabilitation of the borrowpits will consist out of the following actions.

- Creating side slope of less than 1:3.
- Backfill and shaping of available overburden
- Profiling of borrowpits
- Covering topsoil
- Revegetation of borrowpits

A void can remain after closure as insufficient material might be available to establish the before mining topography. The visual impact of the borrow pits should be limited as far as possible, and the exposed rock should be treated to blend into the surrounding environment.

Long term water issues

No long-term water issues are anticipated as no pollution sources are present within the mining area. The material has no acid forming potential and no AMD formation will take place.

Aftercare and Maintenance

During aftercare and maintenance, a number of actions, monitoring and audits will be required to establish if the Relinquishment Criteria for each of the aspect have been reached. The Proposed Relinquishment criteria are presented in Table 12 with the monitoring requirements.

Any corrective measures required as a result of the monitoring or audits must be implemented during this period. It is anticipated that a stable final landform will be created within a period of 2-3 years. The annual audit will be utilised to established if the relinquishment criteria have been reached or if additional measures are required.

17.PERFORMANCE MONITORING

The following preliminary measures are proposed and are to be further refined with future updates of the closure plan. It is envisaged that a two to three-year demonstration period will be required for surface water to confirm success of closure. A period of two to three years is proposed for the demonstration of successful rehabilitation. Following the completion of earthworks and vegetation establishment a visual inspection will be undertaken to inform corrective action required, if needed. Thereafter ongoing monitoring and corrective action as per Table 12 will be undertaken. The period can be extended if required if the final landform and relinquishing criteria has not been achieved.

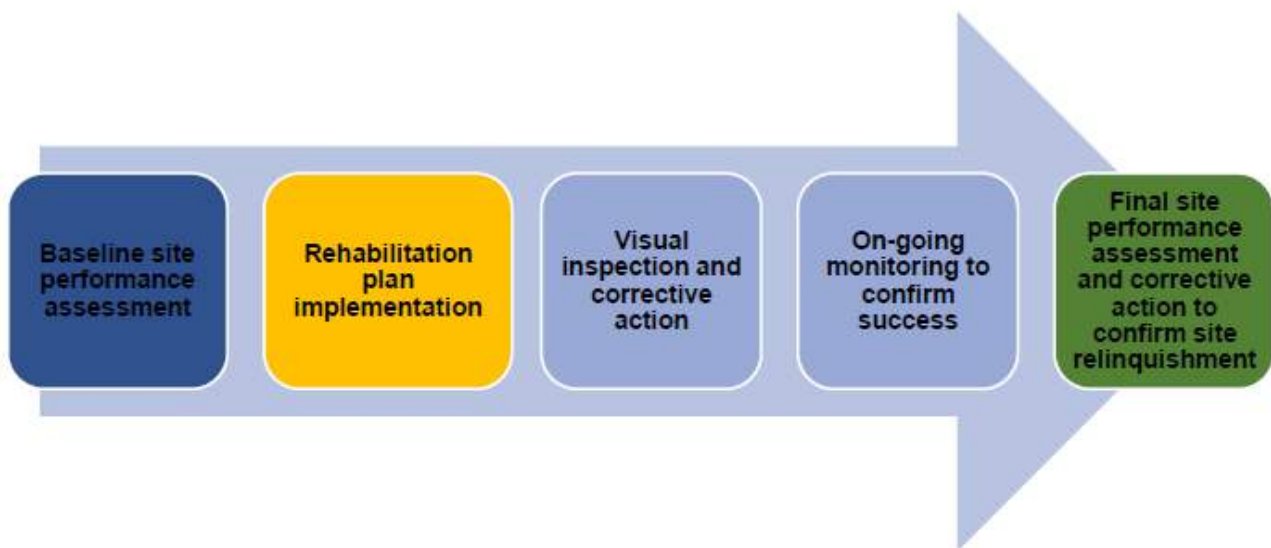


Figure 12: Final Rehabilitation plan roll out and performance monitoring

17.1. Monitoring and Closure Targets - Relinquishment Criteria

The measurable criteria indicated should be used to assess the effectiveness of the specific closure actions implemented during rehabilitation. They will also assist in determining when the standard of closure achieved is sufficient to relinquish responsibility for a specific area. The site-specific aspect, monitoring requirement, indicators and closure targets are included in the table.

The relinquishment criteria indicated in Table 12 is proposed for the mining area and is applicable to the rehabilitated areas. The criteria, indicators and reporting requirements are listed against the environmental aspect.

Table 11: Proposed Relinquishment criteria

Environmental Aspect	Closure Criteria – Relinquishment Criteria	Monitoring Requirements	Reporting Requirements
Biodiversity	Establishment of vegetation that has a basal cover of 15% and that is self-sustaining and can be measured over a 2-3-year period, indicating that natural succession has occurred. Establishment of wilderness areas.	Vegetation monitoring and rehabilitation monitoring	Monitoring Reports – Bi-annually Vegetation audits – Annually
Surface Water	Surface water quality need to comply with the qualities as stipulated in the WULA and the appropriate DWS and SANS Standards.	WUL requirements GNR 704 requirements.	Monitoring – Quarterly Reporting – Annually
Air Quality	Dust and PM10 must comply with the minimum standards and limits as set by the NEM:AQA and applicable regulations and guidelines.	GNR 827 – National Control Regulations, SANS Standards. Monthly monitoring. Compliance with the National Environmental Management Act: Air Quality (Act 39 of 2004).	Monitoring – Monthly Monitoring Reports – annually
Soil, Land Capability and Land Use	Post land use mining assessment to determine status of rehabilitated areas with respect to soil quality and that rehabilitated areas have been rehabilitated to an agreed upon land use. In addition to the above, inspections should be undertaken to identify areas of erosion and that erosion measures have been constructed. Top soiling’ depth must match that of the pre-disturbance condition, as determined by the pre-mining land capability; whereby pre-disturbance capability classes must ideally in the post-disturbance/mining condition be ‘top soiled’ with the following depths of suitable soil material:	Regular post-closure monitoring using Standard measures of vegetative cover or Landscape Function Analysis; and visual observations. Photographic record. Post-rehabilitation slope analysis mapping must be conducted immediately after re-grading (re-sloping) [before ‘top soiling’] utilising an aerial photograph and generated contours. Over steep slopes must be	Results of soil quality report and erosion monitoring report – Annual report photographic evidence and mapping included in annual report

	Arable ($\geq 0.6\text{m}$), Grazing ($\geq 0.3\text{m}$), and Non-Grazing ('Wilderness') and Wetland ($\geq 0.15\text{m}$). In areas where the implementation of the Grazing depth standard is not possible, then these areas must be rehabilitated as per the Wilderness depth standard ($\geq 0.3\text{m}$).	corrected before 'top soiling'. Photographic record. Closure and intermittent post-closure Agricultural soil fertility data (laboratory analysis) by independent consultants.	
Social - Stakeholder Engagement	Grievance mechanism to be established. The SLP should be updated, and the structures should be handed over to the community. The handover should be sustainable, and skills transfer should have taken place.	Report (and investigate) any grievance or complaints received. SLP reporting.	Annual report
Ground stability	The final mine layout and safety factors for each area to be determined. The areas of risk to be identified based on factory factors. Stability of the area to be determined based on the rock engineering report.	Monitoring of ground stability of high-risk areas. Risk to be determined based on rock engineering report. Surface investigation to be undertaken to established if cracks or failures of rock face is forming.	Annual monitoring and report

18.CLOSURE COST

This section provides details on the closure cost. The outlined assumptions and limitations also underpin the basis of this closure cost determination. It is important to note that the estimation is based on existing information. The closure cost calculation has been performed in accordance with NEMA GNR 1147 financial provision.

Due to the current uncertainty surrounding the change in the financial provision regulations, this report has utilised the current existing regulations but has only calculated the final rehabilitation cost and no concurrent rehabilitation cost is included based on the mine schedule. The cost is also calculated for an operational period of 10 years.

Concurrent annual environmental costs will be included into the operating budget of the mine. The closure costs of the aspects linked with the project have been determined using current contractor cost.

Costing calculations refer to the specific rehabilitation actions, areas and type of disturbance that requires rehabilitation. The bill of quantities (BoQ) for each of the closure items have been developed based on information obtained from the client. The volume estimations are based on preliminary design and mining schedules provided. The method employed is deemed acceptable for the level of accuracy required in terms of the regulations.

Closure Liability Cost is only calculated for the this application area. The existing area has existing financial provisioning in place and if approved this will be incorporated into the existing financial provisioning.

The costing methodology applied is summarised as follows:

- Developed an itemised plan indicating an inventory of closure aspects based on the proposed mine schedule.
- Defined specific rehabilitation actions for each, through reviewing specialist studies, impact assessment outcomes, industry guidelines, conceptual modelling, and rehabilitation experience.
- Calculated monitoring and maintenance costs; and
- Compiled a dedicated closure spreadsheet to determine the closure costs of the quantified actions through applicable rates.

A rate sheet has been developed and aligned to the specific infrastructure in the BoQ. The rates sheet has been developed using the following datasets:

- DMR guidelines (2005) update with CPI to 2021.

18.1. Assumptions and Qualifications

The following qualifications and assumption were made for the assessment:

- The financial provision calculation for the proposed mine is based on the mine works program and is for a period of 10 years (year 1 – year 10). The Latent Liability Cost is based on the current closure scenario and available information.
- The cost estimates for operations, from closure will be prepared as conceptual estimates with an accuracy of ± 70 per cent.
- The closure liability calculation is only for the extension area and the existing mining area is not included in this calculation. The cost associated with the closure liability of the extension will be incorporated into the existing financial provision if approved.
- Input in this report is based on information obtained from the mine, reference documents, site visits and interviews.
- This report is based on prescribed legal methodologies and applications, the report contains interpretations and assumptions documented and contextualized to the best ability of the writer. Particularly, with relation to futuristic and predictive matters associated with scheduled closure.
- Notice is taken of changing circumstances and associated report qualifications, which at the time of the report might be different to the time of the assessment. This report therefore represents a snapshot view of the operation at the time and date of the assessment.
- This extension of the mine has not been constructed and this report and the costing is based on the proposed layout and development. The layout and development schedule may change over time and for this reason this report will be updated annually.
- No warranty is included with this report, either express or implied, that the actual described conditions will conform exactly to the assessment and results contained in this report.
- This report addresses rehabilitation costs required at closure and the post closure monitoring and maintenance in terms of the GNR 1147 regulations. This report has been completed before the proposed amendments have been finalised and thus do not take any proposed amendment to the regulations into consideration.
- The rehabilitation costs required at closure and the post closure monitoring and maintenance
- Calculations for infrastructure such as plant infrastructure, concreted areas and steel structures were based on estimates from satellite images, onsite personnel and the survey information provided.
- A contingency of 7.5% has been included to allow for unforeseen costs associated with contractors or rate increases.
- Preliminary and general of 7.5% has been included to allow for unforeseen costs associated with the project.

- It was assumed that 2-3 years is adequate for the monitoring and maintaining of vegetation after rehabilitation. After the 2-3 year period the need for additional monitoring and maintenance will be established.
- For post-closure monitoring, costs of surface water has been assumed to take place for a period of 2-3 years with sampling taking place as provided in this report.
- Specialist studies, professional fees and project management has been included in the closure cost;
- In this assessment the current aspects and activities will be considered to determine the environmental liability, excluding planned aspects for the next financial year which were not considered.
- Cost estimates will have an accuracy of ± 70 per cent for operations, or components of operations, 30 or less years (but more than ten years) – GNR 1147.
- At mine closure, all infrastructure will be removed from the site.
- The mining area consist out of 5.85 ha, it is anticipated that only 50% of this will be mined in the first 10 years.

18.2. Accuracy Level

Notwithstanding the above, the reflected costs provide a good indication of the costs for the current operation. Providing a sound basis for making the financial provision for the planned LoM, to an accuracy level of 70%. The cost estimates for operations, from closure will be prepared as conceptual estimates with an accuracy of ± 70 per cent. The cost estimates for operations will be increased to ± 80 per cent for operations, or components of operations ten or less years (but more than five years)

18.3. Closure Cost

The 2021 quantum for closure-related financial provision for project was undertaken by CES. The summary of the closure cost calculated for the mine is presented in the Table below.

The estimated financial provision required for the rehabilitation and closure of the project is R5 111 865,79 (Final Closure) excl. VAT, inclusive of the Latent liability and Monitoring.

A summary of the financial provision estimates associated with the is included in the tables below.

Table 12: Quantum of Financial Provision

No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor	E=A*B*C*D Amount
1	Dismantling of processing plant and related structures	m²	5 800	R18,36	1	1,2	R127 818,38
2(A)	Demolition of steel buildings and structure	m ²	0	R255,81	0	0	R0,00
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0	R376,99	0	0	R0,00
3	Rehabilitation of access roads	m²	33 923	R45,78	1	1,2	R1 863 477,40
4(A)	Demolition and rehabilitation of electrified railway lines		0	R444,31	0	0	R0,00
4(B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R242,35	0	0	R0,00
5	Demolition of housing and/or administration facilities	m ²	0	R511,63	0	0	R0,00
6	Opencast rehabilitation including final voids and ramps	ha	0	R260 391,13	0,52	1,2	R0,00
7	Sealing of shafts, adits and inclines	m ³	0	R137,33	1	1	R0,00
8(A)	Rehabilitation of overburden and spoils	ha	1,2	R178 800,11	1	1,2	R257 472,16
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (salts)	ha	0	R222 692,31	0	0	R0,00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	R646 804,02	0	0	R0,00

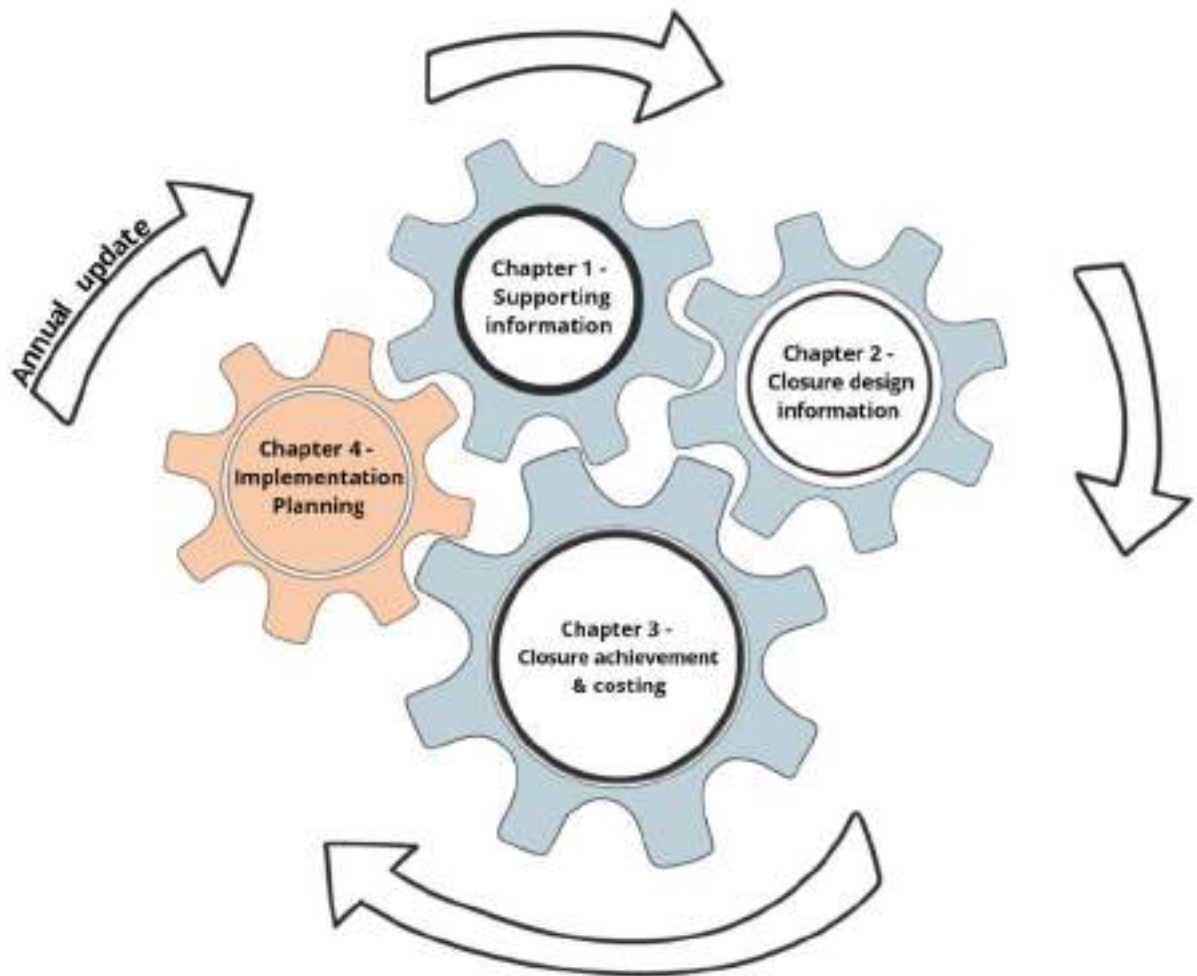
9	Rehabilitation of subsided areas	ha	0	R149 718,17	0	0	R0,00
10	General surface rehabilitation	ha	3,87	R141 639,85	1	1,2	R657 775,46
11	River diversions	ha	0	R141 639,85	0	0	R0,00
12	Fencing	m	1 114	R161,57	1	1,2	R215 981,92
13	Water management	ha	3,87	R53 855,46	0,41	1,2	R102 542,94
14	2 to 3 years of maintenance and aftercare	ha	18,5	R18 849,41	1	1,2	R418 456,89
15(A)	Specialist study	sum				0	R0,00
15(B)	Specialist study	sum				0	R0,00
SUBTOTAL 1							R3 643 525,15

1	Weighting factor 2			(0%, 5% or 10%)			R 182 176,26
2	Preliminary and General			7% of subtotal 1			R255 046,76
8	Contingency			10,0% of subtotal 1			R364 352,52
SUBTOTAL 2							R801 575,53

VAT (15%)							R666 765,10
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GRAND TOTAL (SUBTOTAL 1 + SUBTOTAL 2 + VAT) **R5 111 865,79**

CHAPTER 4: IMPLEMENTATION PLANNING



Chapter 4, contains aspects related to implementation of the closure planning during the remaining operational period, at closure and post-closure, including:

- The organisational capacity required to champion closure planning for the MRA;
- Scheduling related to the various activities to occur during the remaining operational period in preparation for closure, at closure and post-closure; and
- The closure plan evaluation, which includes a gap analysis of the current information knowledge and the way forward for improved refinement.

19.SCHEDULE

A preliminary closure schedule is proposed in Table 15 below and includes the closure and post-closure timelines. As per the above documented approach, the closure plan is a live document that should be updated regularly throughout the LoM, as solutions are continually refined, and the knowledge base is developed.

Table 13: Closure Schedule

Facility life/ phase	Activity	Timeline	Frequency
Construction phase	Stripping and stockpiling of topsoil	2023-2024	As required
Operational	Further refine / update the closure plan and closure action plan to incorporate detailed specialist assessment outcomes	2023 – 2033	As required
	Develop cash flows and related financial information for funding the implementation of the stipulated closure measures	2023 – 2033	As required
	Ongoing environmental monitoring to establish baseline conditions to benchmark the closure situation	Pre-mining and the LoM	Monthly
	Compile final closure plan	2031 – 2043	Once-off
Closure	Remove vent shafts and associated infrastructure, replace topsoil, prepare, and revegetate all affected areas; and General site rehabilitation	2031 – 2043	Once-off
	On-going communications with regulatory bodies and submission of required reporting and applications	To be determined	As required
Post-closure	Maintaining closure measures and conducting required inspection and monitoring to demonstrate achievement (success) of closure measures	Rehabilitation +- 3 years post-closure Surface water +- 3 years post-closure	Rehabilitation monitoring annually for 3 years; Surface water quarterly for 3 years
End state/land use	Implement agreed-upon end state/land use (requires a post mining land use and land capability assessment)	Approximately 3 years post-closure	Once-off
	Care and maintenance of rehabilitated areas	3 years post closure	Annually

20.AUDITS

The closure plan must be updated during the operation’s life to reflect known developments, new regulatory requirements, and any other material developments. A preliminary schedule of monitoring, auditing, and reporting requirements which relate to the risk assessment, legal requirements, effective implementation, and knowledge gaps is proposed as follows:

- Internal operational rehabilitation audits co-ordinated by the mine and including soils, surface water, rock engineer, and closure specialists. The purpose is to review the closure plan and monitor the implementation of concurrent rehabilitation measures.
- External financial audits co-ordinated by the financial manager and the closure manager, by suitable qualified independent auditors; and
- Legal compliance audits co-ordinated by the Mine manager aligned with environmental authorisation requirements. Relevant aspects relating to closure, such as changes to the risk assessment, changes in closure options and changes in the closure provision will be reported.

21. CLOSURE PLAN REFINEMENT

21.1. Planned amendments and gaps

This preliminary closure plan is compiled in the overall approach and structure to align to Appendix 4 of GNR. 1147, namely minimum content of a final rehabilitation, decommissioning and mine closure plan. This plan also reflects an integration and consolidation of closure-related studies and specialist work. The following should be implemented to further refine the closure planning for the mining area.

- Establish the stability of the slopes and exposed rock face.
- Erosion rates and angle of slopes.
- Develop and refine the conceptual post mining landform.
- Develop and include a detailed topsoil balance.
- Utilise the improved topsoil data to accurately plan the topsoil placement depths
- Develop a detailed monitoring plan.
- Refine relinquishment criteria.
- Refine and developed a post closure water management plan.
- Refine the closure scheduling.
- Develop a closure road map during the operational phase.
- Include a revision of the closure costs to improve the accuracy running into the closure phase.
- Update latent and residual risks as risk become known.

21.2. Motivation for Amendments

No motivation for amendments to the final Rehabilitation, Decommissioning and Mine Closure Plan have been made as a result of the previous auditing period.

21.3. LIMITATIONS

This report is based on the following assumptions and limitations:

- Current information available to CES was used in the development of this report.
- The information contained within this report is based on the proposed layout plans available. If there is a significant change or addition of other infrastructure areas, this report will need to be updated to cater for this change.
- Mitigation measures and recommendations provided in this report is based on the specialist studies. All specialist studies have been completed prior to this report being completed; and
- This report must be considered as a living document and will be updated as additional information becomes available, and as monitoring and rehabilitation progresses. The report has to be updated as required by legal requirements.

21.4. Research and Development

During the operational mining phase research can be completed on the following aspects:

- Stability of slope;
- Effective erosion control measures;
- Surface water (stormwater dam) post closure management plan;
- Vegetation re-establishment rates;
- Rock stability and competence.
- Vegetation re-establishment rates.

No timeframes to undertake and complete the ongoing research have been provided but consideration to amend or remove these actions need to be motivated in subsequent updates to this report.

22. CONCLUSION

This closure plan was compiled in alignment to the NEMA GNR.1147 Regulations, the NEMA Appendix 5 (Closure Plan) and based on information provided by client, and specialist work. It is recommended that the next update of this closure plan be annually after commencement of the activities. Closure and rehabilitation are a continuous series of activities that begin with planning prior to the project's design and construction, and end with achievement of long-term site stability and the establishment of a self-sustaining ecosystem. Not only will the implementation of this concept result in a more satisfactory environmental conclusion, but it will also reduce the financial burden of closure and rehabilitation. Rehabilitation and closure objectives have been tailored to the project at hand with the objective of assisting for Anglo Platinum in carrying out successful rehabilitation.

Sallies would need to provide adequate financial assurance through the required financial instrument to provide for their decommissioning and closure liability cost.

APPENDIX A: Environmental Risk Assessment (Methodology)

The impact assessment methodology used to determine the significance of impacts prior and after mitigation is presented below.

Extent of the impact		
The EXTENT of an impact is the physical extent/area of impact or influence.		
Score	Extent	Description
1	Footprint	The impacted area extends only as far as the actual footprint of the activity.
2	Site	The impact will affect the entire or substantial portion of the site/property.
3	Local	The impact could affect the area including neighbouring properties and transport routes.
4	Region	Impact could be widespread with regional implication.
5	National	Impact could have a widespread national level implication.
Duration of the impact		
The DURATION of an impact is the expected period of time the impact will have an effect.		
Score	Duration	Description
1	Short term	The impact is quickly reversible within a period of less than 2 years, or limited the construction phase, or immediate upon the commencement of floods.
2	Short to medium term	The impact will have a short term lifespan (2–5 years).
3	Medium term	The impact will have a medium term lifespan (6 – 10 years)
4	Long term	The impact will have a medium term lifespan (10 – 25 years)
5	Permanent	The impact will be permanent beyond the lifespan of the development
Intensity of the impact		
The INTENSITY of an impact is the expected amplitude of the impact.		
Score	Intensity	Description
1	Minor	The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected.

2	Low	The activity will have a low impact on the affected environment.
3	Medium	The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way.
4	High	The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.
5	Very High	The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

Reversibility of the impact

The REVERSIBILITY of an impact is the severity of the impact on the ecosystem structure

Score	Reversibility	Description
1	Completely reversible	The impact is reversible without any mitigation measures and management measures
2	Nearly completely reversible	The impact is reversible without any significant mitigation and management measures. Some time and resources required.
3	Partly reversible	The impact is only reversible with the implantation of mitigation and management measures. Substantial time and resources required.
4	Nearly irreversible	The impact is can only marginally be reversed with the implantation of significant mitigation and management measures. Significant time and resource required to ensure impact is on a controllable level.
5	Irreversible	The impact is irreversible.

Probability of the impact

The PROBABILITY of an impact is the severity of the impact on the ecosystem structure

Score	Probability	Description
1	Improbable	The possibility of the impact occurring is highly improbable (less than 5% of impact occurring).
2	Low	The possibility of the impact occurring is very low, due either to the circumstances, design or experience (5% to 30% of impact occurring).
3	Medium	There is a possibility that the impact will occur to the extent that provision must be made therefore (30% to 60% of impact occurring).
4	High	There is a high possibility that the impact will occur to the extent that provision must be made therefore (60% to 90% of impact occurring).

5	Definite	The impact will definitely take place regardless of any prevention plans, and there can only be relied on migratory actions or contingency plans to contain the effect (90% to 100% of impact occurring).
Calculation of Impacts – Significance Rating of Impact		
Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the Irreplaceability (Magnitude, Extent, Duration, and Intensity) multiplied by the Probability of the impact. The significance of an impact is rated according to the scores presented below:		
<p><i>Equation 1:</i></p> $\text{Significance} = \text{Irreplaceability (Reversibility + Intensity + Duration + Extent)} \times \text{Probability}$		
Significance Rating		
Score	Significance	Colour Code
1 to 20	Very low	
21 to 40	Low	
41 to 60	Medium	
61 to 80	High	
81 to 100	Very high	
Mitigation Efficiency		
Degree to which the impact can be mitigated: <i>The effect of mitigation measures on the impact and its degree of effectiveness:</i>		
<p><i>Equation 2:</i></p> $\text{Significance Rating} = \text{Significance} \times \text{Mitigation Efficiency}$		
High		0,2
Medium to High		0,4
Medium		0,6
Low to Medium		0,8
Low		1,0

Confidence rating: *Level of certainty of the impact occurring.*

- **Certain**
- **Sure**
- **Unsure**

APPENDIX B: CV's

APPENDIX 8 – SPECIALIST STUDIES

APPENDIX 8.1 – TERRESTRIAL BIODIVERSITY REPORT

**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AND
ASSOCIATED INFRASTRUCTURE AT MOTOTOLO MINE, LIMPOPO
PROVINCE**

**TERRESTRIAL BIODIVERSITY
SPECIALIST REPORT**

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MARCH 2022



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PROJECT TEAM EXPERTISE AND DECLARATIONS

In terms of the Terrestrial Biodiversity Protocol (2020):

2.1. The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with expertise in the field of terrestrial biodiversity.

3.1. The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:

3.1.1. Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;

3.1.2. A signed statement of independence by the specialist.

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SACNASP Registration No.	<i>Cand.Sci.Nat.</i> 121901/
SACNASP Field of Practice	Environmental Science
Experience (no. of years)	3 years in environmental consulting and terrestrial biodiversity assessments

Aidan obtained his MSc in Environmental Science (*Cum laude*) from Rhodes University, having conducted research on the spatio-temporal dynamics of *Acacia dealbata* invasions and broader land-use and cover changes in the northern Eastern Cape, funded through a study bursary awarded by the Agricultural Research Council (ARC). Prior to this, he obtained his BSc Honours in Geographical and Environmental Sciences (*Cum laude*) from the University of Pretoria, studying plant ecology and EIA methodology amongst others. Since joining CES in 2018, Aidan has been involved in several projects, including Basic Assessments, Full Scoping and Environmental Impact Assessments, Environmental Amendment Applications, Environmental Audits and Terrestrial Biodiversity Assessments. He is registered with the South African Council for Natural Scientific Professions as a Candidate Natural Scientist and with the International Association for Impact Assessments.

Declaration of Independence

- I, **Aidan Gouws**, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signed: 

Date: 18 January 2022



Name of Specialist	Alan Carter
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SACNASP Registration No.	<i>Pr.Sci.Nat</i> 400332/04
SACNASP Field of Practice	Environmental Science
EAPASA Registration No.	2019/1807
Experience (no. of years)	30 years
<p>Alan is the Executive Director of CES. He holds a PhD in Marine Biology and is a certified Public Accountant, with extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He has over 30 years of experience in environmental management and has specialist skills in sanitation, coastal environments and industrial waste. Dr Carter is registered as a Professional Natural Scientist under the South African Council for Natural Scientific Professions (SACNASP). He is also registered as an EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA).</p>	
<p>Declaration of Independence</p> <ul style="list-style-type: none"> • I, Alan Carter, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017; • I act as the independent specialist in this application; • I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; • I declare that there are no circumstances that may compromise my objectivity in performing such work; • I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; • I will comply with the Act, Regulations and all other applicable legislation; • I have no, and will not engage in, conflicting interests in the undertaking of the activity; • I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; • All the particulars furnished by me in this report are true and correct; and • I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act. <p>Signed:</p> <p>Date:</p>	

Please refer to the Curricula vitae in Appendix A for more information.



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GLOSSARY OF TERMS

TERM	DEFINITION
Alien Invasive Species	An exotic species that can spread rapidly and displace native species causing damage to the environment
Biodiversity	Term used to describe the variety of life on Earth and is defined as “ <i>the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems</i> ” (Secretariat of the Convention on Biological Diversity, 2005).
Habitat Fragmentation	Occurs when large expanses of habitat are transformed into smaller patches of discontinuous habitat units isolated from each other by transformed habitats such as farmland.
Key Biodiversity Area	A globally recognised site that contains significant concentrations of biodiversity.
Natural Habitat	Refers to habitats composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area’s primary ecological function and species composition.
Pentad	A 5 minute x 5 minute coordinate grid super-imposed over the continent for spatial reference.
Protected Area	A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. (<i>IUCN Definition 2008</i>).



LIST OF ACRONYMS

ACRONYM	TERM
AOO	Area of Occupancy
CBA	Critical Biodiversity Area
CES	Coastal and Environmental Services
CR	Critically Endangered
ECO	Environmental Control Officer
EDGE	Evolutionarily Distinct and Globally Endangered
EN	Endangered
ESIA	Environmental and Social Impact Assessment
EOO	Extent of Occupancy
GBIF	Global Biodiversity Information Facility
GIS	Geographical Information System
IBA	Important Birding Areas
IUCN	International Union for Conservation of Nature
KBA	Key Birding Areas
LC	Least Concern
NBSAP	National Biodiversity and Strategy Action Plan
NEMBA	National Environmental Management Biodiversity Act
NGO	Non-Government Organisation
PNCO	Provincial Nature Conservation Ordinance
SCC	Species of Conservation Concern
QDS	Quarter Degree Square
SA	South Africa
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
TOPS	Threatened and Protected Species



1 INTRODUCTION

In terms of Section 1 of the Terrestrial Biodiversity Protocol (2020):

1.1. An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of “very high sensitivity” for terrestrial biodiversity on the national web based environmental screening tool must submit a Terrestrial Biodiversity Impact Assessment.

1.1 PROJECT LOCATION AND DESCRIPTION

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine’s Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thornccliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga) (Figure 1.1).

Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method. Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and-pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³/s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is sub-optimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and associated infrastructure, including the establishment of six borrow pits for material sourcing and the upgrading of access roads and powerlines.

1.1.1 VENTILATION AND EMULSION SHAFTS

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole. The following details are currently available for the proposed ventilation and emulsion shafts.

The proposed **Downcast Shaft** will be located at the western extent of the project area, approximately 2.2 km west of the main Borwa Shaft (Figure 1.2). The technical report from Bluhm Burton Engineering Pty Ltd estimated the position of the downcast shaft to be at the bottom of current excavations below South Strike 17. This shaft needs to be moved into the laterals to lessen the impact on the mine operation and traffic management plan and to get the most favourable position on surface to make the drilling operation safer and easier. The following additional requirements are noted for the Downcast Shaft:

- All power will be supplied via diesel generator, due to it only being a downcast shaft no permanent power is required.



- Polluted water control processes will need to be established.
- Preparation of underground site for access control and removing of chips while reaming.
- Site establishment by raise bore drilling contractor and start drilling.
 - Area must be bunded where drill will be positioned.
 - Drill pilot hole for raise bore.
 - Drill hole for communication to underground.

The proposed **North Exhaust (Upcast) Shaft** will be located to the north-east of the Downcast Shaft, approximately 1.4 km west of the main Borwa Shaft (Figure 1.3). After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Exhaust shaft. The whole process will be the same as for the downcast shaft but after completion of the drilling operation, ventilation structures will be erected with ventilation fans over the excavation. After completion the ventilation fans will be commissioned. The proposed **Southern Exhaust (Upcast) Shaft** will be located to the south-east of the Downcast Shaft, approximately 2.1 km south-west of the main Borwa Shaft (Figure 1.4). After the completion of the raise boring at the North Exhaust shaft, raise boring will move over to the Southern Exhaust Shaft. After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Upcast Shaft, then to the Southern Upcast Shaft.

The proposed **Emulsion Shaft** will be located en route to the Downcast Shaft, approximately 1.5 km west of the main Borwa Shaft (Figure 1.5). This point will be required to be accessed by a SASOL emulsion tanker every 2 -3 days. Emulsion will be gravity fed down a hole at this point into the workings below. It will also be constructed at the same time as the access roads to ventilations shafts.

An **existing ventilation shaft** occurs within the project area, located approximately 1.1 km south-west of the main Borwa Shaft (Figure 1.6).

1.1.2 BORROW PITS

Construction materials will be sourced from six borrow pits, namely:

- **Borrow pit 01**, located near the entrance to the project area, immediately to the south of the main Borwa Shaft mining area, which will encompass an area of 10 086 m² (Figure 1.7);
- **Borrow pit 02**, located near the Northern Upcast Vent Shaft (Figure 1.3), which will encompass an area of 4 445 m²;
- **Borrow pit 03**, located near the emulsion borehole, which will encompass an area of 3 167 m² (Figure 1.5);
- **Borrow pit 04 and borrow pit 05**, located en route to the Southern Upcast Vent Shaft (Figure 1.8Figure 1.3), which will encompass areas of 2 037 m² and 3 135 m², respectively; and
- **Borrow pit 06**, located near the Southern Upcast Vent Shaft (Figure 1.4), which will encompass an area of 4 044 m².

1.1.3 ACCESS ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole and will be included in the applications



(Figure 1.1). Access will be required to enable construction of the ventilation shaft and for future inspections. Road will need to be designed to accommodate environmental and physical vehicle requirements to lessen effect on the environment and enable safe use of the road by vehicles. The proposed upgrades need to accommodate the following:

- The raise bore drill and ancillary equipment need to go up and down along the road;
- The roads are to be used by water trucks and diesel tankers to supply water for drilling operations and diesel for power generator requirements, respectively;
- Concrete trucks need to use the road to supply concrete for civil work;
- Other materials required for drilling operation and construction need to be to the sites via the proposed roads; and
- Although not a direct requirement for the project, but for cost savings, the road needs to accommodate the emulsion tanker and allow pumping of emulsion directly underground to a new transfer station underground through a planned hole on surface.

Route 1 runs westwards from the site entrance, splitting towards each of the proposed ventilation shafts and emulsion borehole sites. Access to the Downcast Shaft will be achieved via the proposed upgrade of **Routes 3 and 5-1**. The designs for **Route 2, 4 and 5-2** will include the road to the finalised position of the Northern Upcast shaft, Southern Upcast shaft and Emulsion borehole, respectively. All access roads will be built at the same time.

1.1.4 POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including:

- The Ventilation Line South (Borwa-South), 2 600 m in length;
- The Ventilation Line North (Borwa-North), 2 000 m in length; and
- The Downcast Line, 1200 m in length (Figure 1.1).

1.1.5 CONSTRUCTION SITE CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination, etc.

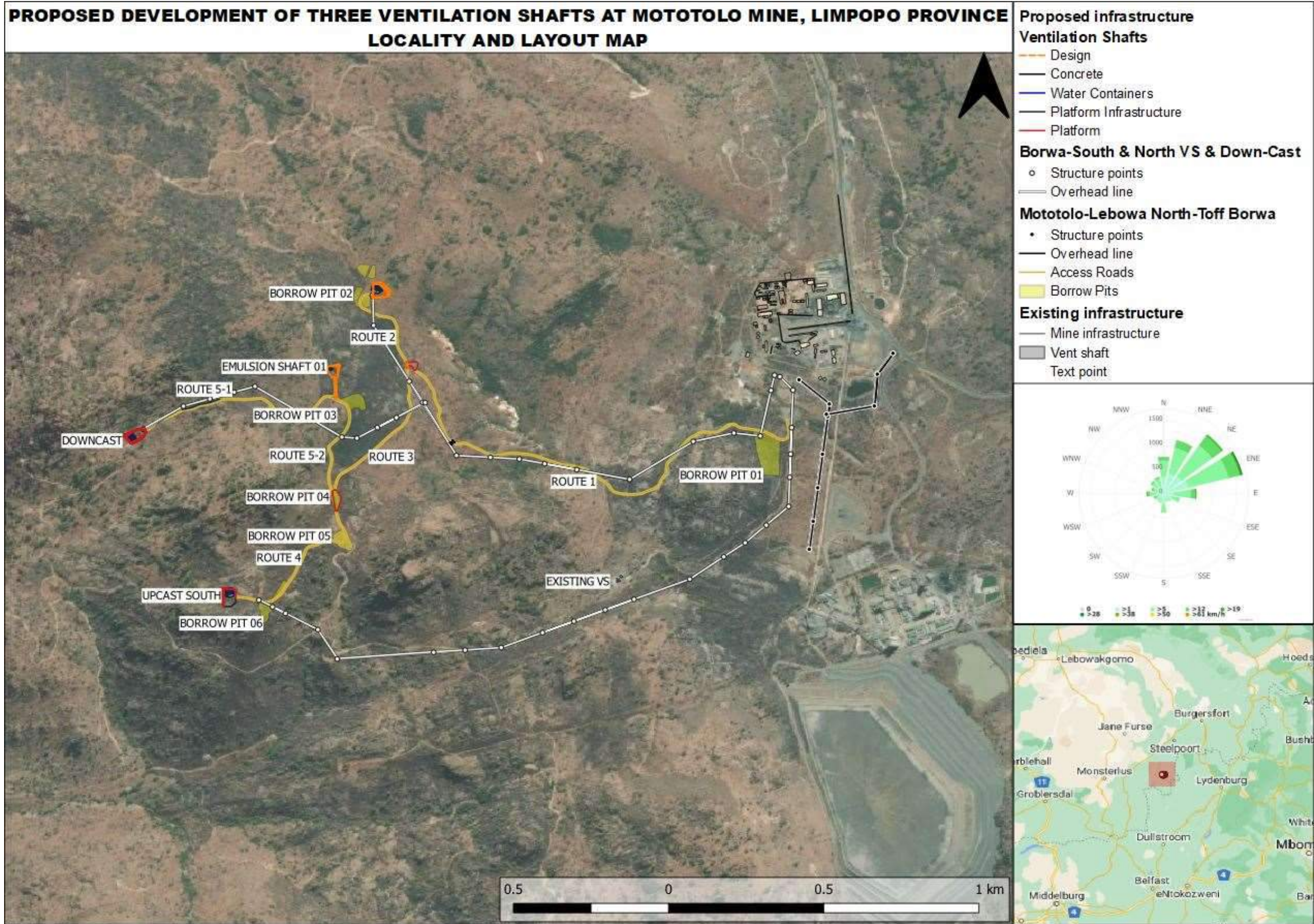


Figure 1.1: Locality and layout map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 1.2: Layout map of the proposed downcast ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

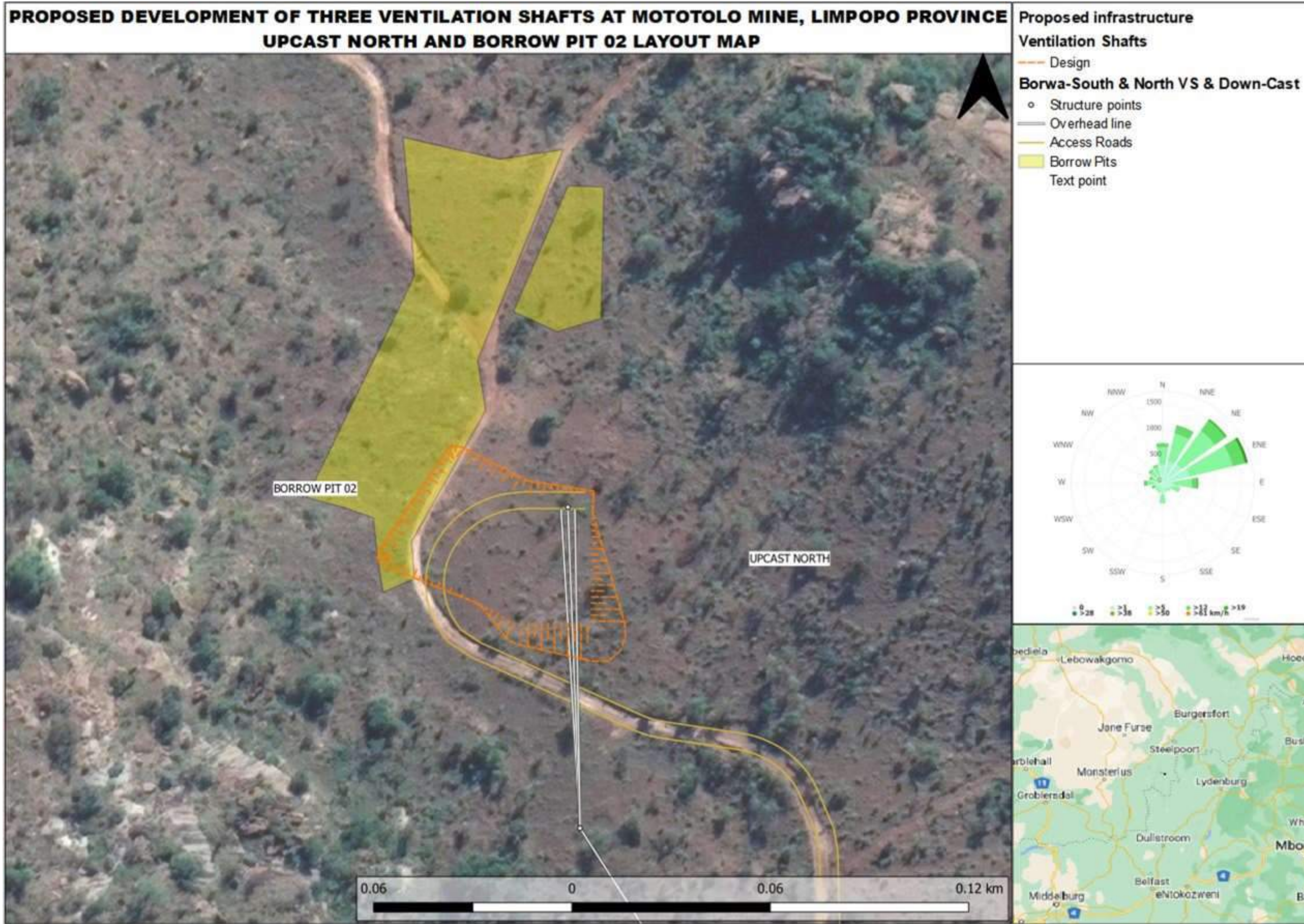


Figure 1.3: Layout map of the proposed upcast north ventilation shaft and borrow pit 02 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 1.4: Layout map of the proposed upcast south ventilation shaft and borrow pit 03 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

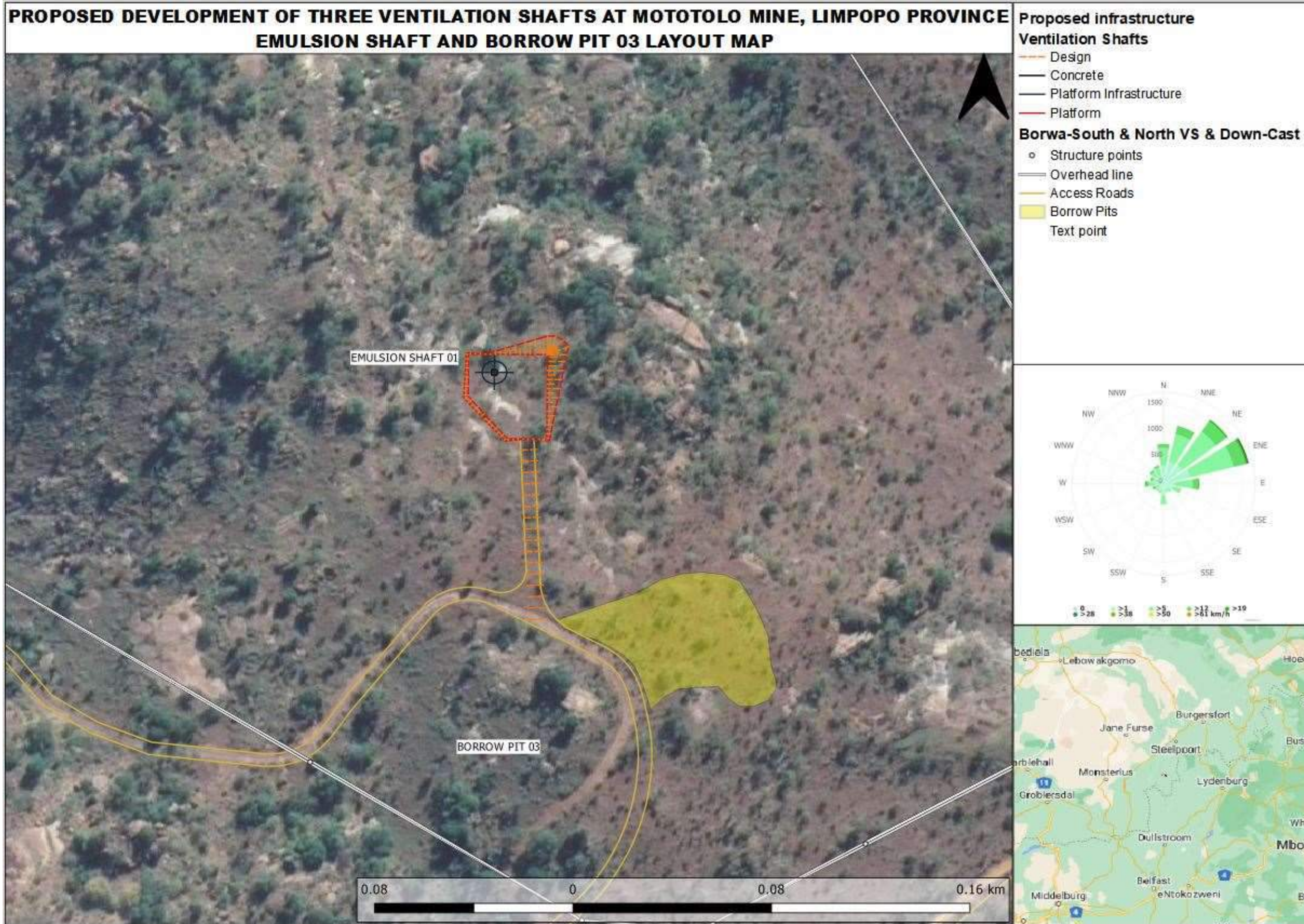


Figure 1.5: Layout map of the proposed emulsion shaft and borrow pit 03 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 1.6: Layout map of the existing ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

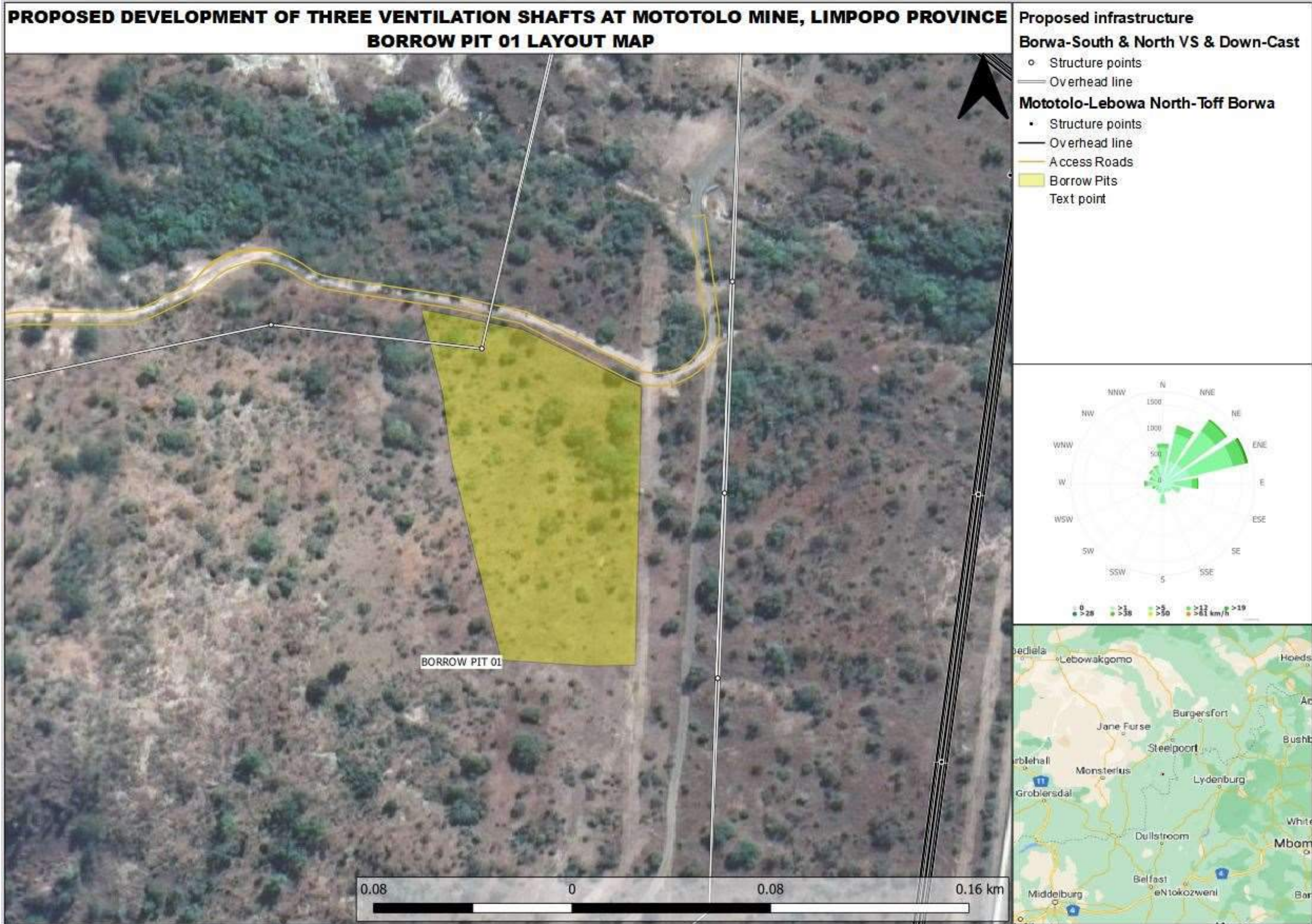


Figure 1.7: Layout map of the proposed borrow pit 01 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

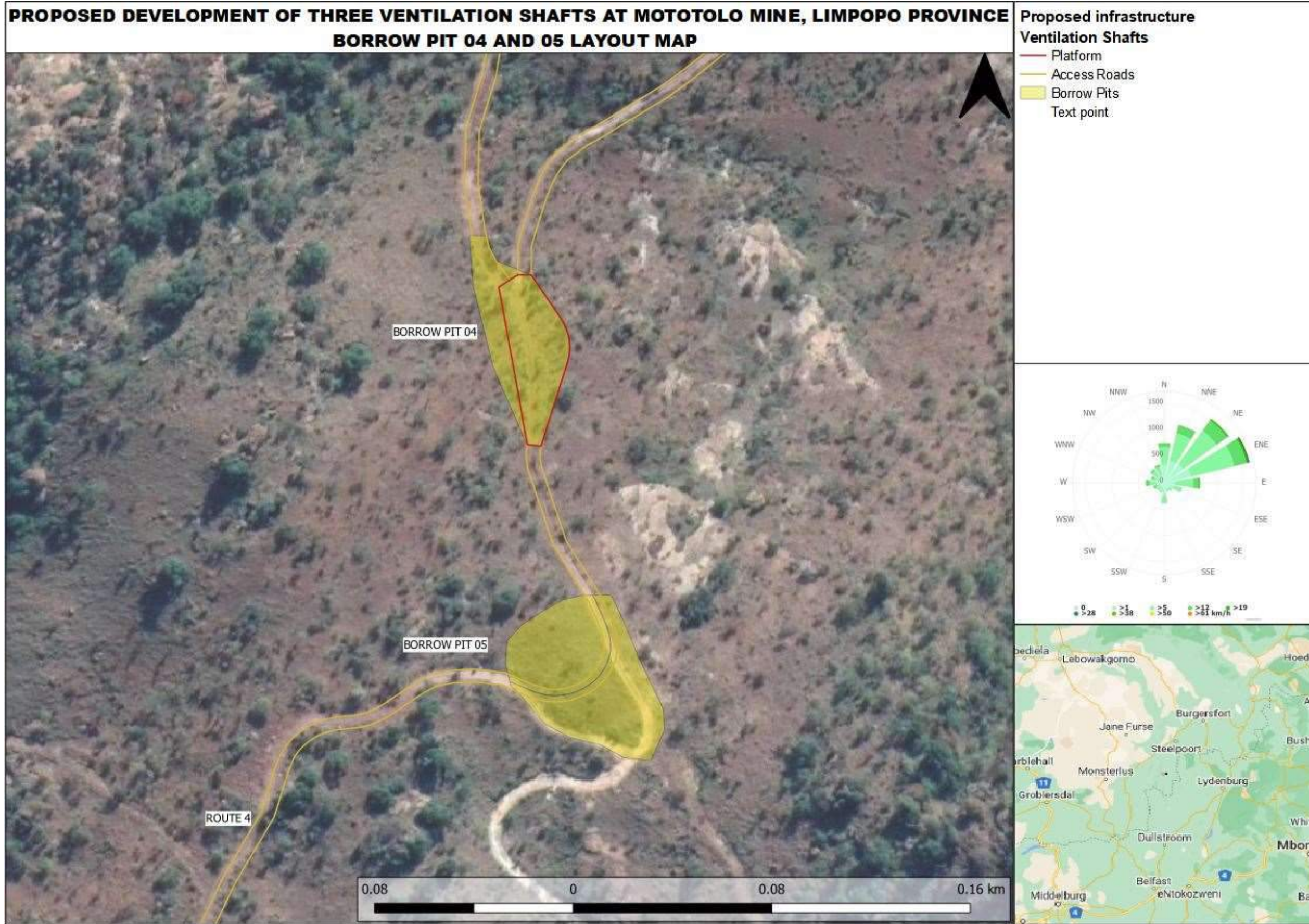


Figure 1.8: Layout map of the proposed borrow pits 04 and 05 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



1.2 PURPOSE OF THIS REPORT

In terms of the Protocol for the Specialist Assessment and Minimum Reporting Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020), prior to the commencement of a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration as identified by the screening tool, must be confirmed by undertaking a site sensitivity verification. The results of the screening tool, together with the site sensitivity verification, ultimately determines the minimum report content requirements.

According to the results of the Screening Report generated for the development, the relative terrestrial biodiversity theme sensitivity is classified as VERY HIGH due to portions of the project areas occurring within Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA) and Threatened Ecosystems, amongst other sensitive terrestrial environments. According to Section 3 (1) of GN R. 320, *'an applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being of "very high sensitivity" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment'*. Due to the very high sensitivity rating of the site, a full **Terrestrial Biodiversity Specialist Assessment** (this report) has been undertaken as part of the Detailed Screening Process for the proposed development.

The Screening Report also indicates that the site falls within medium sensitivity areas in terms of terrestrial plant and animal species sensitivity. According to the Species Environmental Assessment Guideline (SANBI, 2020):

"Where the sensitivity indicated in the screening tool is 'medium' for the proposed development footprint . . . the presence or likely presence of the SCC identified by the screening tool must be investigated through a site inspection . . . Where SCC are found on site or have been confirmed as likely to be present, an assessment must be submitted in accordance with the requirements specified for 'very high' and 'high' sensitivity in the protocol. However, if the ISSV [initial site sensitivity verification] step indicates that the proposed development footprint/PAOI [project areas of influence] consists of a 'low' sensitivity and that the screening tool incorrectly classified the area as 'very high', 'high' or 'medium', then taxon-specific specialists are not required to perform an assessment and the EAP/specialist must submit a Terrestrial Animal/Plant Species Compliance Statement . . . However, if the ISSV step indicates that the proposed development footprint/PAOI consists of a 'low' sensitivity then taxon-specific specialists are not required to perform an assessment and the EAP/specialist must submit a Terrestrial Animal/Plant Species Compliance Statement" (SANBI, 2020, p. 11).

In accordance with the Species Environmental Assessment Guidelines, a Terrestrial Animal and Plant Species Compliance Statement is required for the proposed development.

1.3 AIMS, OBJECTIVES AND TERMS OF REFERENCE

The specialist assessment sought to assess the ecological state and current land-use of the proposed site, identify potential sensitive ecosystems and plant species, and identify potential impacts of the proposed development. The objectives for the ecological assessment are as follows:

- Describe and map the vegetation types in the study area.
- Describe the biodiversity and ecological state of each vegetation unit.



- Establish and map sensitive vegetation areas showing the suitability for development and no-go areas.
- Identify plant and animal species of conservation concern (Red Data List, PNCO and TOPS lists). In the case of the fauna, this was done at a desktop level.
- Identify alien plant species, assess the invasive potential and recommend management procedures.
- Identify and assess the impacts of development on the site’s natural vegetation and faunal species in terms of habitat loss, fragmentation and degradation of key ecosystems and, where feasible, provide mitigation measures to reduce these impacts.

1.4 RELEVANT LEGISLATION

This specialist assessment was conducted in alignment with the regulatory and legislative requirements for environmental management in South Africa. The environmental legislation relevant to the proposed development is summarised in Table 1.1 below.

Table 1.1: Environmental legislation considered in the preparation of this report

LEGISLATION	DESCRIPTION	RELEVANCE
The Constitution, 1996 (Act No. 108 of 1996).	The Constitution of the Republic of South Africa is the supreme law of the land. As a result, all laws, including those pertaining to this Management Plan, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right: <ul style="list-style-type: none"> a) <i>To an environment that is not harmful to their health or well-being; and</i> b) <i>To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that: <ul style="list-style-type: none"> i. <i>Prevent pollution and ecological degradation;</i> ii. <i>Promote conservation; and</i> iii. <i>Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</i> </i> 	The proponent has an obligation to ensure that the proposed activity will not result in pollution and ecological degradation, as well as an obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.
National Environmental Management Act (NEMA), 1998 (Act No. 108 of 1998)	The objective of NEMA is: <i>“To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.”</i> This report has been guided by the NEMA Principles detailed in Section 2 of the Act. NEMA introduces the “duty of care” concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of	The undertaking of a specialist study, in this case, the terrestrial biodiversity study, in order to identify potential impacts on the terrestrial environment and to recommend mitigation measures to minimise these impacts, complies with Section 28 of NEMA. The developer must apply the NEMA principles, the fair decision-making and conflict management procedures that are provided for in NEMA.



LEGISLATION	DESCRIPTION	RELEVANCE
	responsible persons, including companies, for the conduct of the legal persons.	
NEMA EIA Regulations (2014, as amended)	The NEMA EIA Regulations (2014, as amended) aim to avoid detrimental environmental impacts through the regulation of specific activities that cannot commence without prior environmental authorisation. Authorisation either requires a Basic Assessment or a Full Scoping and Environmental Impact Assessment, depending on the type of activity. These assessments specify mitigation and management guidelines to minimise negative environmental impacts and optimise positive impacts. Should any portion of an area be proposed for development (after proclamation) these Regulations must be consulted.	An application for Environmental Authorisation (as triggered by the EIA 2014 Regulations, as amended) is required to be submitted to the Competent Authority.
Terrestrial Biodiversity Protocol (2020)	This protocol provides the criteria for the specialist assessment and minimum report content requirements for impacts on terrestrial biodiversity for activities requiring EA. This protocol replaces the requirements of Appendix 6 of the EIA Regulations 2014, GN R. 982 (as amended), published under NEMA.	The screening tool identified the site footprint as falling within an area of “Very High Sensitivity” for Terrestrial Biodiversity. This triggered the need for a full Terrestrial Biodiversity Assessment. This assessment and report complies with Terrestrial Biodiversity Protocol.
Plant and Animal Species Protocols (GN R. 1150 2020), and the associated Species Environmental Assessment Guideline (SANBI, 2020)	These protocols and the associated guideline provides the criteria for the specialist assessment and minimum report content requirements for impacts on plant and animal species diversity for activities requiring EA. These protocol replaces the requirements of Appendix 6 of the EIA Regulations 2014, GN R. 982 (as amended), published under NEMA.	The screening tool indicates that the site falls within medium sensitivity areas in terms of terrestrial plant and animal species sensitivity. This assessment and report complies the Plant and Animal Species Protocols, as well as the Species Environmental Assessment Guideline.
National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act (NEMBA), No. 10 of 2004, aims to assist with the management and conservation of South Africa’s biological diversity through the use of legislated planning tools. These planning tools include the declaration of bioregions and the associated bioregional plans as well as other mechanisms for managing and conserving biodiversity. The objectives of the Act include <i>inter alia</i> : <ul style="list-style-type: none"> • The management and conservation of biological diversity within the Republic and of the components of such biological diversity; • The use of indigenous biological resources in a suitable manner; 	Activities may not be carried out in threatened or protected ecosystems without first gaining authorisation for such activities. No protected species may be removed or damaged without a permit.



LEGISLATION	DESCRIPTION	RELEVANCE
	<ul style="list-style-type: none"> • The fair and equitable sharing of benefits arising from bio-prospecting of genetic material derived from indigenous biological resources; and • To give effect to ratified international agreements relating to biodiversity which are binding on the Republic. • To provide for co-operative governance in biodiversity management and conservation; and • To provide for a South African National Biodiversity Institute to assist in achieving the objectives of the Act. • In addition to this, Sections 50-62 of the Act provide details relating to the protection of threatened or protected ecosystems and species, while Sections 63-77 of the Act provide details relating to alien and invasive species with the purpose of preventing their introduction and spread, managing, controlling and eradicating of alien and invasive species. 	
<p>NEMBA National List of Threatened Ecosystems (GNR 1002 of 2011)</p>	<p>The National List of Ecosystems is in place for the ecosystems that are threatened and in need of protection. The NEMBA provides for listing of threatened or protected ecosystems in one of the following categories:</p> <ul style="list-style-type: none"> • Critically endangered (CR) ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation; • Endangered (EN) ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems; • Vulnerable (VU) ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; • Protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed as critically endangered, endangered or vulnerable. 	
<p>NEMBA: Alien Invasive Species Regulations (2014)</p>	<p>The Alien and Invasive Species Regulations (2014) categorises the different types of alien and invasive plant and animal species and how they should be managed:</p> <ul style="list-style-type: none"> • Category 1a Listed Invasive Species – species which must be combatted or eradicated. 	<p>An invasive species management, control and eradication plan for land/activities under their control should be developed, as part of their</p>



LEGISLATION	DESCRIPTION	RELEVANCE
	<ul style="list-style-type: none"> • Category 1b Listed Invasive Species – species which must be controlled. • Category 2 Listed Invasive Species – species which require a permit and must not be allowed to spread outside of the designated area. • Category 3 Listed Invasive Species – species which are subject to exemptions in terms of section requiring a permit, but where such a species occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3. 	environmental plans in accordance with Section 11 of NEMA.

1.5 SCOPE OF ASSESSMENT AND CONTENTS OF THE SPECIALIST REPORT

The Terrestrial Biodiversity Specialist Assessment was conducted in accordance with the Terrestrial Biodiversity Protocol (2020). This protocol provides the criteria for the specialist assessment and minimum report content requirements for impacts on Terrestrial biodiversity for activities requiring EA. This protocol replaces the requirements of Appendix 6 of the EIA Regulations 2014, GN R. 982 (as amended), published under NEMA.

The assessment and reporting requirements of this protocol are associated with a level of environmental sensitivity identified by DFFE’s national web-based environmental screening tool screening tool. The screening tool identified the site footprint as falling within an area of “Very High Sensitivity” for Terrestrial biodiversity. This triggered the need for a full Terrestrial Biodiversity Assessment. Table 1.2 below indicates how the assessment complied with the requirements of the Terrestrial Biodiversity Protocol, with reference to specific sections in this report. The screening tool also identified the site footprint as falling within an area of “Medium” sensitivity for terrestrial animal and plant species diversity. As such a botanical field survey was undertaken while the faunal assessment was done at a desktop level.

Table 1.2: Requirements of a Terrestrial Biodiversity Specialist Assessment Report

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320		SECTION OF REPORT
3.1	The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:	
3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page ii-iv and Appendix A
3.1.2	A signed statement of independence by the specialist;	Page ii-iv
3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 2
3.1.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Chapter 2
3.1.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	Section 2.5
3.1.6	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Chapter 4



SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
	3.1.7	Additional environmental impacts expected from the proposed development;	Chapter 5
	3.1.8	Any direct, indirect and cumulative impacts of the proposed development;	Chapter 5
	3.1.9	The degree to which the impacts and risks can be mitigated;	Chapter 5
	3.1.10	The degree to which the impacts and risks can be reversed;	
	3.1.11	The degree to which the impacts and risks can cause loss of irreplaceable resources;	
	3.1.12	Proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Chapter 5 and Section 0
	3.1.13	A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a “low” terrestrial biodiversity sensitivity and that were not considered appropriate;	N/A
	3.1.14	A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and	Chapter 6
	3.1.15	Any conditions to which this statement is subjected.	Chapter 6
3.2	The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.		✓
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		✓



2 ASSESSMENT METHODOLOGY

- 3.1. The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:
- 3.1.3. A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- 3.1.4. A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;
- 3.1.5. A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;

The aim of the study was to assess the ecological state and current land-use of the proposed site, identify potential sensitive ecosystems and plant species, and identify potential impacts of the proposed development.

2.1 DATA COLLECTION AND ASSESSMENT APPROACH

2.1.1 DESKTOP ASSESSMENT

A desktop assessment of the site was conducted in terms of current vegetation classifications and biodiversity programmes and plans. For the terrestrial flora, the consideration of the following has been included:

- The South African Vegetation Map (Mucina and Rutherford, 2018);
- The Limpopo Conservation Plan (2013);
- Council for Geoscience (2013) South African Geology;
- Soil and Terrain (SOTER) Database of South Africa (2008);
- Review of the SANBI Red Data List; and
- Available literature on the regional vegetation.

Data on the known distribution and conservation status for each potential plant SCC were obtained in order to develop a list of SCC. These plant species are those that are subject to significant impacts from the proposed activity. In general, these will be species that are already known to be threatened or at risk. Efforts to provide the conservation status (SA 'red list' status) of individual species may provide additional valuable information on SCC (see <http://redlist.sanbi.org>). SCC have been identified by means of a combination of applicable legislation, guidelines and conservation status lists. The following lists were utilised to cross reference conservation and protection statuses of various species:

- National Environmental Management: Biodiversity Act (No. 10 of 2004) – Chapter 4, Part 2;
- 1976 List of Protected Trees (Government Gazette No. 9542 Schedule A) in the 1998 National Forest Act (NFA) as amended in November 2014;
- SA Red Data List;
- Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES);
- IUCN Red Data List; and
- Limpopo Environmental Management Act (LEMA, No. 7 of 2003) Schedule 11 – List of Specially Protected Plants and Schedule 12 – List of Protected Plants.



The South African Red Data List of plants use the internationally recognised IUCN Red List Categories and Criteria to measure a species risk of extinction. Since the Red List of South African plants are used widely for conservation practices throughout South Africa, this list has been modified to identify species that are at low risk of extinction but of high conservation importance. Species that are afforded special protection, which are protected by the Threatened or Protected Species (TOPS) list are also regarded as SCC. Species that are afforded special protection, which are protected by CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) are also regarded as SCC (see <http://www.cites.org/>).

A detailed faunal survey was not conducted. Although a site visit was undertaken, the faunal survey was mainly a desktop study, using information from previous ecological surveys conducted in the area. This data was supplemented by recording animal species that were observed during the site survey. Faunal distribution data were primarily sourced from the following web-based databases:

- The International Union for Conservation of Nature (IUCN) Red List of Threatened Species Website;
- The Animal Demography Unit (ADU) Virtual Museum's Frog, Reptile and Mammal Maps;
- The iNaturalist Website; and
- The Global Biodiversity Information Facility (GBIF) website.

2.1.2 SITE ASSESSMENT

Upon the completion of the desktop assessment a site visit was undertaken to determine the actual condition of the terrestrial ecology within the study area. The site assessment was conducted on 9 November 2021. To some extent, the season during which the assessment was conducted influenced the conditions on site at the time. The site survey was conducted in early summer when most plants were at the end of the flowering stage. Early flowering species, specifically geophytes could therefore not be easily identified. However, the time available in the field, and information gathered during the survey was sufficient to provide enough information to determine the status of the affected area.

A sampling protocol was developed that would enable us to evaluate the existing desktop interpretations of the vegetation of the study area, to improve on them if necessary, and to add detailed information on the plant communities present. The protocol considered the amount of time available for the study, the accessibility of different parts of the area, and limitations such as the seasonality of the vegetation. A stratified random sampling approach was adopted, whereby initial assumptions were made about the diversity of vegetation, based on Google Earth, spatial planning tools and available literature and the area stratified into these basic types. In this way the time available was used much more efficiently than in random sampling, but there is a risk of bias and the eventual results may simply 'prove' the assumptions.

In general, the stratification of the site was influenced by obvious features of the vegetation, such as the presence of conspicuous species or vegetation structure. These factors may be largely independent of the floristic make-up of the vegetation, and by definition the biological communities present. Sample plots were analysed by determining the dominant species in each plot, as well as any alien invasive species and potential SCC occurring within the plots. Each sample plot was sampled until no new species were recorded. Vegetation communities were then described according to the dominant species recorded from each type, and these were mapped and assigned a sensitivity score.



2.2 VEGETATION MAPPING

The revised SA VEGMAP (2018) maps “*floristically-based vegetation units of South Africa, Lesotho and Swaziland at a greater level of detail than had been available before.*” The map was developed using a wealth of data provided by a network of ecologists, biologists and conservation planners that make periodic contributions to the project. These contributions have allowed for the best national vegetation map to date, the last being that of Acocks developed over 50 years ago. The SA VEGMAP informs finer scale bioregional plans and includes an additional 47 new vegetation units since its refinement in 2012. The SA VEGMAP is compared to actual conditions of vegetation observed onsite during the site assessment through mapping from satellite images, literature descriptions and related data gathered on the ground.

2.3 SENSITIVITY ASSESSMENT

The Species Environmental Assessment guideline (SANBI, 2020) was applied to assess the Site Ecological Importance (SEI) of the project area. The habitats and the species of conservation concern in the project area were assessed based on their conservation importance, functional integrity and receptor resilience (Table 2.1). The combination of these resulted in a rating of SEI and interpretation of mitigation requirements based on the ratings (Table 2.2). The sensitivity map was developed using available spatial planning tools as well as by applying the SEI sensitivity based on the field survey.

Table 2.1: Criteria for establishing Site Ecological importance and description of criteria

CRITERIA	DESCRIPTION
Conservation Importance (CI)	The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of IUCN Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.
Functional Integrity (FI)	A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR)	

Table 2.2: Interpretation of Site Ecological importance (SEI) categories

SEI	DESCRIPTION
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.



2.4 IMPACT ASSESSMENT

CES has developed the following impact rating methodology which has been developed in line with the Terrestrial Biodiversity Protocol, as well as the content requirements of Appendix 6 and the impact ratings required in Appendix 1 and 3 of the EIA Regulations (2014, as amended). This scale takes into consideration the following variables:

- **Nature:** negative or positive impact on the environment.
- **Type:** direct, indirect and/or cumulative effect of impact on the environment.
- **Significance:** The criteria in Table 2.3 are used to determine the overall significance of an activity. The impact effect (which includes duration; extent; consequence and probability) and the reversibility/mitigation of the impact are then read off the significance matrix in order to determine the overall significance of the issue. The overall significance is either negative or positive and will be classified as low, moderate or high (Table 2.3).
- **Consequence:** the consequence scale is used in order to objectively evaluate how severe a number of negative impacts might be on the issue under consideration, or how beneficial a number of positive impacts might be on the issue under consideration.
- **Extent:** the spatial scale defines the physical extent of the impact.
- **Duration:** the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
- **Probability:** the likelihood of impacts taking place as a result of project actions arising from the various alternatives. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development and alternatives. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.
- **Reversibility:** The degree to which an environment can be returned to its original/partially original state.
- **Irreplaceable loss:** The degree of irreplaceable loss which an impact may cause, e.g. loss of non-regenerative vegetation or removal of rocky habitat or destruction of wetland.
- **Mitigation potential:** The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in Table 2.3 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

Table 2.3: Impact rating criteria

CRITERIA	CATEGORIES	DESCRIPTION
Overall nature	Negative	Beneficial/positive impact.
	Positive	Detrimental/negative impact.
Type	Direct	Direct interaction of an activity with the environment.
	Indirect	Impacts on the environment that are not a direct result of the project or activity.
	Cumulative	Impacts which may result from a combination of impacts of this project and similar related projects.
Duration	Short term	Less than 5 years.
	Medium term	Between 5-20 years.
	Long term	More than 20 years.



CRITERIA	CATEGORIES		DESCRIPTION
	Permanent		Over 40 years or resulting in a permanent and lasting change that will always be there.
Extent	Localised		Impacts affect a small area of a few hectares in extent. Often only a portion of the project area.
	Study area		The proposed site and its immediate environments.
	Municipal		Impacts affect the municipality, or any towns within the municipality.
	Regional		Impacts affect the wider district municipality or the Eastern Cape Province as a whole.
	National		Impacts affect the entire country.
Consequence	Slight		Slight impacts or benefits on the affected system(s) or party(ies).
	Moderate		Moderate impacts or benefits on the affected system(s) or party(ies).
	Severe/Beneficial		Severe impacts or benefits on the affected system(s) or party(ies).
Probability	Definite		More than 90% sure of a particular fact. Should have substantial supportive data.
	Probable		Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
	Possible		Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.
	Unsure		Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.
Reversibility	Reversible		The activity will lead to an impact that can be reversed provided appropriate mitigation measures are implemented.
	Irreversible		The activity will lead to an impact that is permanent regardless of the implementation of mitigation measures.
Irreplaceable Loss	Resource will not be lost		The resource will not be lost/destroyed provided mitigation measures are implemented.
	Resource may be partly lost		The resource will be partially destroyed even though mitigation measures are implemented.
	Resource will be lost		The resource will be lost despite the implementation of mitigation measures.
Mitigation Potential	Easily achievable		The impact can be easily, effectively and cost effectively mitigated/reversed.
	Achievable		The impact can be effectively mitigated/reversed without much difficulty or cost.
	Difficult		The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs.
	Very Difficult		The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly.
Impact Significance	Low negative	Low positive	Largely of HIGH mitigation potential, after considering the other criteria.
	Moderate negative	Moderate positive	Largely of MODERATE or partial mitigation potential after considering the other criteria.
	High negative	High positive	Largely of LOW mitigation potential after considering the other criteria.



2.5 ASSUMPTIONS, LIMITATIONS AND GAPS IN KNOWLEDGE

This report is based on current available information and, as a result, the following limitations and assumptions are implicit:

- The report is based on a project description received from the client.
- A detailed faunal survey was not conducted. Although a site visit was undertaken, the faunal survey was mainly a desktop study, using information from previous ecological surveys conducted in the area. This data was supplemented by recording animal species that were observed during the site survey.
- A separate avifaunal survey was undertaken by a specialist and birds are therefore not included in this report.
- Species of Conservation Concern (SCC) are difficult to find and difficult to identify, thus species described in this report do not comprise an exhaustive list. It is almost certain that additional SCCs will be found during construction and operation of the development.
- Sampling could only be carried out at one stage in the annual or seasonal cycle. The survey was conducted in early summer when most plants were at the end of the flowering stage. Early flowering species, specifically geophytes could therefore not be identified. However, the time available in the field, and information gathered during the survey was sufficient to provide enough information to determine the status of the affected area.



3 DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT

In terms of Section 2 of the Terrestrial Biodiversity Protocol (2020):

2.3. *The assessment must be undertaken on the preferred site and within the proposed development footprint*

2.4. *Description of the preferred site - the following aspects, as a minimum, must be considered in the baseline description:*

2.4.1. *A description of the ecological drivers/processes of the system and how the proposed development will impact these;*

2.4.2. *Ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the proposed development site;*

2.4.3. *The ecological corridors that the development would impede including migration and movement of flora and fauna;*

2.4.4. *The description of any significant landscape features (including rare or important flora/faunal associations, presence of Strategic Water Source Areas (SWSAs) or Freshwater Ecosystem Priority Areas (FEPA) sub catchments;*

2.4.5. *A description of terrestrial biodiversity and ecosystems on the proposed development site, including*

(a) Main vegetation types;

(b) Threatened ecosystems, including Listed Ecosystems as well as locally important habitat types identified;

(c) Ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats; and

(d) Species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified.

2.3.7. *The assessment must be based on the results of a site inspection undertaken on the preferred site and must identify:*

2.3.7.1. *Terrestrial critical biodiversity areas (CBAs);*

2.3.7.2. *Terrestrial ecological support areas (ESAs);*

2.3.7.3. *Protected areas as defined by the National Environmental Management: Protected Areas Act, 2004;*

2.3.7.4. *Priority areas for protected area expansion;*

2.3.7.5. *SWSAs;*

2.3.7.6. *FEPA sub catchments, and*

2.3.7.7. *Indigenous forests.*

This chapter provides a description of the affected environment within the vicinity of the proposed infrastructure. This information is provided to assist the reader in understanding the possible effects of the project on the environment within which it is proposed to be developed. This information has been sourced from existing information available for the area. This chapter aims to provide the context within which this assessment is being conducted.

3.1 DESKTOP ASSESSMENT

3.1.1 CLIMATE

The proposed development is adjacent to Mototolo Mine's Borwa Shaft, Limpopo Province. The region is characterised by a strongly seasonal summer rainfall, with very dry winters (Mucina & Rutherford, 2018). The Mean Annual Precipitation (MAP) and Mean Annual Potential Evaporation (MAPE) of the area is 609 mm and 2 043 mm, respectively (Mucina & Rutherford, 2018). The Annual Precipitation Coefficient of Variation (APCV) of the area is recorded at 28 % (Mucina & Rutherford, 2018), with the highest average rainfall occurring in December (122 mm) and lowest in July (3 mm) (Meteoblue, 2022). The Mean Annual Temperature (MAT) of the area is 17.5 °C (Mucina & Rutherford, 2018), with the highest mean daily temperatures occurring in December and January (29 °C), and lowest occurring in



July (7 °C) (Meteoblue, 2022). An average of 5 days of frost is recorded in the area per year (Mucina & Rutherford, 2018). A summary of the climate at Mototolo Mine is provided in Figure 3.1 below.

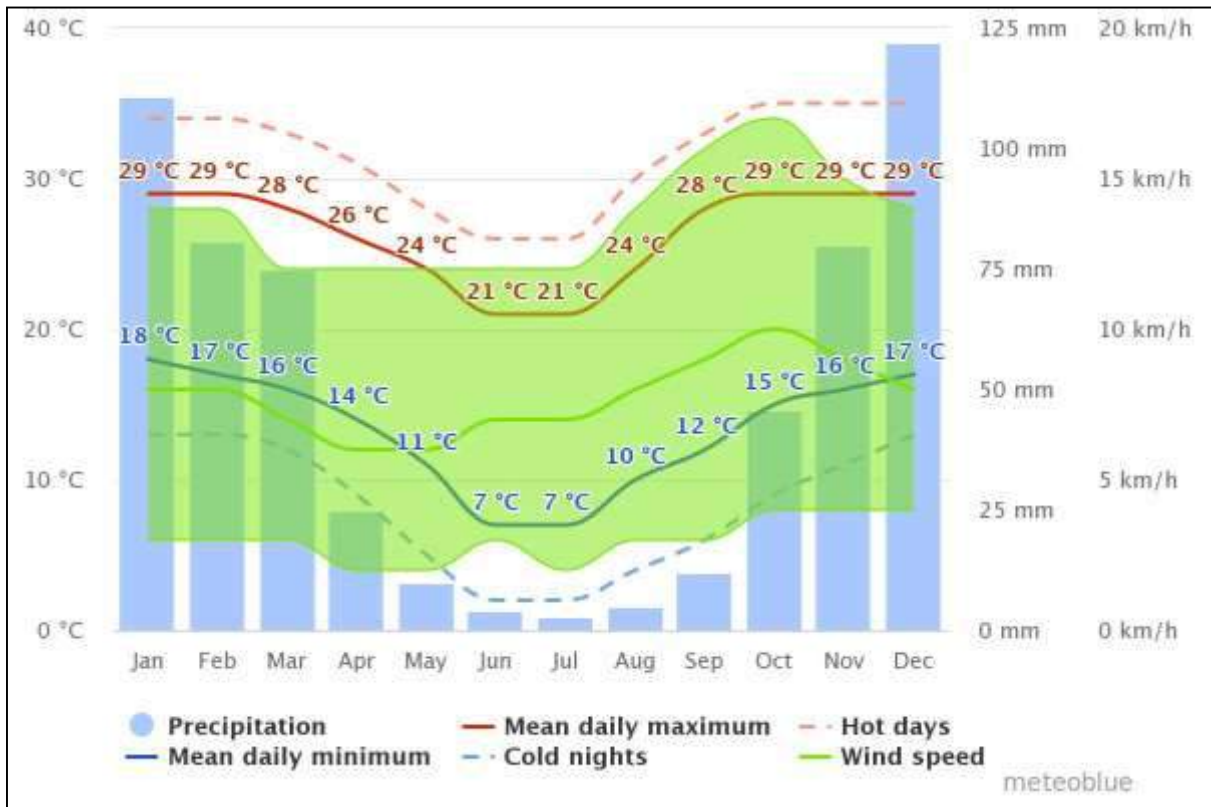


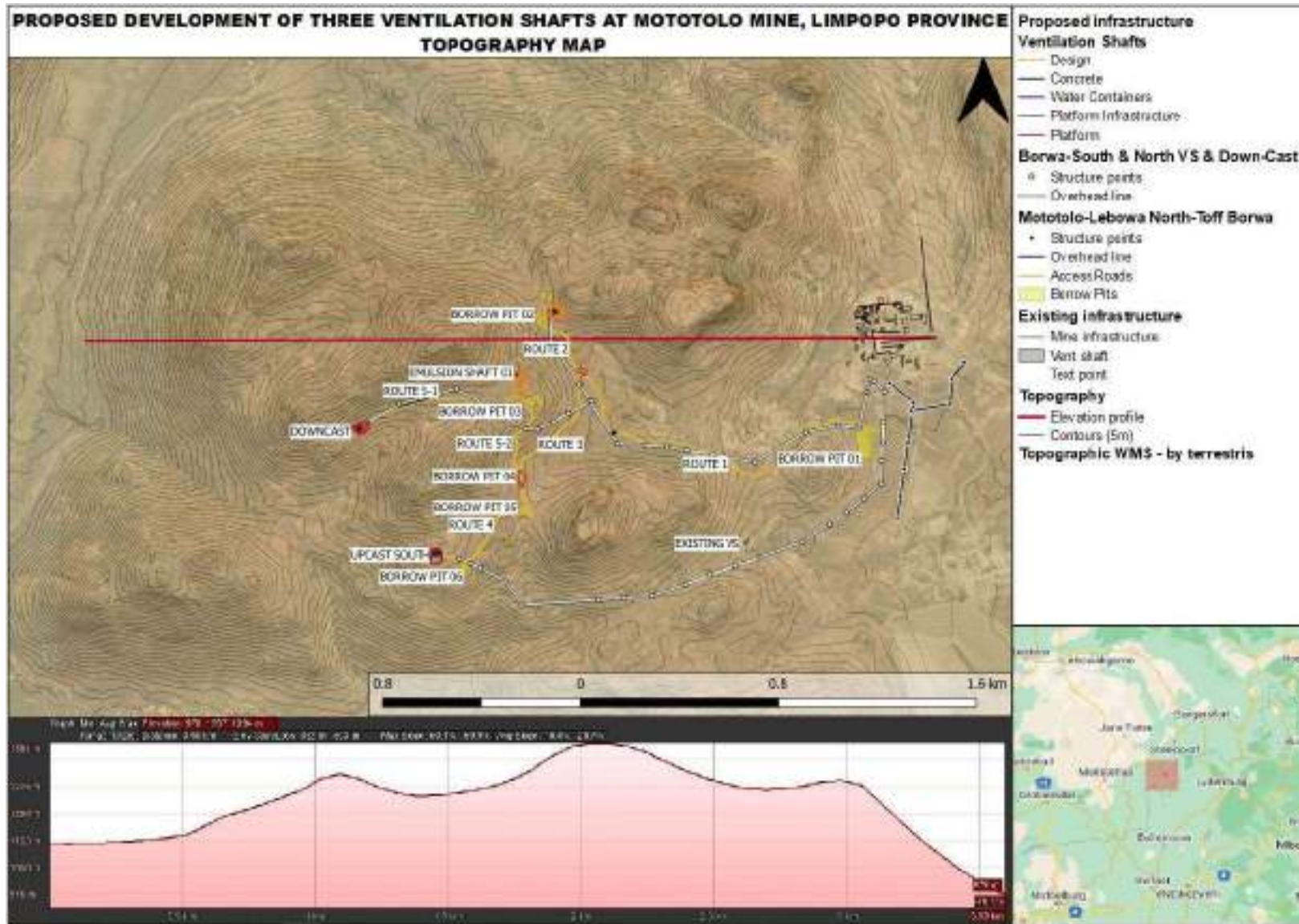
Figure 3.1: Climatic data for Mototolo Mine, Limpopo (Meteoblue, 2022).

3.1.2 TOPOGRAPHY

The topography of the area is characterised by rugged terrain, with steep slopes and incised valleys (Mucina & Rutherford, 2018). The topographic gradient is steep, averaging 18-29 %, and reaching maximum slopes of 60 % in areas. Elevations ranging from 978-1 394 m above mean sea level (mamsl). The topographical profile and map of the site is provided in Figure 3.2.

3.1.3 GEOLOGY AND SOILS

The geology of the area consists of the “ultramafic intrusives of the lower, critical and main zones of the eastern Rustenburg Layered Suite of the Bushveld Igneous Complex (Vaalian)” (Mucina & Rutherford, 2018, p. 481). More specifically the proposed development falls across the Dsjante and Dwarsrivier subsuites (Figure 3.3), comprised of Gabbro, Norite, Pyroxenite and Anorthosite lithologies. The soils are generally shallow, rocky and clayey, varying between soils of a colluvial nature i.e., Glenrosa, Family Dumisa to Mispah form, Family Myhill, with lime occurring in low-lying areas (Mucina & Rutherford, 2018, p. 481). Rocky areas often lack soil, especially in steep slopes (Mucina & Rutherford, 2018, p. 481). According to the SOTER soil association map, the area is dominated by G1 type soils (Figure 3.3), namely “rock with limited soils (association of Leptosols, Regosols, Durisols, Calcisols and Plinthosols)”.



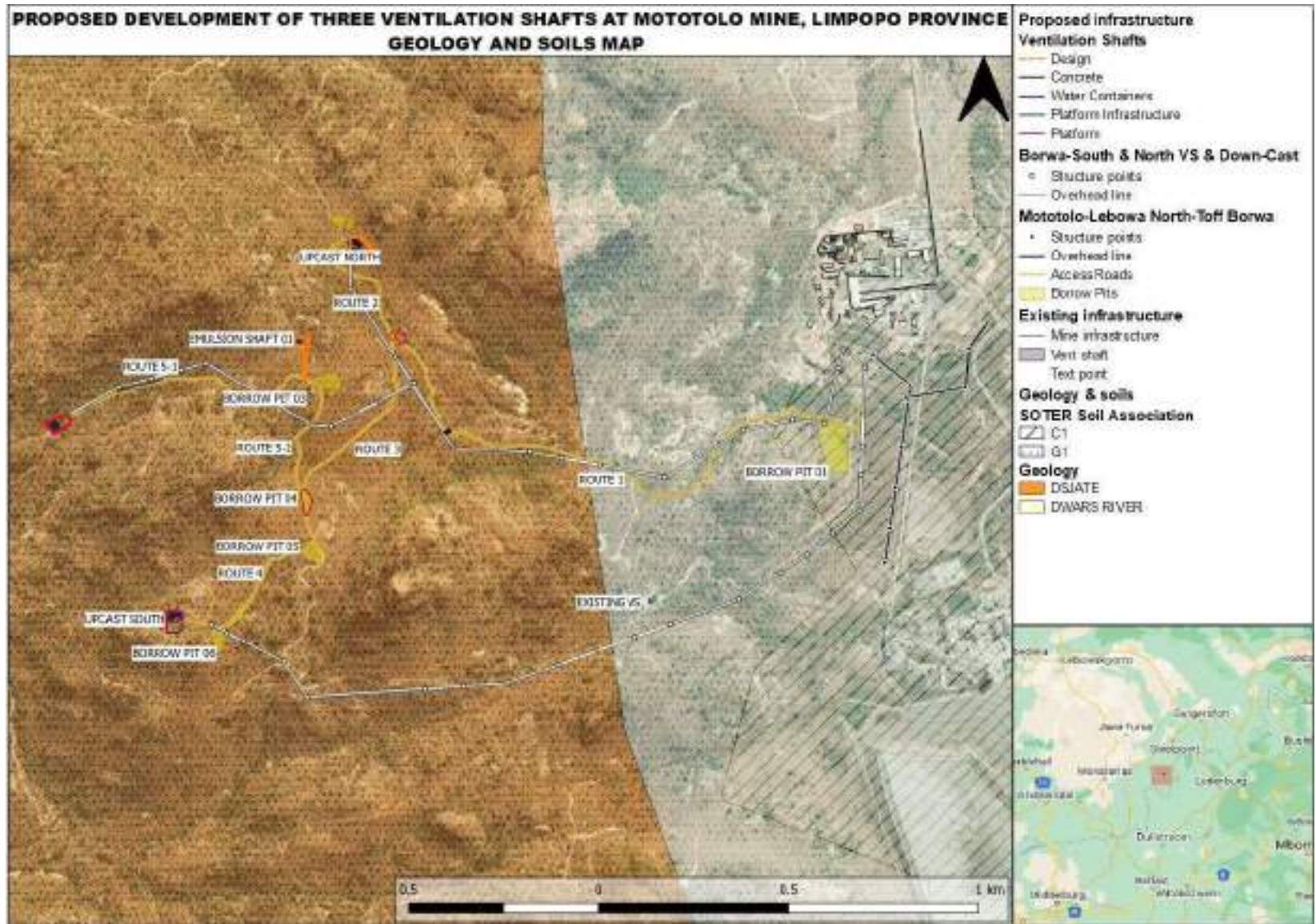


Figure 3.3: Geology and soil map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.1.4 LAND USE AND COVER

The land cover of the area consists of primarily mountain woodland, with patches of natural grassland, sparsely wooded grasslands, rock surfaces and eroded areas. Mining and associated land uses occupy the adjacent area to the east (Figure 3.4). Scattered fallow lands and old fields occur within the broader surrounding area to the north and south-east, with commercial annual crop cultivation occurring to the west.

3.1.5 DRAINAGE AND RIVER ECOSYSTEM CONTEXT

The proposed development falls entirely within Quaternary Catchment B41G, which drains the Groot- and Klein-Dwars Rivers, tributaries of the Steelpoort River within the Olifants Water Management Area (WMA) (Figure 3.5). The Groot- and Klein-Dwars Rivers main channels flow in a northerly direction, approximately 1.3-1.5 km to the east and west of the site, respectively (Figure 3.5). Several smaller drainage lines fall within the project area, crossing the proposed access roads and powerlines.

The Groot- and Klein-Dwars Rivers have been assigned an 'Endangered' to 'Critically Endangered' ecosystem threat status in terms of the National Biodiversity Assessment (NBA, 2018). Critically Endangered ecosystems are ecosystem types that have very little of their original extent (measured as area, length or volume) left in natural or near-natural condition. Most of the ecosystem type has been heavily, severely or critically modified from its natural state. Any further loss of natural habitat or deterioration in condition of the remaining healthy examples of these ecosystem types must be avoided, and the remaining healthy examples should be the focus of urgent conservation action (Nel & Driver, 2012). According to the NBA (2018), the Present Ecological State (PES) of the Groot- and Klein-Dwars Rivers range from "B: Largely Natural" to "D: Largely Modified", with a few areas classified as "F: Critically Modified", i.e. a slight to critical change in ecosystem processes and loss of natural habitat and biota and has occurred. The Groot- and Klein-Dwars Rivers are categorised as River FEPA's in terms of the National Freshwater Ecosystem Priority Areas (NFEPA) project (2014).

3.1.6 WETLAND ECOSYSTEM CONTEXT

Wetlands in South Africa have been mapped on a broad-scale by various stakeholders and have been included in the NFEPA (2011-2014) and NBA (2018). Due to the broad-scale nature of the NFEPA map it is not spatially accurate and, therefore, some error is expected. All wetlands are classified as either 'natural' or 'artificial' water bodies. The NFEPA and NBA wetland maps identify important or sensitive wetlands and wetland clusters. A wetland cluster is a group of wetlands all within 1 km of each other and which are surrounded by relatively natural vegetation. Wetland clusters allow for important ecological processes such as the migration of insects and frogs between the wetlands.

According to the National Wetland Map Version 5 (2018), no natural wetlands occur within 500 m of the proposed development area (Figure 3.5). Only one artificial wetland, an open reservoir, within 500 m of the proposed development area (Figure 3.5). Numerous natural and artificial wetlands occur within the quaternary catchment. No NFEPA wetland clusters fall within the quaternary catchment.

Please refer to the River and Wetland Ecosystem Assessment Report (CES, 2022) for further detail.

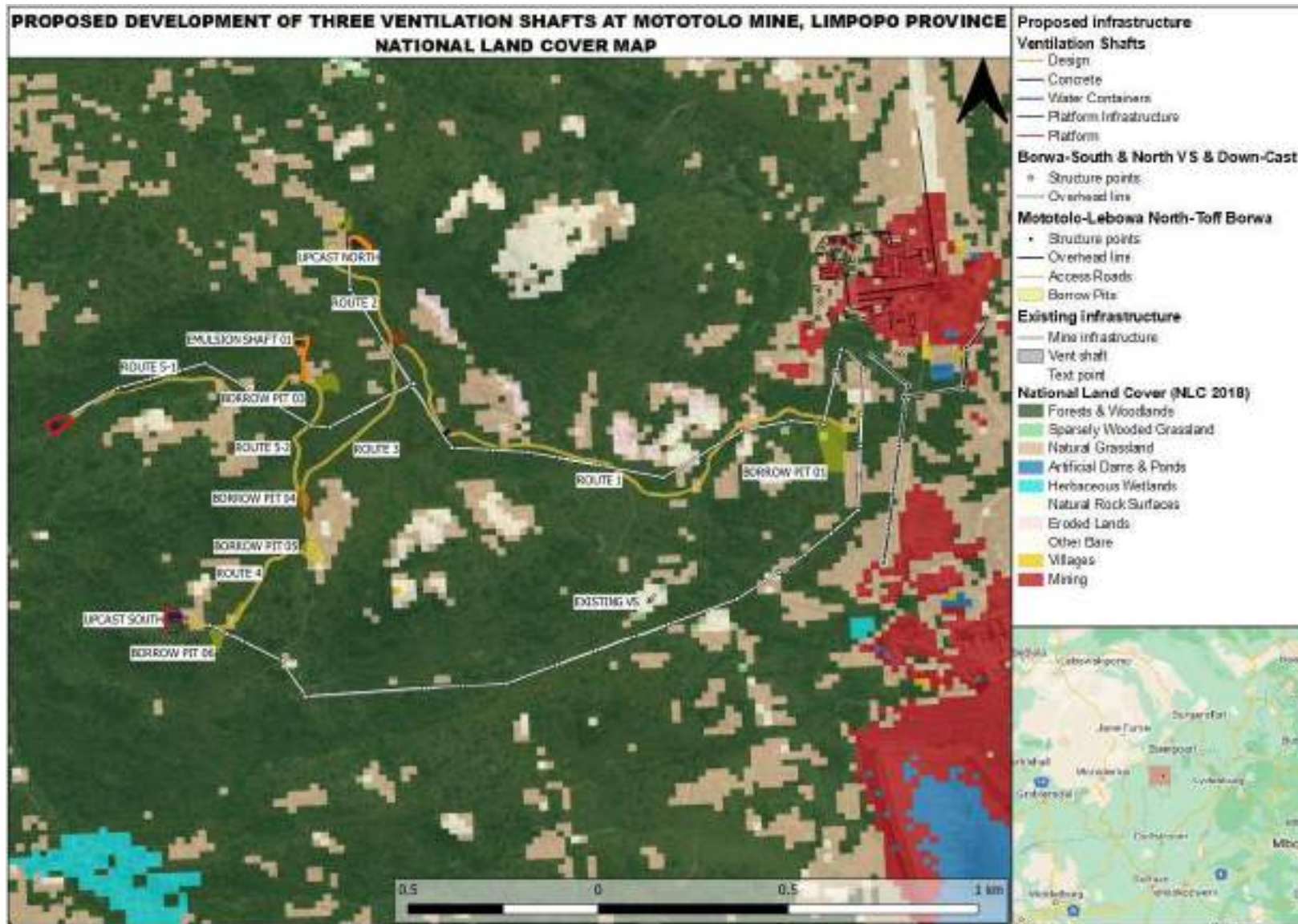


Figure 3.4: Land use and cover map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

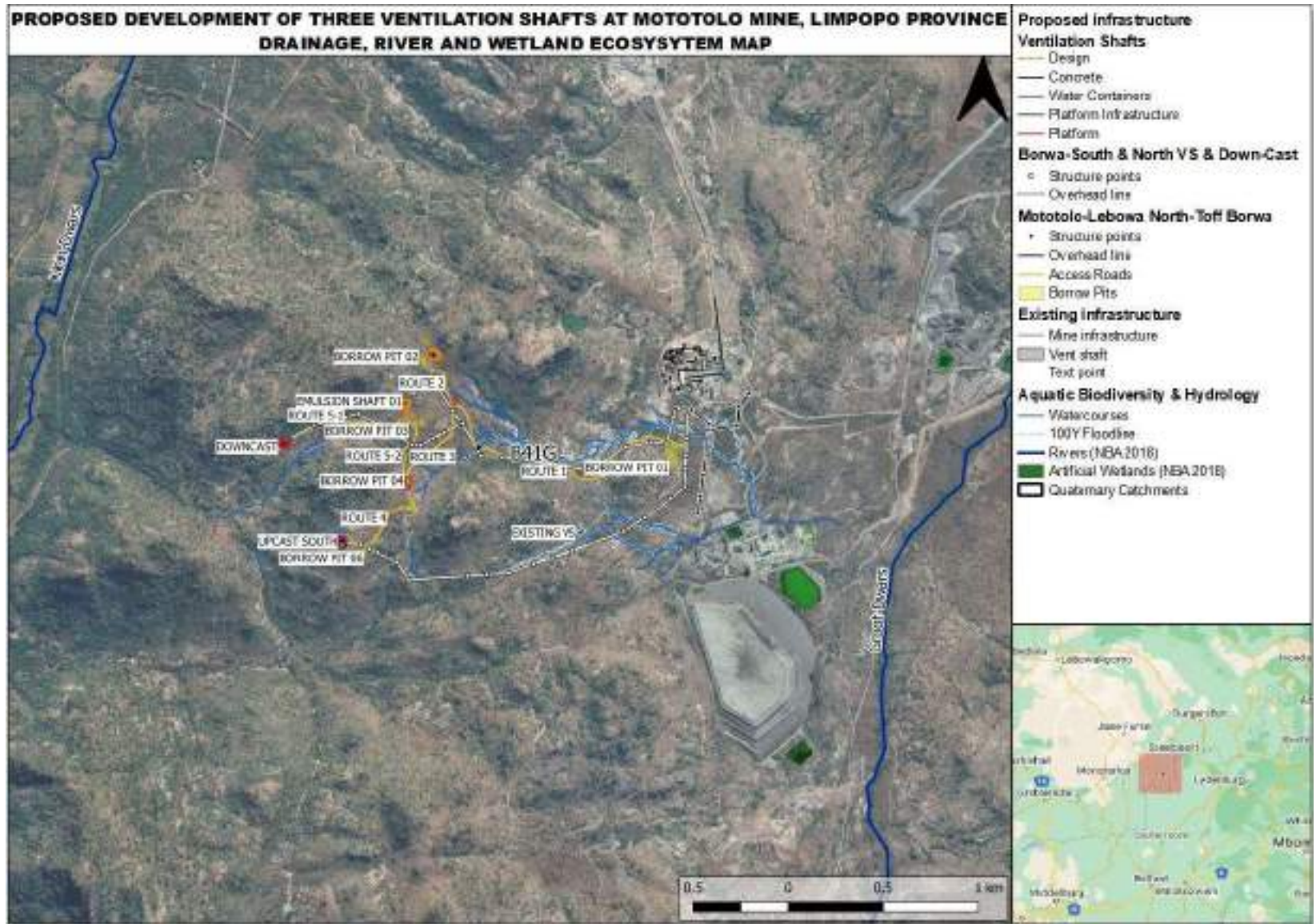


Figure 3.5: Drainage, River and Wetland Ecosystem map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province (NBA, 2018).



3.1.7 SCREENING TOOL: SENSITIVE TERRESTRIAL BIODIVERSITY AND SPECIES

According to the results of the DFFE Screening Report generated for the development, the relative terrestrial biodiversity theme sensitivity is classified as VERY HIGH due to portions of the project areas occurring within Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA) and Threatened Ecosystems, amongst other sensitive terrestrial environments (Figure 3.6, Table 3.1). This triggers the need for a Terrestrial Biodiversity Specialist Assessment, as detailed in this report.

Table 3.1: Summary of sensitive environments within the project area.¹

THEME	FEATURE(S)	SENSITIVITY
Terrestrial Biodiversity	Critical Biodiversity Area 1	Very High
	Critical Biodiversity Area 2	
	Ecological Support Area	
	FEPA Subcatchments	
	Endangered Ecosystem	
	Protected Areas Expansion Strategy	
Plant Species	Sensitive species A	Medium
	<i>Polygala sekhukhuniensis</i>	
	Sensitive species B	
	<i>Searsia sekhukhuniensis</i>	
	<i>Combretum petrophilum</i>	
Animal Species	Mammalia – <i>Crocidura maquassiensis</i>	Medium
	Mammalia – <i>Dasymys robertsii</i>	
	Mammalia – <i>Lycaon pictus</i>	
	Sensitive species C	

Additionally, the screening reports illustrate that in terms of plant species sensitivity, the sites fall within medium sensitivity areas (Figure 3.7), with five medium-sensitivity plant species noted within the project area (Table 3.1). This triggers the need for a Plant Species Compliance Statement, as included in this report. The screening reports also illustrate that the proposed project areas include areas of moderate sensitivity in terms of animal species sensitivity (Figure 3.8), with four medium sensitivity mammals (Table 3.1). This triggers the need for an Animal Species Compliance Statement (included in this report).

¹ The names of some species have been withheld as these species may be prone to illegal harvesting and must be protected.



Figure 3.6: Terrestrial biodiversity sensitivity for the proposed project area (DFFE, 2022).

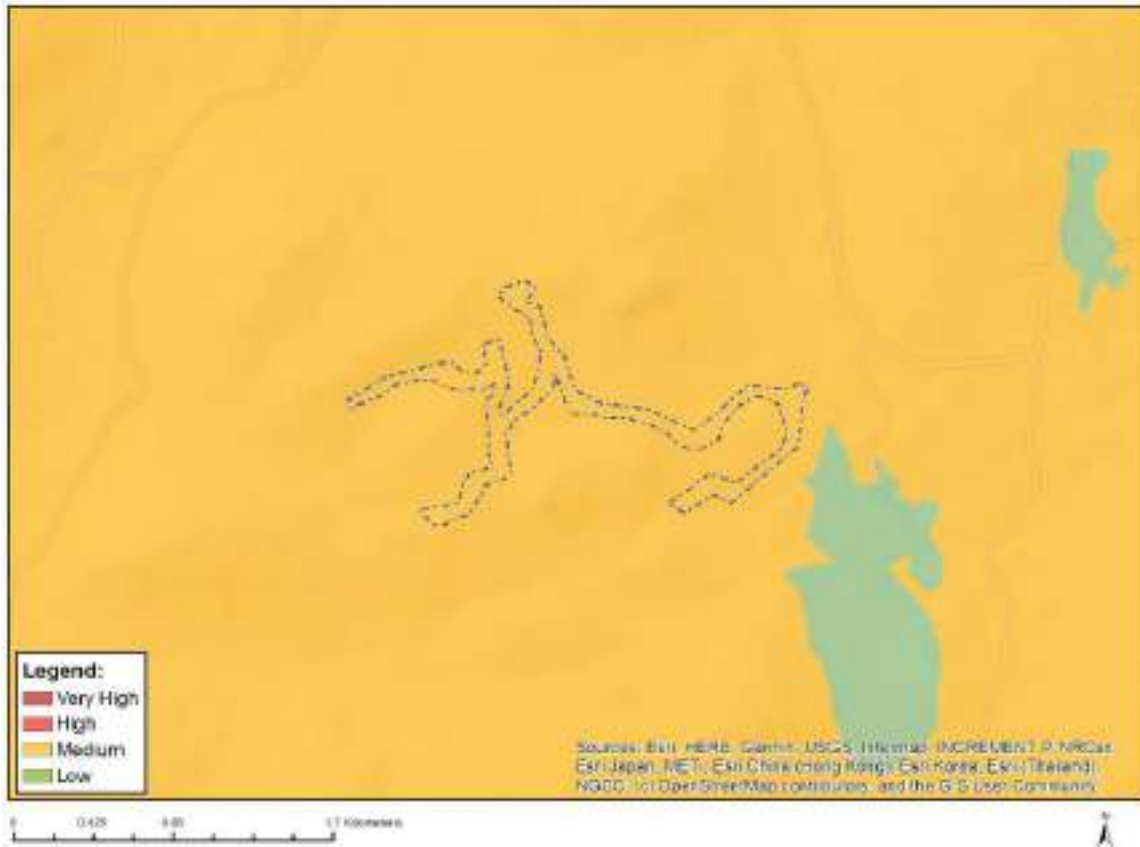


Figure 3.7: Plant species sensitivity for the proposed project area (DFFE, 2022).

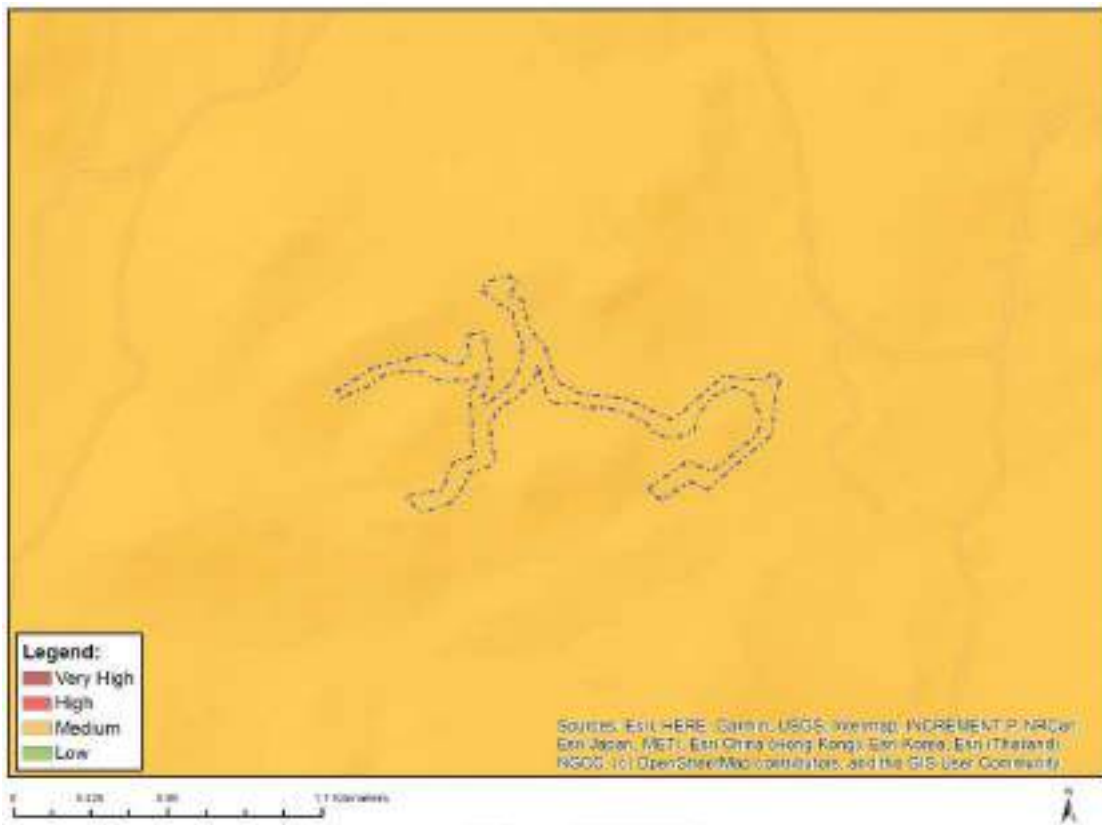


Figure 3.8: Animal species sensitivity for the proposed project area (DFFE, 2022).

3.1.8 DESCRIPTION OF VEGETATION AND FLORA

3.1.8.1 NATIONAL VEGETATION MAP

According to the SANBI Vegetation Map of South Africa (Mucina & Rutherford, 2018), the project area falls entirely within the **Sekhukune Mountain Bushveld (SMB)** vegetation type (Figure 3.9). Its range includes the Limpopo and Mpumalanga Provinces, distributed along the mountains, undulating hills and steep slopes of the Leolo Mountains, Dwars River Mountains, Thaba Sekhukune and isolated smaller mountains, as well as the small hills of the Steelpoort River valley (Mucina & Rutherford, 2018).

The vegetation structure of the Sekhukune Mountain Bushveld varies from a dry, woody layer comprised of several microphyllous species and broad-leaf savanna species (e.g. *Senegalia nigrescens*, *Senegalia senegal* var. *leiorhachis*, *Combretum apiculatum*, *Kirkia wilmsii*, *Terminalia pruniodes*, *Vitex obovata* subsp. *wilmsii* and *Ziziphus mucronata*), to a closed to open grass layer, comprised of several species (e.g. *Aristida canescens*, *Heteropogon contortus*, *Panicum maximum*, *Setaria lindenbergiana* and *Themeda triandra*). Other species include woody shrubs, such as *Dichrostachys cinerea*, *Euclea crispa* subsp. *crispa*, *Elephantorrhiza praetermissa* and *Grewia vernicosa*; succulent shrubs, such as *Aloe castanea* and *Aloe cryptopoda*; and herbaceous species, such as *Berkheya insignis* and *Commelina africana*. In terms of the conservation status, Mucina and Rutherford (2018) classify the SMB as a **LEAST THREATENED** vegetation type. The NSBA Conservation Target for this vegetation type is 24 %. More than 15 % of SMB vegetation has been transformed for cultivation and urban/built up areas, with an increase in mining activities. The vegetation type is frequently invaded by syringa (*Melia azedarach*).

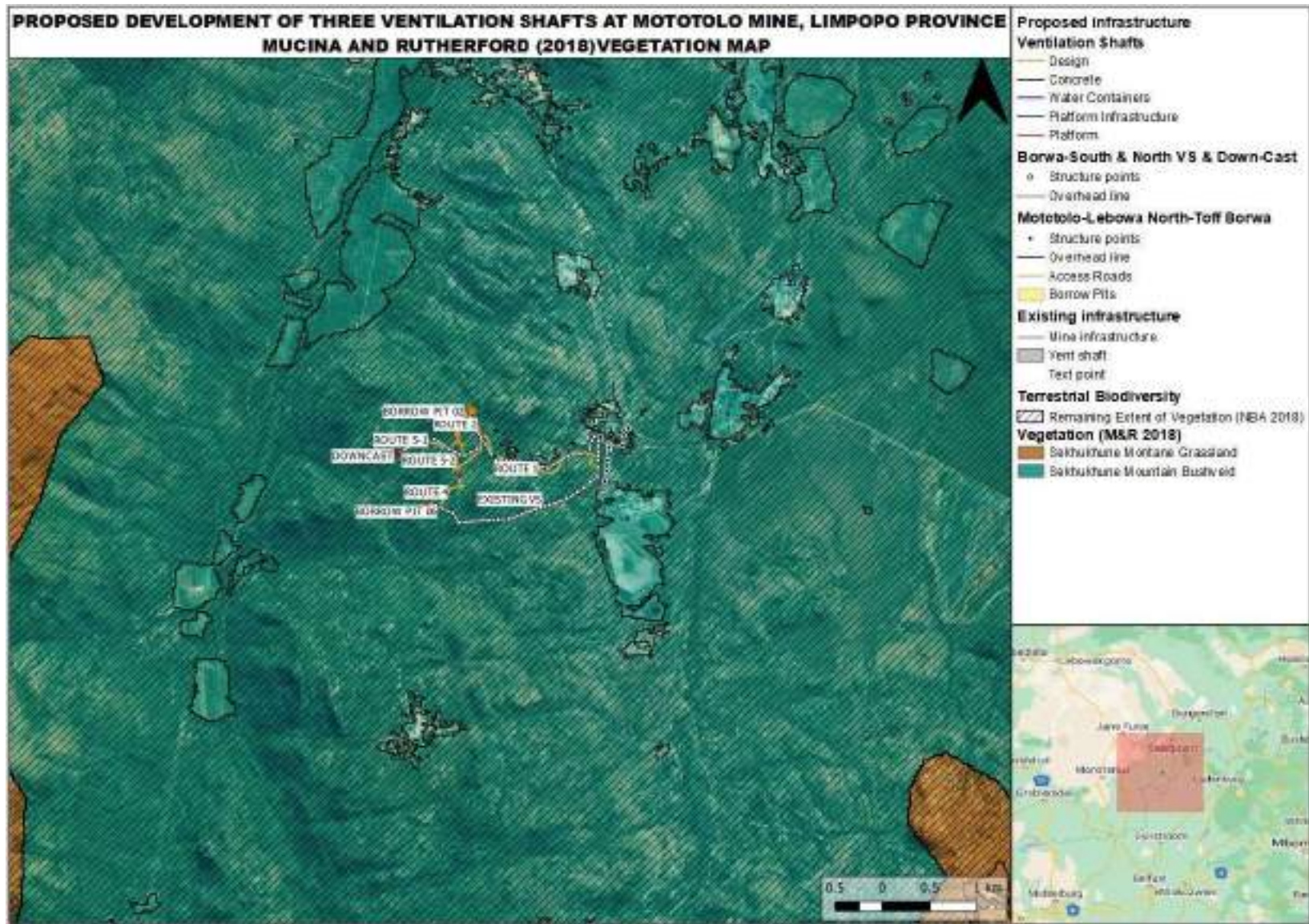


Figure 3.9: Mucina & Rutherford Vegetation map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.1.8.2 SPECIES OF CONSERVATION CONCERN

Plant species of conservation concern (SCC) comprise those species that are either threatened (Critically Endangered, Endangered, Vulnerable), rare or declining. The South African National Biodiversity Institute (SANBI) Plants of Southern Africa (POSA) plant database (<http://posa.sanbi.org>) was consulted (Figure 3.10), along with the categories indicated in the SANBI Threatened Species Programme website (<http://redlist.sanbi.org/index.php>) to identify potential SCCs within the proposed study area. In addition to SANBI, the international IUCN Red Data list, the Threatened or Protected Species (TOPS) list and Convention on International Trade in Endangered Species (CITES), was consulted to compile a list of plant SCCs that may potentially be found within the study area. According to POSA, eight plant SCCs could potentially occur within the project area and surroundings, including four vulnerable and four rare species in terms of the Red List (Table 3.2). A full list of the potential species found within the study area is included in Table 9.1.

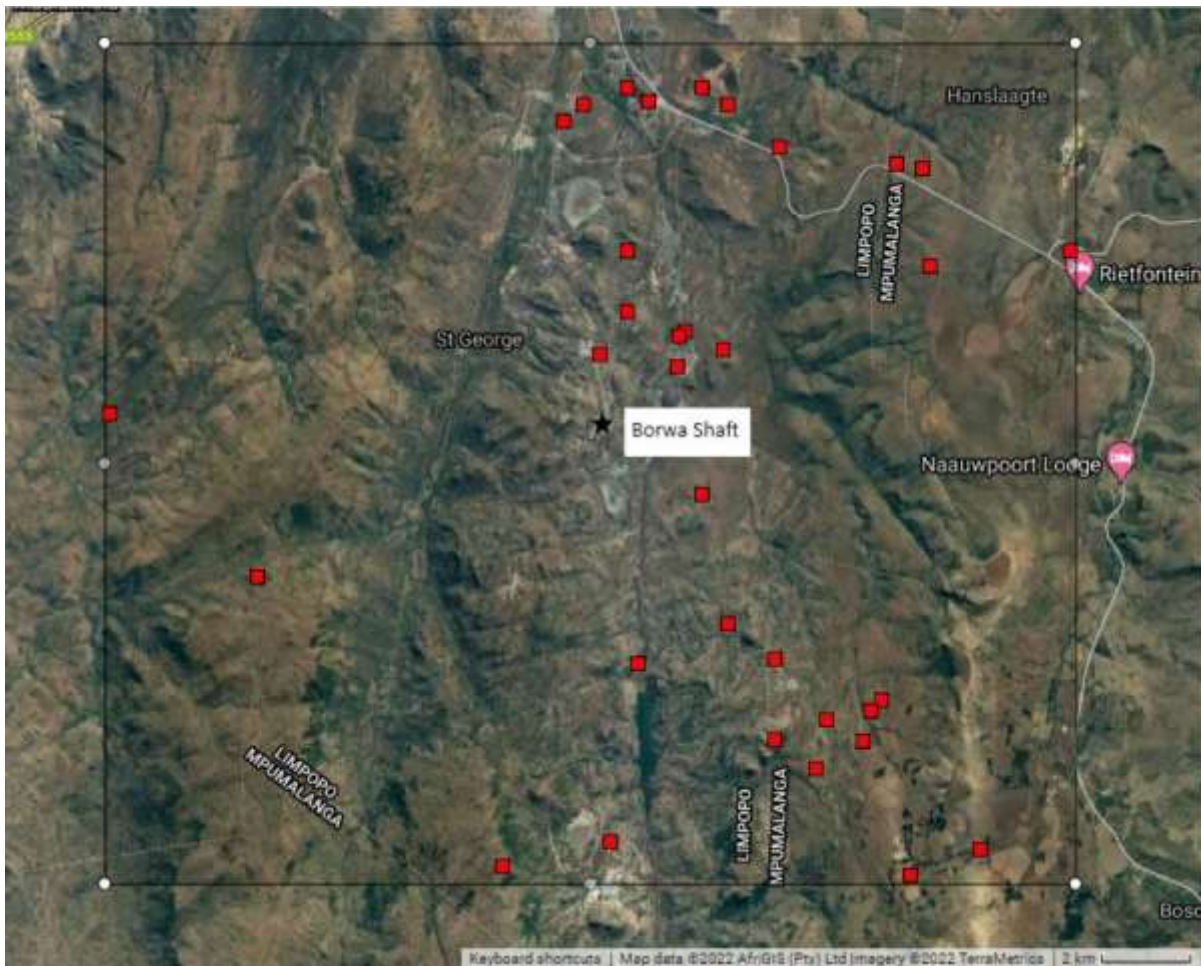


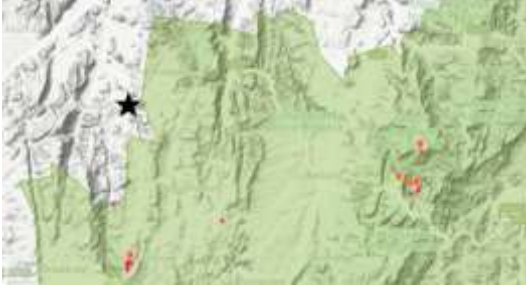





Figure 3.10: POSA search area highlighting botanical records (red).





Table 3.2: Plant SCCs observations (orange squares – iNaturalist 2021, pink squares – GBIF 2021) in relation to the project area (black star)

SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Combretum petrophilum</i>	Rare	Rocky outcrops in mountain bushveld (Lötter, et al., 2006).	 <p><i>Combretum petrophilum</i> has an extent of occurrence (EOO) of 1.48 km² (SANBI, 2020) and is known from less than 10 subpopulations (Lötter, et al., 2006). Parts of the study area (namely rocky outcrops) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high within natural SMB and rocky outcrop habitats.</p>
<i>Eucomis vandermerwei</i>	VU	Short, sour montane grassland on sandy, low-pH soils derived from quartzitic rocky outcrops. In rock crevices or under overhanging rocks, confined to outcrops on slopes and plateaus of higher peaks, predominantly on north-facing slopes, 2 200-2 500 m (Lötter, et al., 2018).	 <p><i>Eucomis vandermerwei</i> has an EOO of 14.17 km² (SANBI, 2020) and is known from eight locations (Lötter, et al., 2018). This species is largely confined to higher elevations (> 2 000 mamsl). Given that the elevation of the site ranges from 978-1 394 mamsl, the likelihood of this species occurring on site is considered low.</p>
<i>Khadia alticola</i>	Rare	A high altitude habitat specialist. Montane grassland in shallow, sandy, humus-rich soil pockets and crevices between rock plates above 2000 m (Victor, 2005).	 <p><i>Khadia alticola</i> has an EOO of 9.40 km² (SANBI, 2020). This species is largely confined to higher elevations (> 2 000 mamsl). Given that the elevation of the site ranges from 978-1 394 mamsl, the likelihood of this species occurring on site is considered low.</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Ledebouria dolomiticola</i>	VU	Steep dolomite slopes and cliffs in the Pong Dolomite Mountain Bushveld (Victor & Hankey, 2005)	 <p><i>Ledebouria dolomiticola</i> is known from a single site in the Strydpoort mountains where there are fewer than 1 000 mature individuals (Victor & Hankey, 2005). Given that the species primarily occurs on dolomitic substrates, the likelihood of it occurring on site is considered low.</p>
<i>Polygala sekhukhuniensis</i>	VU	Sparsely vegetated heavy metal rich soils on lower slopes and valley bottoms of the Sekhukhune Mountain Bushveld and Sekhukhune Plains Bushveld (Von Staden, 2012).	 <p><i>Polygala sekhukhuniensis</i> has an EOO of 1 313 km² (Von Staden, 2012). Parts of the study area (namely the lower slopes and valley bottoms) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high within natural SMB and rocky outcrop habitats.</p>
<i>Searsia sekhukhuniensis</i>	Rare	Rocky hillsides in bushveld, on pyroxenitic substrates of the eastern rim of Bushveld Igneous Complex (Victor & Van Wyk, 2014).	 <p><i>Searsia sekhukhuniensis</i> is a habitat specialist, restricted to the Sekhukhuneland centre of endemism. Parts of the study area (namely rocky hillsides, with pyroxenitic substrates) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high within natural SMB and rocky outcrop habitats.</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
Sensitive species A	VU	Rocky hillsides of the Sekhukhune Mountain Bushveld, Steenkampsberg Montane Grassland and Sekhukhune Montane Grassland (Victor & Siebert, 2006).	 <p>Sensitive species A has an EOO of 0.98 km² (SANBI, 2020). Subpopulations are small and severely fragmented and there is a continuing decline as a result of mining and harvesting for horticultural purposes. Parts of the study area (namely rocky hillsides) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high within natural SMB and rocky outcrop habitats.</p>
Sensitive species B	Rare	Closed woodland and thicket, in shallow norite soils on rocky outcrops among large boulders, 900-1300 m of the Sekhukhuneland, Steelpoort River Valley and along the summit of the Leolo Mountains as far as the Olifants River Valley (Winter, et al., 2008).	 <p>Sensitive species B has an EOO of 2 300 km² (SANBI, 2020). Subpopulations are small and severely fragmented and there is a continuing decline as a result of mining and harvesting for horticultural purposes. Parts of the study area (closed woodlands with shallow norite soils on rocky outcrops) provide a suitable habitat for the species, therefore likelihood of this species on site is considered high within natural SMB and rocky outcrop habitats.</p>

3.1.8.3 ALIEN INVASIVE SPECIES

The SANBI POSA plant database (<http://posa.sanbi.org>) was consulted (Figure 3.10), along with the categories indicated in NEMBA’s Alien Invasive Species (AIS) Regulations (2014) to identify potential non-indigenous and invasive species within the proposed study area. According to POSA, none of the species recorded within the project area or surroundings. However, according to Mucina and Rutherford (2018), the Sekhukune Mountain Bushveld is frequently invaded by syringa (*Melia azedarach*), a Category 1b invader in terms of NEMBA’s AIS Regulations (2014). Species listed as 1b under the regulations require compulsory control as part of an invasive species control programme. This means that no permits are issued for the use of this species and they must be removed and destroyed by the landowner in conjunction with a government sponsored invasive species management programme.



3.1.9 DESCRIPTION OF FAUNA

South Africa is a faunally diverse country, with approximately 1 663 terrestrial vertebrate faunal species of which 850 species are birds, 343 species are mammals, 350 species are reptiles and 120 species are amphibians spread across seven biomes and 122 million km². The Limpopo Province is home to approximately 234 reptile species, 63 amphibian species, 299 mammal species and 675 bird species (ADU, 2022; Lepage, 2021).


3.1.9.1 AMPHIBIANS

Of the 63 amphibian species in Limpopo Province, 27 species have a distribution range which includes the proposed development site (ADU, 2022; iNaturalist, 2022; IUCN, 2022). No SCCs are likely to be found on site and species likely to occur on site are all listed as of least concern. A full list of amphibian species with a distribution range which includes the development area is provided in Table 10.1.

3.1.9.2 REPTILES

The Limpopo Province is home to 234 reptile species (ADU, 2022), 61 of which have a distribution which includes the proposed development site (ADU, 2022; iNaturalist, 2022; IUCN, 2022). Approximately 47 reptile species have been recorded within a 30 km radius of the site (ADU, 2022). Only one reptile SCC is likely to occur on site (Table 3.3), with all other species listed as of least concern. A full list of reptile species with a distribution range which includes the development area is provided in Table 10.2.

Table 3.3: Reptilian SCC distributional ranges (pink area) and observations (orange squares – iNaturalist 2021, pink squares – GBIF 2021) in relation to the project area (black star).




SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
Sensitive Species C	VU	Sensitive animal species C is near-endemic to South Africa, inhabiting the rocky hillsides of mixed <i>Acacia / Combretum</i> woodlands, tropical Bushveld and Thornveld, ranging from dense, short shrubland to open tree savanna (Hofmeyr & Boycott, 2017).	 <p>The proposed development site falls approximately 10 km from the closest edge of this species’ known range. However, parts of the study area (namely rocky hillsides) provide a suitable habitat for the species, therefore likelihood of this species on site is considered moderate within degraded to natural SMB habitats.</p>




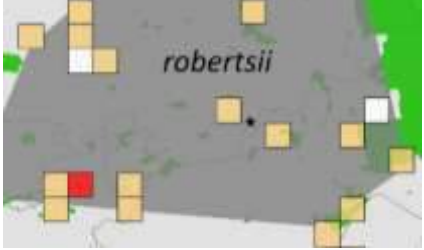
3.1.9.3 MAMMALS

Of the 299 mammal species which occur in the Limpopo Province, 151 have a distribution which includes the proposed development site (ADU, 2022; iNaturalist, 2022; IUCN, 2022). Nine of the 118 species with distribution ranges which include the site are considered SCCs, including one critically-endangered, one endangered and seven vulnerable species (Table 3.4). A full list of mammal species with a distribution range which includes the development area is provided in Table 10.3.




Table 3.4: Mammalian SCC distributional ranges (pink area) and observations (orange squares – iNaturalist 2021, pink squares – GBIF 2021) in relation to the project area (black star).

SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<i>Amblysomus robustus</i> (Robust Golden Mole)	VU	Occurs in montane grasslands and marshes in Moist Sandy Highveld Grassland. Prefers friable soils, from sands to quite heavy clays. Avoid shallow substrates along rocky ridges (which may act as dispersal barriers) and waterlogged areas (Rampartab, 2015).	 <p>The Robust Golden Mole has an EOO of 0.47 km² (SANBI, 2020). Given the lack of suitable habitat and that the site falls outside of the known range of the species, the likelihood of it occurring on site is considered low.</p>
<i>Chrysofalax villosus</i> (Rough-haired Golden Mole)	VU	The Rough-haired Golden Mole is found on sandy soils in grasslands, meadows and along edges of marshes in Savanna and Grassland biomes of South Africa. It has also been found in gardens, parklands, dense stands of kikuyu grass and marginally on golf courses adjoining natural grasslands (Bronner, 2015).	 <p>The Rough-haired Golden Mole has an EOO of 1.05 km² (SANBI, 2020). Although the site falls within the known range of the species, there is limited suitable habitat available for the species in the rocky terrain, which makes up much of the project area. It is possible that the species could be found in lower lying grassland areas surrounding the site. The likelihood of the species occurring on site is therefore considered moderate within degraded to semi-natural SMB habitats.</p>
<i>Cloeotis percivali</i> (Percival's Trident Bat)	EN	Percival's Trident Bat occurs in savanna areas where there is sufficient cover in the form of caves and mine tunnels for day roosting. It feeds exclusively on moths, and appears to be very sensitive to disturbance (Monadjem, et al., 2017).	 <p>Percival's Trident Bat has an EOO of 9.81 km² (SANBI, 2020). Given that its</p>

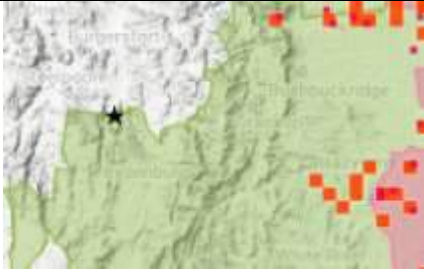




SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
			distribution range includes the site, as well as the availability of suitable habitats on site with sufficient cover for roosting (such as caves and mine tunnels), the likelihood of the species occurring within the project area is considered high across all habitat types .
<p><i>Crocidura maquassiensis</i> (Makwassie musk shrew)</p>	<p>VU</p>	<p>The Makwassie musk shrew is generally found in rocky, mountain habitats, but may tolerate a wider range of habitats, with some individuals found in gardens and mixed bracken/grassland riversides in KwaZulu-Natal (Cassola, 2016).</p>	 <p>The Makwassie musk shrew has an EOO of 0.72 km² (SANBI, 2020). Given that its distribution range includes the site, as well as the availability of suitable habitats on site (namely rocky, mountain habitats), the likelihood of the species occurring within the project area is considered high across degraded to natural SMB habitats.</p>
<p><i>Dasymys robertsii</i> (Robert's Shaggy Rat)</p>	<p>VU</p>	<p>Robert's Shaggy Rat is dependent on intact rivers and wetland ecosystems, as they have not been found in artificial or degraded wetlands. It is patchily distributed in the lowveld of northern South Africa and Zimbabwe. It occurs predominantly in Limpopo, Mpumalanga and Gauteng provinces (Mullin, 2003), which corresponds to the Limpopo watershed area (Pillay, et al., 2016).</p>	 <p>Robert's Shaggy Rat has an EOO of 62.62 km² (SANBI, 2020). Although the site falls within the known range of the species, there is limited suitable habitat available (i.e. intact wetland) for the species in the rocky terrain, which makes up much of the project area. It is possible that the species could be found in lower lying moist grassland areas surrounding the site. The likelihood of the species occurring within the project area is therefore considered moderate across degraded to natural SMB habitats.</p>




SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<p><i>Diceros bicornis</i> (Black Rhino)</p>	<p>CR</p>	<p>The Black Rhino occurs in a wide variety of habitats from desert areas in Namibia to wetter wooded areas. The highest densities of rhinos are found in savannas on nutrient-rich soils and in succulent Valley Bushveld areas. Black Rhino are browsers and favour small acacia's and other palatable woody species (Grewia's, Euphorbiaceae species, etc.) as well as palatable herbs and succulents. Apart from plant species composition and size structure, Black Rhino carrying capacity is related to rainfall, soil nutrient status, fire histories, levels of grass interference, extent of frost and densities of other large browsers (Emslie, 2020).</p>	 <p>Due to its critically endangered status, the Black Rhino is primarily confined to fenced-off reserves in South Africa, such as the Kruger National Park. The likelihood of the species occurring within the project area is therefore considered low.</p>
<p><i>Felis nigripes</i> (Black-footed Cat)</p>	<p>VU</p>	<p>The Black-footed Cat can be found in dry savannas, subtropical grasslands and the Karoo semi-desert with sparse shrub and tree cover. Predominantly ground-dwellers and during the day use dens in termite mounds or made by other animals (Sliwa, et al., 2016).</p>	 <p>The Black-footed Cat has an EOO of 122.03 km² (SANBI, 2020). Given that its distribution range includes the site, well as the availability of suitable habitats on site, the likelihood of the species occurring within the project area is considered high across degraded to natural SMB habitats.</p>
<p><i>Giraffa camelopardalis giraffe</i> (South African Giraffe)</p>	<p>VU</p>	<p>Giraffes are most often found in savanna/ woodland habitats, but range widely throughout Africa. They are browsers that subsist on a variable diet that includes leaves, stems, flowers, and fruits. They do not need to drink on a daily basis. Acacia is fed on in high proportions wherever Giraffes are found, but during the dry season, the preferred plant species varies by location. Faidherbia, Boscia, Grewia, and Kigelia have all been identified as the most common plant species in the diet of giraffes in the dry season in different locations (Muller, et al., 2018).</p>	 <p>The distribution range of the South African Giraffe includes the site and an observation of the species was recorded within 5 km to the south of the site (iNaturalist, 2022). However, given the rugged terrain and relatively restricted access of the site, the likelihood of the species occurring within the project area is considered low.</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<p><i>Lycaon pictus</i> (African wild dog)</p>	<p>EN</p>	<p>African Wild Dogs are generalist predators, occupying a range of habitats including short-grass plains, semi-desert, bushy savannas and upland forest. It appears that their current distribution is limited primarily by human activities and the availability of prey, rather than by the loss of a specific habitat type (Woodroffe & Sillero-Zubiri, 2020).</p>	 <p>The African Wild Dog has an EOO of 403.62 km² (SANBI, 2020). Although its distribution range includes the site, the species is typically found in grassland and savanna plains, rather than in rugged mountainous areas such as the project area. The likelihood of the species occurring within the project area is therefore considered low.</p>
<p><i>Ourebia ourebi</i> (Oribi)</p>	<p>EN</p>	<p>Oribi inhabit savanna woodlands, floodplains and other open grasslands, reaching their highest density on floodplains and moist tropical grasslands, especially in association with large grazers (IUCN SSC Antelope Specialist Group, 2016).</p>	 <p>The Oribi has an EOO of 158.61 km² (SANBI, 2020). The site falls outside of its known distribution range, with the closest recorded occurrence noted south of Dullstroom. The likelihood of the species occurring within the project area is therefore considered low.</p>
<p><i>Panthera pardus pardus</i> (Leopard)</p>	<p>VU</p>	<p>Leopards have a wide habitat tolerance and highly varied diet. Their habitats include woodland, grassland savanna and mountain habitats but they also occur widely in coastal scrub, shrubland and semi-desert (Swanepoel, et al., 2016).</p>	 <p>The distribution of the African Leopards includes the site. Given the availability of suitable habitats on site (namely mountain habitats), the likelihood of the species occurring within the project area is considered high within natural SMB and rocky outcrop habitats.</p>



SPECIES	THREAT STATUS	HABITAT	DISTRIBUTION / OBSERVATIONS
<p><i>Rhinolophus cohenae</i> (Cohen's Horseshoe Bat)</p>	<p>VU</p>	<p>The species mainly occurs in the Mesic Highveld Grassland Bioregion but also occurs in the Lowveld Bioregion and the Central Bushveld Bioregion. Key roosting sites include subterranean habitats like caves and old mine adits. They have been recorded day-roosting in rock crevices and fissures, and are occasionally observed in old buildings. Regions with rock habitats that form cavities are of utmost importance for the survival of this species. Artificially created habitat such as abandoned mine or prospecting shafts/tunnels within various vegetation types also serve as important/essential habitat sanctuaries (Cohen, et al., 2017).</p>	 <p>Cohen's Horseshoe Bat has an EOO of 13.49 km² (SANBI, 2020). Although its distribution range does not include the site, suitable habitats are available on site with sufficient cover for roosting (such as caves, rock faces and mine tunnels), the likelihood of the species occurring within the project area is therefore considered moderate across all habitat types.</p>

3.1.10 TERRESTRIAL BIODIVERSITY INDICATORS

3.1.10.1 CRITICAL BIODIVERSITY AREAS AND ECOLOGICAL SUPPORT AREAS

The purpose of the Limpopo Conservation Plan (LCP, 2013) was to develop a map of Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA), the spatial component to provincial bioregional plan. In alignment with the principles of NEMA and NEMBA, the LCP (v2) was designed to support integrated development planning and sustainable development by identifying an efficient set of CBAs that are required to meet national and provincial biodiversity objectives, in a configuration that is least conflicting with other land uses and activities. In general, CBAs are described as natural or near-natural areas that are important for preserving both biodiversity pattern and ecological process, whereas ESAs are semi-natural or transformed areas that at least retain some ecological function. Almost three-quarters of the province is covered by CBAs (40%), ESAs (23%) and Protected Areas (11%) collectively, with the remainder comprised of Other Natural Areas (ONA) (20%) and areas with No Natural Remaining (NNR) habitat (6%).

The assessment footprint falls across a CBA 1, CBA 2 and ESA 1 in terms of the LCP (Figure 3.11). The management objective of these areas are as follows:

- CBA 1 – To maintain in a natural state with limited or no biodiversity loss. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation (Desmet, et al., 2013, p. 52);
- CBA 2 – To maintain in a natural state with limited or no biodiversity loss. Maintain current agricultural activities. Ensure that land use is not intensified and that activities are managed to minimize impact on threatened species (Desmet, et al., 2013); and
- ESA 1 – To maintain ecosystem functionality and connectivity allowing for limited loss of biodiversity pattern (Desmet, et al., 2013, p. 53).



3.1.10.2 ECOSYSTEM THREAT STATUS

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) provides a National List of Ecosystems that are threatened and in need of protection – GN 1002 of 2011. According to the NEMBA List of threatened ecosystems, the proposed development site falls within an Endangered ecosystem, namely the Sekhukune Mountainlands (Figure 3.12).

3.1.10.3 PROTECTED AND PRIORITY AREAS

The National Protected Areas Expansion Strategy (NPAES, 2008) was developed to “achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change.” The NPAES originated as Government recognised the importance of protected areas in maintaining biodiversity and critical ecological process. The NPAES sets targets for expanding South Africa’s protected area network, placing emphasis on those ecosystems that are least protected. The site is not located within an NPAES Focus Area, formal/informal protected area or conservation area (Figure 3.13). The nearest NPAES Focus Area (Limpopo Central Bushveld NPAES Focus Area) is located approximately 27 km north of the study site. The nearest nature reserve is located 15 km to the north and the nearest protected area, as identified by the South African Protected Areas Database (SAPAD, 2020), is located approximately 25 km to the north of the project area (Figure 3.13).

3.1.10.4 SEKHUKHUNELAND CENTRE OF ENDEMISM (SCOE)

The site forms part of the Sekhukhuneland Centre of Endemism (SCOE). Sekhukhuneland has been identified through previous studies as one of the most important centres of endemism in the Mpumalanga and Limpopo Provinces. The centre falls within the rainfall shadow of the Drakensberg Escarpment and it is relatively more arid than the areas to the east. Of the over 2 200 indigenous plant species occurring within the SCOE, 58 are considered endemic and an additional 70 are considered near-endemic to the area. The endemic plants of this area are primarily edaphic specialists that are derived from a unique ecology. Endemics are both herbaceous and woody with endemism high in the Anacardiaceae, Euphorbiaceae, Liliaceae and Lamiaceae. The site lies inside the Sekhukhuneland Centre of Endemism and the shallow, rocky areas of the development site can be considered especially sensitive as part of the centre of endemism and will almost certainly show similar vegetation patterns to the endemic regions, especially since the vegetation is still in a natural state.

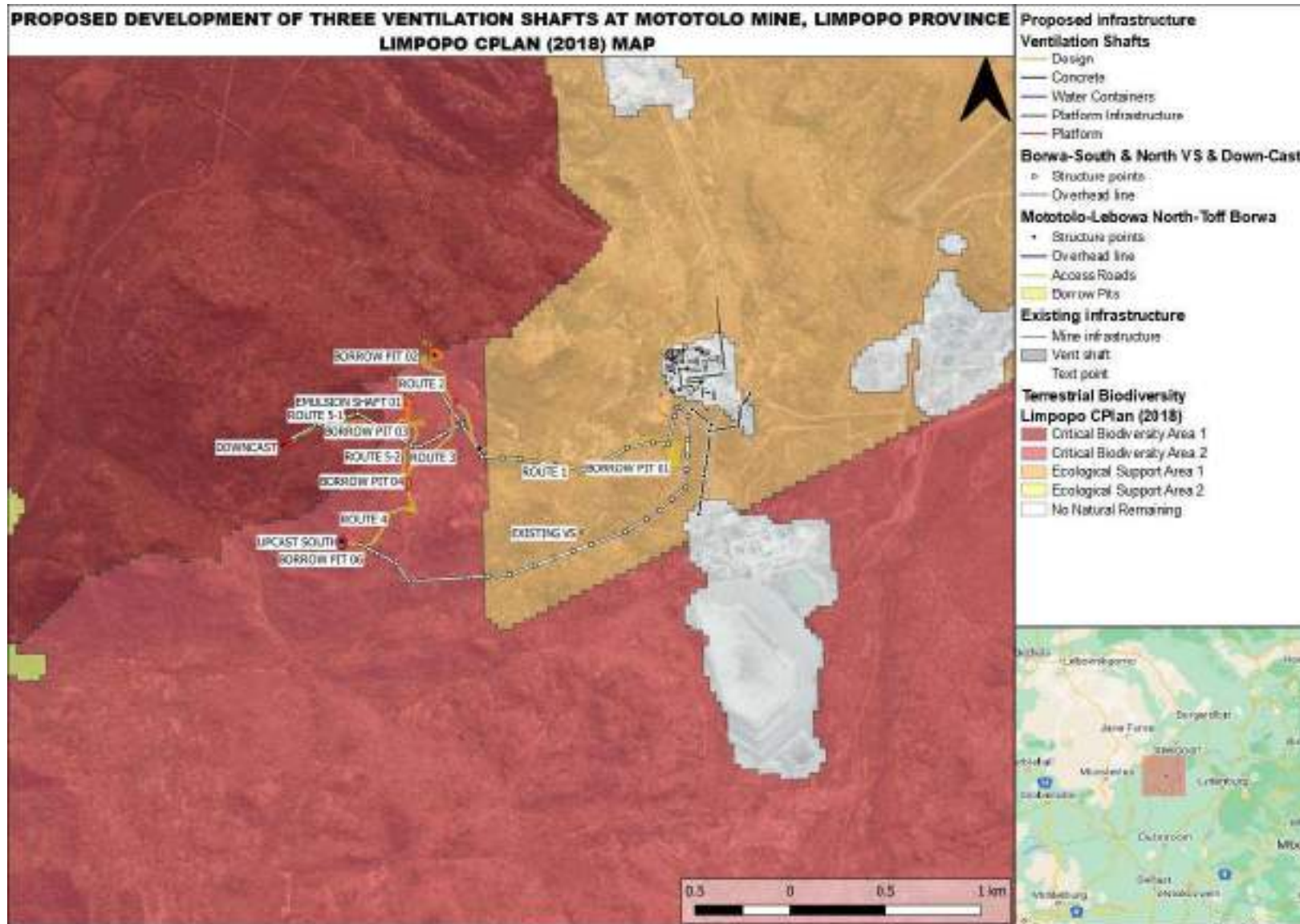


Figure 3.11: Terrestrial CBAs and ESAs map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

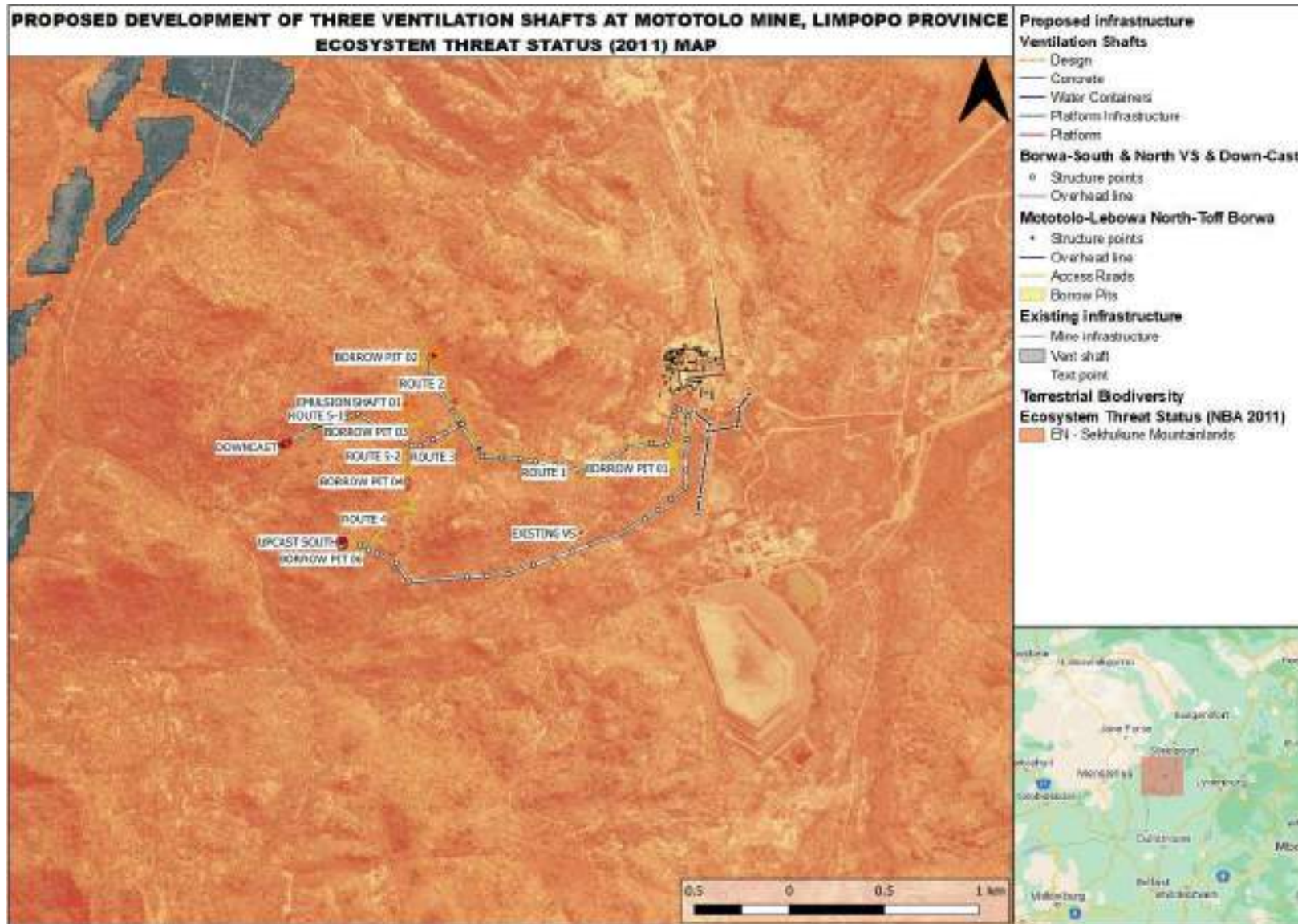


Figure 3.12: Ecosystem threat status map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

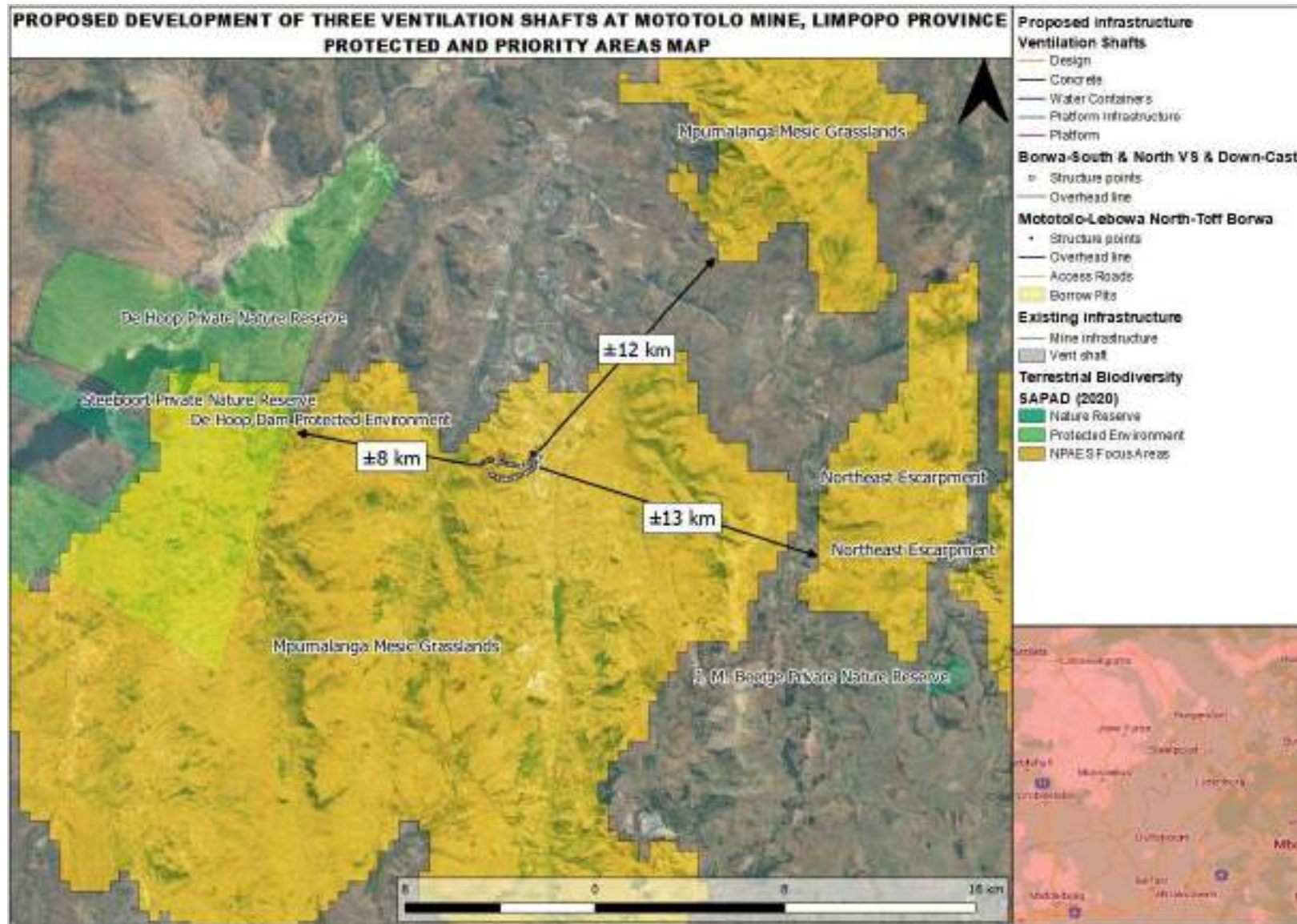


Figure 3.13: Protected and Priority Areas map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.2 SITE ASSESSMENT

The vegetation and habitat composition was assessed along eight transect lines within the project footprint (Figure 3.14). The vegetation types, land uses and species composition observed on site are presented below.

3.2.1 VEGETATION, HABITAT AND LAND USES OBSERVED ON SITE

The vegetation, habitat and land use types within the assessment footprint were then mapped using a combination of data from the field assessment, the Mucina and Rutherford (2018) vegetation map, the National Land Cover (NLC, 2018) map and aerial imagery from Google Earth (Figure 3.14). The vegetation, habitat and land use types recorded within the assessment footprint are described in Table 3.8 below, along with photographic examples of the site conditions and species for each category.

3.2.2 PLANT SPECIES IDENTIFIED ON SITE

A total of 63 plants were identified during the site visit, none of which were Species of Conservation Concern (SCC), with three “**Near-Threatened**” species (Table 3.5) and the remainder of “**Least Concern**”. Thirteen species are considered endemic (Table 3.6). Four species were categorised as non-indigenous species, of which three are Category 1b invaders in terms of the NEMBA AIS List (2016) (Table 3.7). A full list of plant species recorded within the project footprint is provided in Table 9.2.

Table 3.5: Near-threatened plant species found occurring within the project footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Celastraceae	<i>Elaeodendron</i>	<i>transvaalense</i>	Indigenous	- NT
Celastraceae	<i>Lydenburgia</i>	<i>cassinoides</i>	Indigenous; Endemic	- NT
Scrophulariaceae	<i>Jamesbrittenia</i>	<i>macrantha</i>	Indigenous; Endemic	- NT

Table 3.6: Endemic plant species found occurring within the project footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Anacardiaceae	<i>Searsia</i>	<i>keetii</i>	Indigenous; Endemic	- LC
Araliaceae	<i>Cussonia</i>	<i>transvaalensis</i>	Indigenous; Endemic	- LC
Asteraceae	<i>Berkheya</i>	<i>carlinopsis</i>	Indigenous; Endemic	- LC
Celastraceae	<i>Lydenburgia</i>	<i>cassinoides</i>	Indigenous; Endemic	- NT
Crassulaceae	<i>Crassula</i>	<i>ovata</i>	Indigenous; Endemic	- LC
Euphorbiaceae	<i>Jatropha</i>	<i>latifolia</i> var. <i>angustata</i>	Indigenous; Endemic	- LC
Fabaceae	<i>Elephantorrhiza</i>	<i>praetermissa</i>	Indigenous; Endemic	- LC
Malpighiaceae	<i>Triaspis</i>	<i>glaucophylla</i>	Indigenous; Endemic	- LC
Malvaceae	<i>Grewia</i>	<i>vernica</i>	Indigenous; Endemic	- LC
Oleaceae	<i>Jasminum</i>	<i>quinatum</i>	Indigenous; Endemic	- LC
Scrophulariaceae	<i>Jamesbrittenia</i>	<i>macrantha</i>	Indigenous; Endemic	- NT
Stilbaceae	<i>Nuxia</i>	<i>gracilis</i>	Indigenous; Endemic	- LC
Vitaceae	<i>Rhoicissus</i>	<i>sekhukhuniensis</i>	Indigenous; Endemic	- LC



Table 3.7: Plant AIS found occurring within the project footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Asteraceae	<i>Tagetes</i>	<i>minuta</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated
Poaceae	<i>Arunda</i>	<i>donex</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated - Cat 1b
Poaceae	<i>Pennisetum</i>	<i>setaceum</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated - Cat 1b
Verbenaceae	<i>Lantana</i>	<i>camara</i>	Not indigenous; Cultivated; Naturalised; Invasive	- Not Evaluated - Cat 1b

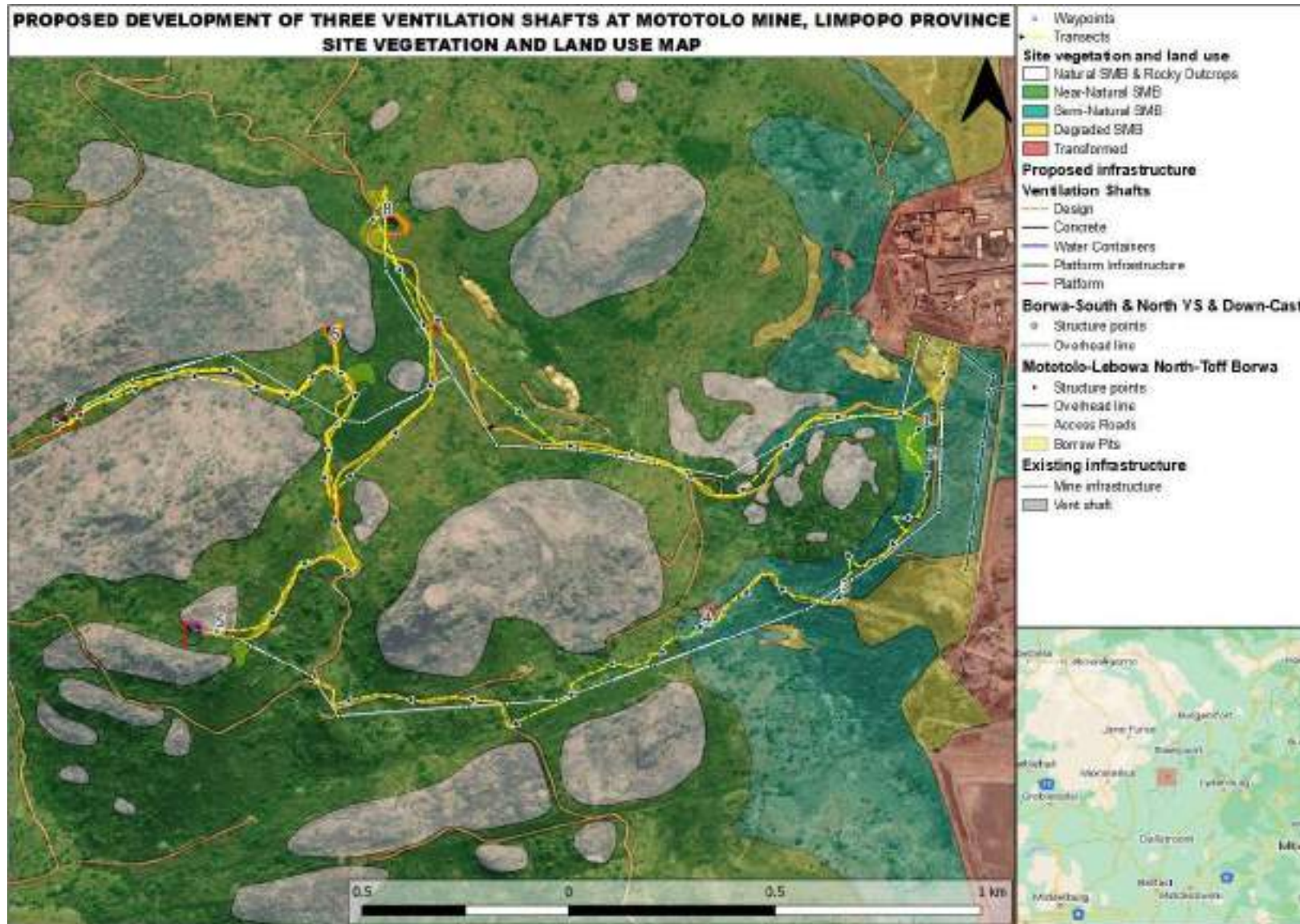


Figure 3.14: Site vegetation and land use map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Table 3.8: Vegetation, habitat and land use survey within the assessment footprint.

NAME	DESCRIPTION	PHOTOGRAPHS
<p>Natural Sekhukhune Mountain Bushveld (SMB) – Rocky Outcrops</p>	<p>The Natural Sekhukhune Mountain Bushveld (SMB) vegetation type generally occurs along the higher elevations of the study area (1 200 – 1420 mamsl) to the west of the main Borwa Shaft. It is characterised by rugged terrain, often extensive rocky outcrops and sparse to moderately-sparse pockets of vegetation cover (a & b).</p> <p>The vegetation type is comprised of scattered tree and shrub species, including <i>Elephantorrhiza praetermissa</i>, <i>Rhoicissus sekhukunensis</i> (c), <i>Rhynchosia komatiensis</i> (d), <i>Searsia keetii</i> (e), <i>Aloe marlothii subsp. marlothii</i> (f), <i>Kirkia wilmsii</i> (g) and <i>Searsia lancea</i>, as well as a low abundance of grass cover, usually <i>Eragrostis rigidior</i>, with some herbaceous species, such as <i>Berkheya insignis</i>, <i>Cyphostemma woodii</i>, <i>Hypoxis rigidula</i>, <i>Senecio microglossus</i> and <i>Zantedeschia albomaculata</i> (h).</p>	<p>Plate 3.1: Natural Sekhukhune Mountain Bushveld with rocky outcrops</p>



NAME	DESCRIPTION	PHOTOGRAPHS
Near-natural Sekhukhune Mountain Bushveld (SMB)	<p>The Near-natural Sekhukhune Mountain Bushveld (SMB) vegetation type occurs along the mid-altitude (1 150 – 1200 mamsl) hillslopes and valleys surrounding the rocky peaks to the west of the main Borwa Shaft. It differs from the natural rocky outcrops described above in that it has a well-developed basal layer of graminoids and forbs, with scattered loose boulders, rocks, shrubs and trees (a & b). The vegetation is similarly comprised of the species noted above, with the addition of the following:</p> <ul style="list-style-type: none"> • Graminoids: <i>Eragrostis curvula</i>, <i>Heteropogon contortus</i>, <i>Hyparrhenia tamba</i>, <i>Melinis repens</i> and <i>Setaria sphacelata</i>; • Herbs: <i>Berkheya carlinopsis</i>, <i>Cyphostemma woodii</i>, <i>Kalanchoe</i> sp., <i>Senecio latifolius</i> and <i>Solanum incanum</i>; • Succulent shrubs: <i>Aloe cryptopoda</i> (c) and <i>Crassula ovata</i>; • Shrubs and small trees: <i>Grewia vernicosa</i>, <i>Jatropha latifolia</i> var. <i>angustata</i> (d), <i>Rhoicissus sekhukunensis</i>, <i>Lasiosiphon capitatus</i> (e), <i>Mundulea sericea</i>, <i>Nuxia gracilis</i> and <i>Senegalia ataxacantha</i>; and, • Trees: <i>Brachylaena ilicifolia</i>, <i>Combretum</i> spp., <i>Cussonia</i> spp., <i>Dichrostachys cinerea</i>, <i>Dombeya rotundifolia</i>, <i>Elaeodendron transvaalense</i>, <i>Euclea crispa</i>, <i>Kirkia wilmsii</i>, <i>Ozoroa sphaerocarpa</i> (f), <i>Searsia</i> spp. and <i>Terminalia prunioides</i> (g). 	

Plate 3.2: Near-natural Sekhukhune Mountain Bushveld

















NAME	DESCRIPTION	PHOTOGRAPHS
<p>Semi-natural Sekhukhune Mountain Bushveld (SMB)</p>	<p>The Semi-natural Sekhukhune Mountain Bushveld (SMB) vegetation type occurs along the lower (1 100 – 1 150 mamsl), generally flatter parts of the study area, fringing the more degraded and fully transformed areas surrounding the main Borwa Shaft and associated mining operations.</p> <p>It is primarily vegetated by an open thornveld (a & b), dominated by <i>Dichrostachys cinerea</i>, <i>Terminalia prunioides</i>, <i>Vachellia karroo</i> (c) and <i>Ziziphus mucronata</i> (d), with a moderate to well-developed secondary grassland basal cover of <i>Eragrostis rigidior</i>, <i>Heteropogon contortus</i> (e), <i>Hyparrhenia tamba</i>, <i>Monocymbium cerasiiforme</i> and <i>Themeda triandra</i>.</p> <p>A greater diversity of species is encountered as the vegetation transitions to its near-natural and natural states, westwards of the existing ventilation shaft. A few notable species observed here include: <i>Aloe marlothii</i> subsp. <i>marlothii</i>, <i>Brachylaena ilicifolia</i>, <i>Cussonia paniculata</i> (f), <i>Dombeya rotundifolia</i>, <i>Euclea sekhukhuniensis</i>, <i>Grewia monticola</i>, <i>Grewia vernicosa</i> (f), <i>Hippobromus pauciflorus</i>, <i>Jamesbrittenia macrantha</i> (g), <i>Jasminum quinetum</i>, <i>Lydenburgia cassinoides</i> (h), <i>Mimusops zeyheri</i>, <i>Mundulea sericea</i>, <i>Nuxia gracilis</i>, <i>Ozoroa sphaerocarpa</i>, <i>Protea caffra</i> subsp. <i>caffra</i> and <i>Rhoicissus sekhukunensis</i>.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">  </div> <div style="margin-bottom: 10px;">  </div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> </div>

Plate 3.3: Semi-natural Sekhukhune Mountain Bushveld



NAME	DESCRIPTION	PHOTOGRAPHS
<p>Degraded Sekhukhune Mountain Bushveld (SMB)</p>	<p>The Degraded Sekhukhune Mountain Bushveld (SMB) vegetation type occurs in patches immediately adjacent to the fully transformed areas surrounding the main Borwa Shaft and associated mining operations (a & b), as well as in smaller, isolated eroded areas along erosion gullies (c) and along the existing dirt access roads (d), winding through the semi-natural to natural areas.</p> <p>These areas are typically bare to sparsely-vegetated by patches of grass, including <i>Chloris sp.</i>, <i>Eragrostis curvula</i>, <i>Heteropogon contortus</i>, <i>Melinis repens</i>, <i>Pennisetum setaceum</i> and <i>Setaria sphacelata</i>, with a few scattered <i>Tagetes minuta</i> and <i>Vachellia karroo</i> occurring along the fringes of the more severely disturbed areas.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> a  </div> <div style="margin-bottom: 10px;"> b  </div> <div style="display: flex; justify-content: space-between; width: 100%;"> <div style="width: 45%;"> c  </div> <div style="width: 45%;"> f  </div> </div> </div> <p style="text-align: center; margin-top: 10px;">Plate 3.4: Degraded Sekhukhune Mountain Bushveld</p>



NAME	DESCRIPTION	PHOTOGRAPHS
Transformed areas	<p>Parts of the study area have been significantly transformed from their natural state as the result of the ongoing mining operations at the main Borwa Shaft and associated land uses. Consequently, little to no remaining discernible natural vegetation remains within these areas. The condition of the vegetation in the immediately adjacent areas is typically degraded to semi-natural.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> a  </div> <div> b  </div> </div> <p>Plate 3.5: Transformed areas</p>



4 SITE SENSITIVITY

- 3.1. The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:
- 3.1.6. A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant); and
- 3.1.13. A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a “low” terrestrial biodiversity sensitivity and that were not considered appropriate.

The method used to assess site sensitivity has been described in Section 2.3 above. Table 4.1 provides a summary of how each vegetation and habitat type was assessed.

The site falls entirely within the Sekhukhune Mountain Bushveld (Mucina and Rutherford [2018]), the Endangered Sekhukhune Mountainlands Ecosystem (NEMBA, 2004) and the SCOE. The Site Ecological Importance (SEI) ratings for the vegetation and habitat types described in Table 3.8 were therefore largely determined by the current condition of these areas, with the natural and near-natural SMB types assigned a High sensitivity, the semi-natural SMB assigned a moderate sensitivity, and the degraded SMB and transformed types assigned low and very low sensitivities, respectively (Table 4.1, Figure 4.1).

With the exception of the completely transformed areas, all other vegetation and habitat types received high Conservation Importance (CI) scores, attributed to the moderate to high likelihood of three rare and two VU plant species, as well as 6-8 animal SCCs. The transformed areas scored low in terms of CI.

The Functional Integrity (FI) of the ecosystems varied amongst vegetation and habitat types, with a very high rating attained by natural and near-natural SMB types, a high rating in the semi-natural type, a medium rating in the degraded type and very low in the transformed type. These scores were attributed to the connectivity and intactness of the ecosystems within the vegetation habitat types.

The natural near-natural, semi-natural and degraded SMB types score high in terms of high receptor resilience (RR) scores as these types are anticipated to recover relatively quickly following disturbance, with most of their species composition and functionality restored in the short- to medium-term. On the other hand, transformed areas are unlikely to fully recover after a relatively long period, hence its low RR score.



HABITAT/ SPECIES	CONSERVATION IMPORTANCE (CI)	FUNCTIONAL INTEGRITY (FI)	RECEPTOR RESILIENCE (RR)	SEI
Natural SMB and Rocky Outcrops	HIGH	VERY HIGH	HIGH	HIGH
	<p>Plant species: High likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of two VU species (Sensitive Species C and <i>Rhinolophus cohenae</i>).</p>	<p>Very large (~244.6 ha) intact area of natural rocky outcrop habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. Good habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	
Near-natural SMB	HIGH	VERY HIGH	HIGH	HIGH
	<p>Plant species: High likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of two VU species (Sensitive Species C and <i>Rhinolophus cohenae</i>).</p>	<p>Very large (~431.9 ha) intact area of natural habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	



	HIGH	HIGH	HIGH	
Semi-natural SMB	<p>Plant species: Moderate likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of four VU species (Sensitive Species C, <i>Chrysospalax villosus</i>, <i>Dasymys robertsii</i> and <i>Rhinolophus cohenaie</i>).</p>	<p>Very large (~143.4 ha) moderately intact area of semi-natural habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	MEDIUM
Degraded SMB	<p>Plant species: Moderate to high likelihood of three rare species (<i>Combretum petrophilum</i>, <i>Searsia sekhukhuniensis</i> and Sensitive Species B) and two VU species (<i>Polygala sekhukhuniensis</i> and Sensitive Species A).</p> <p>Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) and three VU species (<i>Crocidura maquassiensis</i>, <i>Felis nigripes</i> and <i>Panthera pardus pardus</i>). Moderate likelihood of four VU species (Sensitive Species C, <i>Chrysospalax villosus</i>, <i>Dasymys robertsii</i> and <i>Rhinolophus cohenaie</i>).</p>	<p>Very large (~104.4 ha) partially intact area of degraded habitat within an EN ecosystem type (Sekhukune Mountainlands) and SCOE. Limited connectivity, with migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and a few major current negative ecological impacts.</p>	<p>Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	LOW



	LOW	VERY LOW	LOW	
Transformed areas	<p>Very large area of transformed. Plant species: No confirmed and highly unlikely populations of plant SCC and/or range-restricted species. Animal species: High likelihood of one EN species (<i>Cloeotis percivali</i>) within mine shafts. Moderate likelihood of one VU species (<i>Rhinolophus cohenae</i>) within mine shafts.</p>	<p>Very large (~101.1 ha) area of transformed EN ecosystem type. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.</p>	<p>Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.</p>	VERY LOW

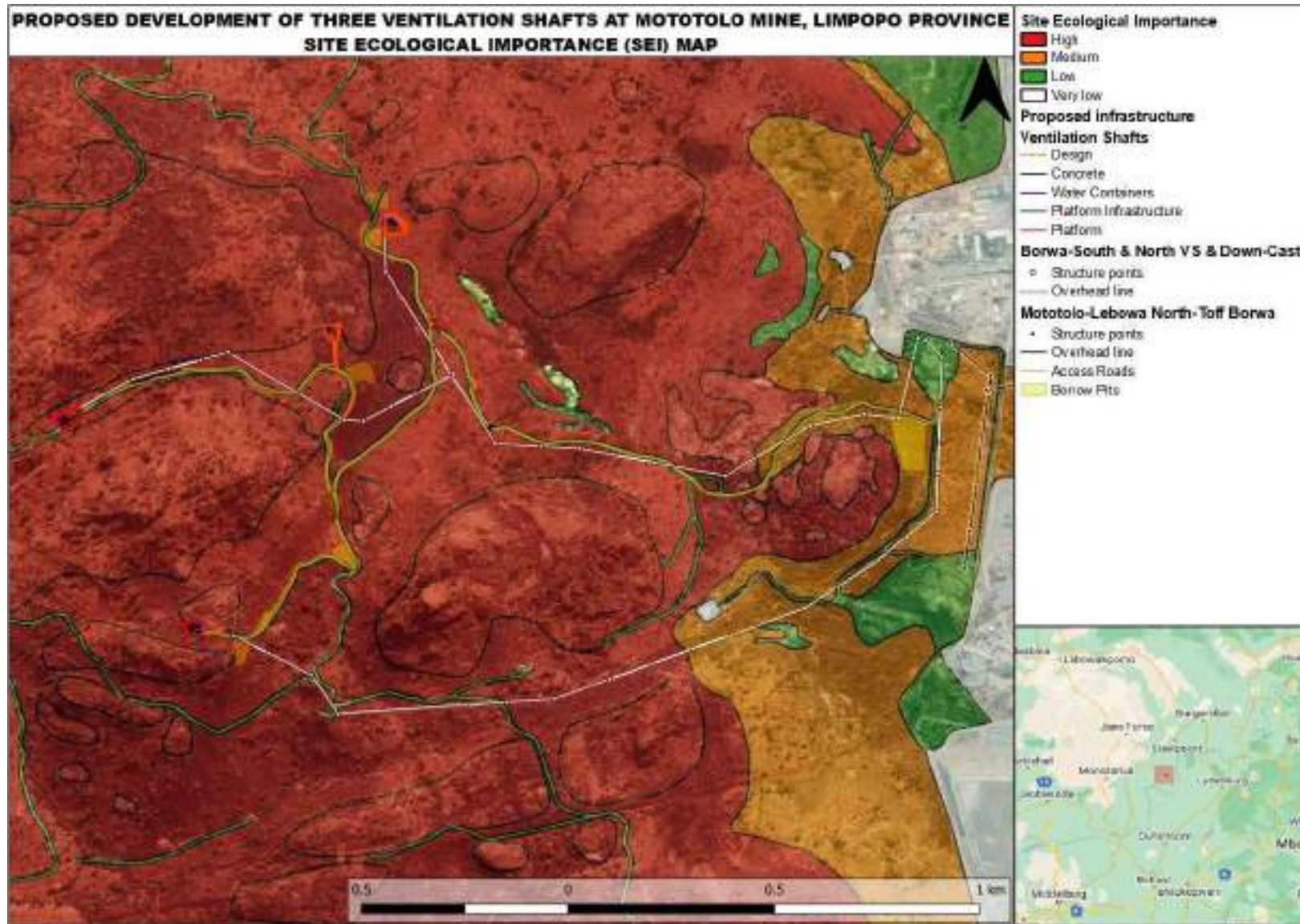


Figure 4.1: Terrestrial Biodiversity Site Ecological Importance (SEI) map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



5 IMPACT ASSESSMENT

- 3.1. The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:*
- 3.1.7. Additional environmental impacts expected from the proposed development;*
 - 3.1.8. Any direct, indirect and cumulative impacts of the proposed development;*
 - 3.1.9. The degree to which the impacts and risks can be mitigated;*
 - 3.1.10. The degree to which the impacts and risks can be reversed;*
 - 3.1.11. The degree to which the impacts and risks can cause loss of irreplaceable resources;*
 - 3.1.12. Proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr).*

Impacts that could be a direct or indirect result of the proposed activity were identified for the Construction, Operational and Decommissioning Phases. These included the consideration of direct, indirect and cumulative impacts that may occur, and also considers the no-go or existing impacts. Table 5.1 below provides a technical scope and summary of the potential issues identified and their applicability to each phase of the proposed development.

An impact assessment was conducted, using the methodology outlined in Section 2.4 and the data collected during the desktop and site assessments, for the planning, construction and operation phases of the proposed development, as well as for the no-go alternative. A breakdown of the assessment and mitigation measures is presented in Table 5.1.



Table 5.1: Technical scope of the impacts on the terrestrial biodiversity and ecology for all phases of the proposed development.

POTENTIAL ISSUES	SOURCE OF ISSUE	RECEPTORS	PHASE			
			PLANNING & DESIGN	CONSTRUCTION	OPERATION	DECOMMISSIONING
Loss of vegetation	<ul style="list-style-type: none"> Loss to ventilation shafts, emulsion shaft, borrow pits, access roads and powerline pylons. Vegetation disturbance and clearance, including construction vehicle traffic, earthworks, excavation and infilling. Poor rehabilitation, management and monitoring. 	<ul style="list-style-type: none"> Abundance, diversity and composition of flora and fauna in development footprint. Ecological connectivity. Plant and animal SCCs. 	X	X		X
Loss of Plant Species of Conservation Concern	<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	<ul style="list-style-type: none"> Floral diversity. CI, FI, RR and SEI. 	X	X		
Impact on faunal species of conservation concern	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Disturbance, fragmentation and loss of habitats. 	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 		X		X
Reduced Faunal Habitat	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Loss of ecological connectivity and edge effects. 	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 		X		
Disruption of Ecosystem Function and Processes	<ul style="list-style-type: none"> Vegetation disturbance and clearance. 	<ul style="list-style-type: none"> Ecological connectivity. Plant and animal SCCs. Floral and faunal diversity. CI, FI, RR and SEI. 	X	X	X	X



POTENTIAL ISSUES	SOURCE OF ISSUE	RECEPTORS	PHASE			
			PLANNING & DESIGN	CONSTRUCTION	OPERATION	DECOMMISSIONING
	<ul style="list-style-type: none"> Loss of ecological connectivity and edge effects. Disturbance, fragmentation and loss of habitats. 					
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Noise and vibrations of earthworks. Encounters with construction machinery. Disturbance, fragmentation and loss of habitats. 	<ul style="list-style-type: none"> Faunal diversity. CI, FI, RR and SEI. 		X		X
Establishment and/or spread of Alien Plant Species	<ul style="list-style-type: none"> Vegetation disturbance and clearance. Poor rehabilitation, management and monitoring. 	<ul style="list-style-type: none"> Plant and animal SCCs. Floral and faunal diversity. CI, FI, RR and SEI. 	X	X	X	X



Table 5.2: Impacts and mitigation measures for all phases of the proposed development.

POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
PLANNING AND DESIGN PHASE														
<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 5.93 ha of SMB vegetation and faunal habitat during the construction phase.</p> <p>The consequence and significance of this impact depends on the pre-construction SEI of the vegetation and habitat.</p>	Preferred	<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.60 ha of high SEI vegetation (natural and near-natural SMB) during the construction phase.</p> <p>Given the high SEI of the vegetation, the relatively large extent of clearance and generally well-developed vegetation cover within this type, the consequence and overall significance of impact will be severe and high, respectively.</p>	Negative	Direct, cumulative	Severe	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	HIGH -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> The proposed layout of ventilation and emulsion shafts precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Please refer to offset mitigation below. The siting and layout of supporting infrastructure (e.g. access roads and powerlines) must follow existing disturbed corridors (i.e. existing access roads and servitudes) as far as possible to avoid further impact. Please also refer to minimization and rehabilitation mitigation below. It is recommended that the location of borrow pits 02-06 be moved to a semi-natural or already-degraded area. This will prevent the loss of 1.68 ha of natural to near-natural SMB vegetation and habitat. If this is not feasible, the below measures must be implemented to minimize impacts and rehabilitate the area. 	HIGH -
		<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 1.02 ha of medium SEI vegetation (semi-natural).</p> <p>Given the medium SEI and localised extent of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively.</p>	Negative	Direct, cumulative	Slight	Localised	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult				LOW -	Minimize/reduce impact: During the planning and design phase, the development footprint must be designed to minimize the loss of natural to semi-natural indigenous vegetation as far as possible. The development footprint must be clearly demarcated by a qualified ECO prior to the commencement of construction. Only vegetation within the approved footprint may	LOW -



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		<p>The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.31 ha of low SEI vegetation (degraded).</p> <p>Despite a relatively large area of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively, given the low SEI.</p>	Negative	Direct, cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -	<p>be removed. Vegetation outside of these areas may not be cleared.</p> <ul style="list-style-type: none"> Footprint creep must not occur. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. <p>Offset impact:</p> <ul style="list-style-type: none"> A biodiversity offset plan must be compiled by an ecologist with experience in undertaking and facilitating offsets in consultation with key stakeholders. The objective of the offset must be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss. 	LOW -
Non-compliance with permitting requirements	Preferred	<p>During the planning and design phase, the inadequate planning for search and rescue operations and permitting for the removal of any SCC may result in non-compliances being issued and the unintended loss of SCC.</p> <p>The following SCCs have a high likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> <i>Combretum petrophilum</i> (rare), <i>Searsia sekhukhuniensis</i> (rare), <i>Polygala sekhukhuniensis</i> (VU), Sensitive Species A (VU), and Sensitive Species B (rare). 	Negative	Direct, indirect	Moderate	Study Area	Long-term	May occur	Irreversible	Resource could be partially lost	Achievable	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> Planning for any search and rescue operations must be conducted prior to the commencement of construction activities. All necessary permits must be obtained for the removal of any identified SCC prior to the commencement of construction activities. 	LOW -



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disruption of Ecosystem Function and Processes	Preferred	The planned layout and siting of construction activities and infrastructure will result in the disruption of ecosystem functions and processes, including the loss of ecological connectivity and edge disturbance impacts.	Negative	Direct, indirect	Moderate	Study Area	Medium-term	Probable	Reversible	Resource could be partially lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> During the planning and design phase, the development footprint must be designed to minimize edge disturbance impacts. Remediate/rehabilitate impact: <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -
Establishment and/or spread of Alien Plant Species	Preferred	During the planning and design phase, the failure to plan for the removal and management of alien vegetation could result in the invasion of alien vegetation in sensitive areas during the construction and operational phases.	Negative	Indirect	Moderate	Study area	Long-term	Probable	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> An Alien Vegetation Management Plan must be developed by the Contractor prior to construction to mitigate the establishment and spread of undesirable alien plant species during all phases of the project. The Alien Vegetation Management Plan must be approved by the appointed ECO prior to implementation. Remediate/rehabilitate impact: <ul style="list-style-type: none"> A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO. 	LOW -



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
CONSTRUCTION PHASE														
<p>Loss of 5.93 ha of SMB vegetation for the construction / establishment of the ventilation shafts, emulsion shaft, borrow pits, pylons and access roads.</p> <p>The consequence and significance of this impact depends on the pre-construction SEI of the vegetation.</p>	Preferred	<p>Loss of approximately 2.60 ha of high SEI vegetation (natural and near-natural SMB).</p> <p>Given the high SEI of the vegetation, the relatively large extent of clearance and generally well-developed vegetation cover within this type, the consequence and overall significance of impact will be severe and high, respectively.</p>	Negative	Direct, cumulative	Severe	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	HIGH -	<p>Minimize/reduce impact:</p> <ul style="list-style-type: none"> Construction activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint. Construction vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint. Lay down areas must not be located within any watercourses or drainage lines. <p>Remediate/rehabilitate impact:</p> <ul style="list-style-type: none"> Topsoil (20 cm, where possible) must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas). Only indigenous species must be used for rehabilitation. The alien invasive management plan for the site must be implemented. <p>Offset impact:</p> <ul style="list-style-type: none"> A biodiversity offset must be implemented in during the construction phase and continued during the operational phase in accordance with the approved offset plan to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss. The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO. 	HIGH -
		<p>Loss of approximately 1.02 ha of medium SEI vegetation (semi-natural).</p> <p>Given the medium SEI and localised extent of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively.</p>	Negative	Direct, cumulative	Slight	Localised	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -		LOW -
		<p>Loss of approximately 2.31 ha of low SEI vegetation (degraded).</p> <p>Despite a relatively large area of clearance within this type, the consequence and overall significance of impact will be slight and low, respectively, given the low SEI.</p>	Negative	Direct, cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resource will be partially lost	Difficult	LOW -		LOW -
	No-go	<p>Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with the vegetation continuing to degrade.</p>	Negative	Direct	Slight	Study area	Long term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Loss of Plant Species of Conservation Concern	Preferred	<p>The permanent loss of plant SCCs may occur. The following SCCs have a high likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> • <i>Combretum petrophilum</i> (rare), • <i>Searsia sekhukhuniensis</i> (rare), • <i>Polygala sekhukhuniensis</i> (VU), • Sensitive Species A (VU), and • Sensitive Species B (rare). <p>It is possible that these species may be lost should the development proceed.</p>	Negative	Direct, indirect	Moderate	Regional	Permanent	Possible	Irreversible	Resource may be partially lost	Achievable	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> • A botanical walkthrough of the development area, by an experienced botanist with knowledge of the SCC identified as possibly occurring within the site, must be undertaken during the flowering season. • All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating SCC identified. • If restricted range SCC populations are found, the development must be moved to avoid these populations. • The ECO must monitor for potential additional plant SCCs not found during search and rescue activities. • Plant SCCs must not be removed from the development footprint unless the relevant permits have been obtained. 	LOW -
		<p>If populations of SCC with restricted ranges are present within the site and are impacted by the placement of infrastructure, the cumulative impact will be moderate as some SCC have already been lost as a consequence of historical and current land uses in the region. This impact can be reduced if a thorough botanical walkthrough of the site is undertaken during the optimum flowering season.</p>	Negative	Cumulative	Moderate	Study area	Permanent	May occur	Irreversible	Resource will be lost	Achievable	MODERATE -		LOW -
	No-go	<p>Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with the vegetation continuing to degrade.</p>	Negative	Direct	Slight	Study area	Long term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Impact on faunal species of conservation concern	Preferred	<p>The loss of animal species of conservation concern may occur during the construction phase. The following SCCs have a moderate to high likelihood of occurring within the project area:</p> <ul style="list-style-type: none"> • Sensitive species C (VU), • <i>Chrysospalax villosus</i> (Rough-haired Golden Mole, VU), • <i>Cloeotis percivali</i> (Percival's Trident Bat, EN), • <i>Crocidura maquassiensis</i> (Makwassie musk shrew, VU), • <i>Dasymys robertsii</i> (Robert's Shaggy Rat, VU), • <i>Felis nigripes</i> (Black-footed Cat, VU), • <i>Panthera pardus pardus</i> (Leopard, VU), and • <i>Rhinolophus cohenae</i> (Cohen's Horseshoe Bat, VU). <p>It is possible that these species may be lost should the development proceed.</p>	Negative	Direct, indirect	Moderate	Localised	Permanent	May occur	Irreversible	Resource may be partially lost	Achievable	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> • All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating slower moving faunal species e.g. tortoises. • This team should focus on checking termite mounds, burrows and dens in particular for small mammals, such as the Black-footed Cat, moles and rats. • Sensitive species C – Intact habitat patches where these species are known to occur should be buffered (30 m minimum, 100 m recommended) from disturbance taking into account connectivity to other similar habitat, or at least habitats that these species will utilise for migration and dispersal purposes. 	LOW -
		<p>If populations of SCC with restricted ranges are present within the site and are impacted by the placement of infrastructure, the cumulative impact will be moderate as some SCC have already been lost as a consequence of historical and current land uses in the region.</p>	Negative	Cumulative	Moderate	Study area	Permanent	May occur	Irreversible	Resource will be lost	Achievable	MODERATE -		LOW -
	No-go	<p>Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.</p>	Negative	Direct	Slight	Study area	Long term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Reduced Faunal Habitat	Preferred	During the construction phase, the construction related activities will result in the loss and/or degradation of natural habitats for fauna.	Negative	Indirect, Cumulative	Moderate	Study area	Long-term	Definite	Reversible	Resource will be partially lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The contractor must ensure that vegetation clearance of natural, near-natural and semi-natural vegetation is restricted to the approved development footprint only. Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible. Clearing of trees should take place in winter months, to prevent birds and bats establishing nesting grounds and starting to breed and rear young in the spring and summer months. Employees must be prohibited from making open fires during the construction phase. The ECO must monitor that all construction activities are conducted within the development footprint. Remediate/rehabilitate impact: <ul style="list-style-type: none"> All impacted areas must be rehabilitated as per the Rehabilitation Plan, as soon as construction has been completed within each area. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resource will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study area	Medium term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disruption of Ecosystem Function and Processes	Preferred	Construction activities will result in the disruption of ecosystem functions and processes, including the loss of ecological connectivity and edge disturbance impacts.	Negative	Direct, indirect, cumulative	Slight	Localised	Medium-term	Possible	Reversible	Resource could be partially lost	Achievable	LOW -	Minimize/reduce impact: <ul style="list-style-type: none"> The contractor must ensure that vegetation clearance of natural, near-natural and semi-natural vegetation is restricted to the approved development footprint only. Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible. Employees must be prohibited from making open fires during the construction phase. Remediate/rehabilitate impact: <ul style="list-style-type: none"> A rehabilitation plan must be implemented during construction and operation phases. All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	LOW -
		Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. It also impacts on fauna as it separates habitats and necessitates fauna having to move across exposed areas like roads to get to another section of their habitat or territory. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors.												
	Given the relatively small development footprint and abundance of moderate-to well-connected remaining natural and near-natural ecosystem remaining, a low significance impact on ecosystem functions and processes is anticipated.													
		Given the moderate degree of fragmentation across the broader area as the result of historical and current land uses, the cumulative impact of the proposed development moderate significance.	Negative	Cumulative	Moderate	Study area	Long-term	Possible	Reversible	Resource will not be lost	Achievable	MODERATE -		LOW -
	No-go	Under the no go alternative, habitat fragmentation has already occurred and will possibly continue to do so.	Negative	Direct	Moderate	Study Area	Permanent	Possible	N/A	N/A	N/A	MODERATE -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	Preferred	Faunal species will be disturbed during construction due to noise and vibrations of construction machinery. Faunal species that vacate the immediate area may return following completion of construction or new individuals or species may inhabit the area. Construction machinery may cause unintentional mortalities of faunal species. Even with the mitigations applied, the construction will still likely have an impact on faunal species.	Negative	Direct	Moderate	Study Area	Long-term	Probable	Reversible	Resource could be partially lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Vehicles and machinery must meet best practice standards in terms of noise and vibration. Staff and contractors' vehicles must comply with speed limits of 40 km/hr Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete. ECO must walk ahead of clearing construction machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat. Any faunal species that may die as a result of construction must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI. Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist. Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Long-term	Probable	Reversible	Resource will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Establishment and/or spread of Alien Plant Species	Preferred	During the construction phase, the removal of natural vegetation creates open habitats that favour the establishment of undesirable alien plant species. The infestation of alien plant species will result in the displacement of indigenous vegetation and possible local extinctions of species. This pre-mitigation impact is of moderate significance but can easily be managed through the implementation of an alien invasive management plan.	Negative	Indirect	Moderate	Study area	Long-term	Probable	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The Contractor must implement the Alien Vegetation Management Plan. The ECO must monitor for the adequate implementation of this plan. The ECO must monitor the site for the presence of alien invasive plant species and take immediate action when these are recorded. It is recommended that the ECO prepare a photo guide of all invasive plant species likely to occur on site. This will aid in the identification of undesirable species. Remediate/rehabilitate impact: <ul style="list-style-type: none"> All previously infested areas must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as construction has been completed within each area. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the construction of the proposed infrastructure. This will be of moderate significance.	Negative	Cumulative	Moderate	Study area	Long-term	Probable	Irreversible	Resource will not be lost	Achievable	MODERATE -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	Negative	Direct	Slight	Study area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
OPERATIONAL PHASE														
Disruption of Ecosystem Function and Processes	Preferred	Operational activities, such as routine maintenance, may result in the disruption of ecosystem functions and processes, including the disturbance of vegetation and faunal habitats, as well as edge disturbance impacts. Assuming the appropriate mitigation measures are adopted during the planning and design and construction phases, the severity of the operational phase impacts will be moderate.	Negative	Direct, indirect	Moderate	Localised	Medium-term	May occur	Reversible	Resource could be partially lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Monitoring and maintenance vehicles must not be permitted outside of the development footprint, as much as practically possible. Remediate/rehabilitate impact: <ul style="list-style-type: none"> The rehabilitation plan must be implemented during operation phases. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses occurring on site. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Permanent	Definite	Irreversible	Resource will not be	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study area	Medium-term	Probable	N/A	N/A	N/A	LOW -		N/A
Establishment and/or spread of Alien Plant Species	Preferred	During the operation phase, the failure to manage alien vegetation could result in the widespread invasion of alien vegetation. Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the operation of the proposed infrastructure. This will be of low significance.	Negative	Direct,	Moderate	Study Area	Long-Term	May occur	Reversible	Resource could be	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> The Alien Vegetation Management Plan must continue to be implemented. The site must be monitored on a regular basis to ensure that no alien vegetation establishes on site. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Any alien vegetation found during monitoring must be removed as per the Alien Vegetation Management Plan and the area must be appropriately rehabilitated in alignment with the Rehabilitation Plan. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the operation of the proposed infrastructure. This will be of low significance.	Negative	Cumulative	Moderate	Study area	Long-term	Probable	Irreversible	Resource will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	Negative	Direct	Slight	Study area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
DECOMMISSIONING PHASE														
Loss of Indigenous Vegetation	Preferred	The decommissioning of the infrastructure and removal of materials will require laydown areas and will disrupt vegetation that has re-established around the areas that were disturbed during the construction phase. The loss of vegetation will be similar to the construction phase impacts.	Negative	Direct	Moderate	Localised	Permanent	Probable	Irreversible	Resource will be lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Decommissioning activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint. Vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint. Lay down areas must not be located within any watercourses or drainage lines. Remediate/rehabilitate impact: <ul style="list-style-type: none"> Topsoil (20 cm, where possible) during decommissioning must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the decommissioning phase (e.g. laydown areas). Only indigenous species must be used for rehabilitation after decommissioning. The alien invasive management plan for the site must be implemented. 	LOW -
	No-go	Should the project not proceed then the current land use will remain the same. Vegetation will likely continue to degrade under current land uses.	Negative	Indirect	Slight	Study area	Long-term	Possible	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Disturbance to faunal species and potential reduction in abundance and mortality of faunal species	Preferred	Faunal species will be disturbed during decommissioning due to noise and vibrations of machinery. Faunal Species that vacate the immediate area may return following completion of construction or new individuals or species may inhabit the area. Machinery may cause unintentional mortalities of faunal species.	Negative	Direct	Moderate	Study Area	Permanent	Definite	Reversible	Resource will not be lost	Achievable	MODERATE -	Minimize/reduce impact: <ul style="list-style-type: none"> Vehicles and machinery required during decommissioning must meet best practice standards in terms of noise and vibration. Staff and contractors' vehicles must comply with speed limits of 40 km/hr Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete. ECO must walk ahead of machinery during decommissioning and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat. Any faunal species that may die as a result of decommissioning must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI. Any faunal species observed onsite during decommissioning must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist. Staff and contractors must not permitted to capture, collect or eat any faunal species onsite during decommissioning. 	LOW -
		Portions of habitat have already been lost due to historical and current land uses. The additional loss of habitats will have a low cumulative impact.	Negative	Cumulative	Slight	Study area	Short term	Definite	Reversible	Resource will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing land uses will probably continue should the proposed project not go ahead. This will have a low negative impact on the site, with habitats continuing to degrade.	Negative	Direct	Slight	Study area	Medium term	Probable	N/A	N/A	N/A	LOW -		N/A



POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Establishment and/or spread of Alien Plant Species	Preferred	During the decommissioning phase, the disturbance of natural vegetation creates open habitats that favour the establishment of undesirable alien plant species. The infestation of alien plant species will result in the displacement of indigenous vegetation and possible local extinctions of species. This pre-mitigation impact is of moderate significance but can easily be managed through the implementation of an alien invasive management plan.	Negative	Indirect	Moderate	Study area	Long-term	Probable	Reversible	Resource will not be lost	Easily Achievable	MODERATE -	Remediate/rehabilitate impact: <ul style="list-style-type: none"> All areas previously infested by alien plant species must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as decommissioning has been completed within each area. 	LOW -
		Disturbance from the existing land uses will likely be exacerbated by the additional impacts of the decommissioning of the proposed infrastructure. This will be of low significance.	Negative	Cumulative	Moderate	Study area	Long-term	Probable	Irreversible	Resource will not be lost	Achievable	LOW -		LOW -
	No-go	Disturbance from the existing alien invasive species on site will probably continue should the proposed project not go ahead. This will have a low negative impact on the site.	Negative	Direct	Slight	Study area	Long-term	Probable	N/A	N/A	N/A	LOW -		N/A



6 IMPACT STATEMENT, CONCLUSION AND RECOMMENDATIONS

- 3.1. The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:
- 3.1.14. A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and
 - 3.1.15. Any conditions to which this statement is subjected.

6.1 SUMMARY OF IMPACT SIGNIFICANCE

Table 6.1 provides a summary of the negative impacts of the proposed development on the terrestrial biodiversity and ecology of the area, pre- and post-mitigation, during the construction, operational and decommissioning phases. Prior to mitigation, the proposed development is anticipated to have two impact of HIGH significance, 16 of MODERATE significance and ten of low significance. Most impacts would be reduced to a LOW significance post-mitigation, provided that the proposed mitigation measures are implemented and adhered to. Two highly significant impact will remain as residual impacts, namely the loss of high SEI vegetation.

Table 6.1: Assessment of pre- and post-mitigation impact significance.

PHASE	PRE-MITIGATION			POST-MITIGATION		
	LOW	MOD	HIGH	LOW	MOD	HIGH
Planning & Design	2	3	1	5		1
Construction	5	9	1	14		1
Operational	2	2		4		
Decommissioning	1	2		3		
TOTAL	10	16	2	26		2

The planned layout and siting of construction activities and infrastructure will directly result in the destruction and permanent loss of 2.60 ha of high SEI vegetation (natural and near-natural SMB) during the construction phase, resulting in highly significant impacts. The proposed layout of ventilation and emulsion shafts precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Efforts to minimize and/or rehabilitate these impacts will not be sufficiently effective to reduce their significance, resulting in residual high impacts. Offsetting will be required for the direct losses to compensate for the significant residual impacts of the development. The objective of the offset should be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss.

6.2 RECOMMENDATIONS FOR THE PROPOSED ACTIVITY AND CONDITIONS OF EA & EMPR

As per Section 3.2 of the Terrestrial Biodiversity Protocol (2020), “the findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.” All mitigation measures should therefore be incorporated in the Basic Assessment Report and EMPr once the applicant proceeds to apply for Environmental Authorisation.



All the mitigation measures provided below are to be implemented in the Planning and Design, Construction, Operational and Decommissioning Phases of the proposed activity.

6.2.1 PLANNING AND DESIGN

- Avoid/prevent impact:
 - The proposed layout of ventilation and emulsion shafts precludes the avoidance / prevention of impacts within high SEI terrestrial areas, because the locations of these shafts are contingent on the operational requirements of the underground mining activities. Please refer to offset mitigation below.
 - The siting and layout of supporting infrastructure (e.g. access roads and powerlines) must follow existing disturbed corridors (i.e. existing access roads and servitudes) as far as possible to avoid further impact. Please also refer to minimization and rehabilitation mitigation below.
 - It is recommended that the location of borrow pits 02-06 be moved to a semi-natural or already-degraded area. This will prevent the loss of 1.68 ha of natural to near-natural SMB vegetation and habitat. If this is not feasible, the below measures must be implemented to minimize impacts and rehabilitate the area.
 - Planning for any search and rescue operations must be conducted prior to the commencement of construction activities.
 - All necessary permits must be obtained for the removal of any identified SCC prior to the commencement of construction activities.
- Minimize/reduce impact:
 - During the planning and design phase, the development footprint must be designed to minimize the loss of natural to semi-natural indigenous vegetation as far as possible.
 - The development footprint must be clearly demarcated by a qualified ECO prior to the commencement of construction. Only vegetation within the approved footprint may be removed. Vegetation outside of these areas may not be cleared.
 - Footprint creep must not occur.
 - During the planning and design phase, the development footprint must be designed to minimize edge disturbance impacts.
 - An Alien Vegetation Management Plan must be developed by the Contractor prior to construction to mitigate the establishment and spread of undesirable alien plant species during all phases of the project.
 - The Alien Vegetation Management Plan must be approved by the appointed ECO prior to implementation.
- Remediate/rehabilitate impact:
 - A rehabilitation plan must be developed by the project manager or contractor as part of the method statement and implemented during construction and operation phases. This method statement must be approved by the appointed ECO.
- Offset impact:
 - A biodiversity offset plan must be compiled by an ecologist with experience in undertaking and



facilitating offsets in consultation with key stakeholders.

- The objective of the offset must be to rehabilitate the vegetation and habitat of an existing disturbed area that would compensate for the calculated 2.60 ha loss.

6.2.2 CONSTRUCTION

- Avoid/prevent impact:
 - A botanical walkthrough of the development area, by an experienced botanist with knowledge of the SCC identified as possibly occurring within the site, must be undertaken during the flowering season.
 - All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating SCC identified.
 - If restricted range SCC populations are found, the development must be moved to avoid these populations.
 - The ECO must monitor for potential additional plant SCCs not found during search and rescue activities.
 - Plant SCCs must not be removed from the development footprint unless the relevant permits have been obtained.
 - All clearing activities must deploy search and rescue teams in-front of clearing machinery to assist in relocating slower moving faunal species e.g. tortoises.
 - This team should focus on checking termite mounds, burrows and dens in particular for small mammals, such as the Black-footed Cat, moles and rats.
 - Sensitive species C – Intact habitat patches where these species are known to occur should be buffered (30 m minimum, 100 m recommended) from disturbance taking into account connectivity to other similar habitat, or at least habitats that these species will utilise for migration and dispersal purposes.
- Minimize/reduce impact:
 - Construction activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint.
 - Construction vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint.
 - Lay down areas must not be located within any watercourses or drainage lines.
 - The contractor must ensure that vegetation clearance of natural, near-natural and semi-natural vegetation is restricted to the approved development footprint only.
 - Construction vehicles and machinery must not be permitted outside of the development footprint, as much as practically possible.
 - Clearing of trees should take place in winter months, to prevent birds and bats establishing nesting grounds and starting to breed and rear young in the spring and summer months.
 - Employees must be prohibited from making open fires during the construction phase.
 - The ECO must monitor that all construction activities are conducted within the development footprint.
 - Vehicles and machinery must meet best practice standards in terms of noise and vibration.
 - Staff and contractors' vehicles must comply with speed limits of 40 km/hr



- Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete.
- ECO must walk ahead of clearing construction machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat.
- Any faunal species that may die as a result of construction must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI.
- Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist.
- Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite.
- The Contractor must implement the Alien Vegetation Management Plan. The ECO must monitor for the adequate implementation of this plan.
- The ECO must monitor the site for the presence of alien invasive plant species and take immediate action when these are recorded.
- It is recommended that the ECO prepare a photo guide of all invasive plant species likely to occur on site. This will aid in the identification of undesirable species.
- Remediate/rehabilitate impact:
 - Topsoil (20 cm, where possible) must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas).
 - Only indigenous species must be used for rehabilitation.
 - The alien invasive management plan for the site must be implemented.
 - All impacted areas must be rehabilitated as per the Rehabilitation Plan, as soon as construction has been completed within each area.
 - All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable.
 - All previously infested areas must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as construction has been completed within each area.
- Offset impact:
 - A biodiversity offset must be implemented in during the construction phase and continued during the operational phase in accordance with the approved offset plan to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss.
 - The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO.

6.2.3 OPERATIONAL

- Minimize/reduce impact:
 - Monitoring and maintenance vehicles must not be permitted outside of the development footprint.
 - The Alien Vegetation Management Plan must continue to be implemented.



- The site must be monitored on a regular basis post-construction to ensure that no alien vegetation establishes on site.
- Remediate/rehabilitate impact:
 - The rehabilitation plan must be implemented during operation phases.
 - Any alien vegetation found during monitoring must be removed as per the Alien Vegetation Management Plan and the area must be appropriately rehabilitated in alignment with the Rehabilitation Plan.
- Offset impact:
 - A biodiversity offset must be implemented in during the construction phase and continued during the operational phase in accordance with the approved offset plan to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss.
 - The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO.

6.2.4 DECOMMISSIONING

- Minimize/reduce impact:
 - Decommissioning activities must remain within the approved demarcated development footprint, and no vegetation clearance is to be permitted outside of the approved development footprint.
 - Vehicles and machinery must not encroach into identified highly-sensitive, 'no-go' areas or areas outside the project footprint.
 - Lay down areas must not be located within any watercourses or drainage lines.
 - Vehicles and machinery must meet best practice standards in terms of noise and vibration.
 - Staff and contractors' vehicles must comply with speed limits of 40 km/hr
 - Project must start and be completed within the minimum timeframe, i.e. may not be started and left incomplete.
 - ECO must walk ahead of machinery and move slow moving species e.g. tortoises out of harm's way and into suitable neighbouring habitat.
 - Any faunal species that may die as a result of decommissioning must be recorded (photographed, GPS coordinate captured) and if somewhat intact preserved and donated to SANBI.
 - Any faunal species observed onsite must be recorded (photographed, GPS coordinate captured) and loaded onto iNaturalist.
 - Staff and contractors must not be permitted to capture, collect or eat any faunal species onsite.
- Remediate/rehabilitate impact:
 - Topsoil (20 cm, where possible) must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas).
 - Only indigenous species must be used for rehabilitation.



- The alien invasive management plan for the site must be implemented.
- All areas previously infested by alien plant species must be rehabilitated as per the Rehabilitation Plan, to the satisfaction of the appointed ECO, as soon as construction has been completed within each area.
- Offset impact:
 - The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO.

6.3 FATAL FLAWS

It is the opinion of the specialist that **NO FATAL FLAWS** exist with the proposed development. However, there are two HIGH significance residual impacts after mitigation, namely the loss of high SEI vegetation. Offsetting is recommended to compensate for these impact.

6.4 ENVIRONMENTAL STATEMENT AND OPINION OF THE SPECIALIST

The terrestrial biodiversity and ecological impacts of all aspects for the development were assessed. Impacts are rated as LOW to HIGH pre-mitigation. The implementation of recommended mitigation measures coupled with comprehensive rehabilitation and monitoring in terms of re-vegetation and restoration is an important element of the mitigation strategy. Implementing the recommended mitigations measures will reduce impacts to LOW significance for all but two of the impacts. Two residual HIGH significance impact will remain after the implementation of minimisation and rehabilitation mitigation measures. Offsetting will be required to rehabilitate the vegetation and habitat of an existing disturbed area to compensate for the calculated 2.60 ha loss of high SEI vegetation and faunal habitat. The offset area must be maintained and monitored throughout the construction, operational and decommissioning phases by the ECO.



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8 APPENDIX A: CURRICULUM VITAE

AIDAN JOHN GOUWS *Curriculum Vitae*



CONTACT DETAILS

Name of Company	CES – Environmental and Social Advisory Services
Designation	Centurion Branch
Profession	Senior Environmental Consultant
Years with firm	3 Years
E-mail	a.gouws@cesnet.co.za
Office number	+27 (0)10 045 1372
Nationality	South African
Professional Affiliations	<ul style="list-style-type: none"> • South African Council for Natural Scientific Professions (SACNASP) (<i>Cand.Sci.Nat</i> 121901) • International Association of Impact Assessment (IAIASa)
Key areas of expertise	<ul style="list-style-type: none"> • Environmental Authorisations • Geographical Information Systems (GIS) • Terrestrial Ecology • Wetland Ecology • Database Management

PROFILE

Mr Aidan Gouws

Aidan obtained his MSc in Environmental Science (*Cum laude*) from Rhodes University, having conducted research on the spatio-temporal dynamics of *Acacia dealbata* invasions and broader land-use and cover changes in the northern Eastern Cape, funded through a study bursary awarded by the Agricultural Research Council (ARC). Prior to this, he obtained his BSc Honours in Geographical and Environmental Sciences (*Cum laude*) from the University of Pretoria, studying plant ecology and EIA methodology amongst others. Since joining CES in 2018, he has been involved in several projects, including Basic Assessments (BA), Full Scoping and Environmental Impact Assessments (S&EIA), Environmental Amendment Applications, Environmental Audits and Resettlement Action Plan (RAP) Audits. He works from the Centurion office as a Senior Environmental Consultant. His interests include the general Environmental Impact Assessment (EIA) process, terrestrial and wetland ecology, and database management. Aidan is registered with the South African Council for Natural Scientific Professions (SACNASP) as a Candidate Natural Scientist (*Cand.Sci.Nat.* 121901) and with the International Association for Impact Assessments (IAIA).



AIDAN JOHN GOUWS
Curriculum Vitae



EMPLOYMENT EXPERIENCE	<p>Senior Environmental Consultant – Coastal and Environmental Services (Centurion) <i>August 2020 – Current</i></p> <ul style="list-style-type: none"> • Consulting, project management and conducting assessments in the broad field of Environmental Management, including Basic Assessments, full Scoping and Environmental Impact Assessments, Environmental Management Programmes and Environmental Auditing. • Ecological Impact Assessments • Wetland Impact Assessments • GIS Mapping • Database Management <p>Environmental Consultant – Coastal and Environmental Services (Centurion) <i>July 2018 – July 2020</i></p> <ul style="list-style-type: none"> • Consulting, project management and conducting assessments in the broad field of Environmental Management, including Basic Assessments, full Scoping and Environmental Impact Assessments, Environmental Management Programmes and Environmental Auditing. • Ecological Impact Assessments • GIS Mapping • Database Management <p>Volunteer – Khulisa Social Solutions (Johannesburg) <i>May 2018 – July 2018</i></p> <p>Departmental tutor - Department of Environmental Science, Rhodes University (Grahamstown) <i>January 2016 – December 2017</i></p> <p>Demonstrator - Department of Plant Science, University of Pretoria (Pretoria) <i>July 2015 – December 2015</i></p>
ACADEMIC QUALIFICATIONS	<ul style="list-style-type: none"> • 2014 - BSc Environmental Science (University of Pretoria) • 2015 - BSc (Hons) Geographical and Environmental Science (University of Pretoria) • 2018 - MSc Environmental Science (Rhodes University)
COURSES	<ul style="list-style-type: none"> • 2020 - Tools for Wetland Assessment (Rhodes University, in association with GroundTruth, The Water Research Commission and Verdant Environmental) <i>August 2020</i>
PUBLICATIONS	<ul style="list-style-type: none"> • Gouws, A. J., & Shackleton, C. M. (2019). A spatio-temporal, landscape perspective on <i>Acacia dealbata</i> invasions and broader land use and cover changes in the northern Eastern Cape, South Africa. <i>Environmental Monitoring and Assessment</i>, 191(2), 74. • Gouws, A. J., & Shackleton, C. M. (2019). Abundance and correlates of the <i>Acacia dealbata</i> invasion in the northern Eastern Cape, South Africa. <i>Forest Ecology and Management</i>, 432, 455-466.



AIDAN JOHN GOUWS
Curriculum Vitae



PROFESSIONAL EXPERIENCE

BASIC ASSESSMENTS

Ramotshere Molloa Local Municipality Residential Extensions, Zeerust, North West Province, 2019–2020

Two Basic Assessments for the proposed extension of two residential extensions in Zeerust, North West. Assigned the role of project manager, PPP manager, Terrestrial Ecologist and lead author of the Basic Assessment Report.

SANRAL Koster R52 Road Upgrade, Koster, North West Province, 2018–2021

Basic Assessment for the road upgrade of the R52 route between Koster and the N4 Rustenburg. Assigned the role of project manager, PPP manager, Terrestrial Ecologist, Wetland Ecologist, WULA manager and lead author of the Basic Assessment Report.

Transnet Freight Rail Installation of Telecommunications Masts and Associated Infrastructure at Various Locations in South Africa, 2019–2020

Three Basic Assessments for the installation of telecommunications masts in Gauteng, Mpumalanga and KwaZulu-Natal. Assigned the role of project manager, PPP manager and lead author of the Basic Assessment Report.

PRASA CRES Establishment of Township Leralla Extension 1, Tembisa, Gauteng Province, 2019–2020

Basic Assessment for the proposed township establishment at Leralla Station in Tembisa, Gauteng. Assigned the role of project manager, PPP manager and lead author of the Draft Basic Assessment Report.

FULL SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENTS

SANRAL Zandkraal-Winburg N1 Road Upgrade Quarry S&EIR Authorisation, Winburg, Free State Province, 2018–2021

Full Scoping and Environmental Impact Assessment for the mining of borrow pits and quarries associated with the upgrade of the N1 between Zandkraal and Winburg South. Assigned the role of project manager, PPP manager and lead author of the Scoping Report and Environmental Impact Assessment Report.

SANRAL Masekwaspoort N1 Road Quarry S&EIR Authorisation, Musina, Limpopo Province, 2018–On hold, to resume 2021

Full Scoping and Environmental Impact Assessment for the mining of borrow pits and quarries associated with the upgrade of the N1 between Louis Trichardt and Musina. Assigned the role of co-author of the Scoping Report. Project on hold due to pending design changes.

ENVIRONMENTAL AMENDMENT APPLICATIONS

SANSA Space Operations Installation of Satellite Antennae on Farm Hartebeesthoek 502JQ, Gauteng Province, 2019–2021

Amendment of Environmental Authorisation for the installation of satellite antennae at the South African National Space Agency (SANSA) Space Operations facility. Assigned the role client liaison, Terrestrial Ecologist, Assistant Wetland Ecologist and lead author of the Amendment Report.



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ENVIRONMENTAL AUDITING

SANRAL Hendrina N11 Road Upgrade ECO Audits, Hendrina, Mpumalanga Province, 2018–2019

Environmental Auditing for the construction of the road and mining of borrow pits associated with the upgrade of the N11 route between Hendrina and Hendrina Power Station. Assigned the role of Environmental Control Officer (ECO), author of ECO audit reports and author of the borrow pit closure report.

South African National Biodiversity Institute (SANBI) Office Complex Development, Pretoria, Gauteng Province, 2018

Environmental Auditing for the construction of the Office Complex at the Pretoria National Botanical Gardens. Assigned the role of interim ECO and co-author of ECO audit reports.

RISK ASSESSMENTS

PRASA CRES Inhlanzane Risk Assessment, Jabulani (Soweto), Gauteng, 2019

Social and Environmental Risk Assessment of the Illegal Occupation of the Rail Reserve near Inhlanzane Station - Jabulani (Soweto), Gauteng. Assigned the role of project manager and lead author of the Risk Assessment Report.

RESETTLEMENT ACTION PLAN (RAP) AUDITING

Millennium Challenge Account Malawi (MCA-M) RAP Audits, 2018–2019

Completion audits for six Resettlement Action Plans (RAPs) conducted for the Infrastructure Development Project in Malawi. These RAPs documented the physical and economic displacement impacts and compensation for assets of people affected by wayleave corridors along 400kV, 132kV, 66kV and 33kV OHLs, as well as for substations and permanent access roads. Assigned the role of database support, auditor, training assistant and assistant author. Later assigned the role of database manager.

DATABASE MANAGEMENT

Eswatini Electricity Company (EEC) 132kV Powerline ESIA and RAP, 2020-

Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for the proposed 132kV powerline in the Shiselweni Region of Swaziland. Assigned the role of data analyst and database co-manager.

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Aidan John Gouws

Date: February 2021



9 APPENDIX B: LIST OF PLANT SPECIES

9.1 LIST OF PLANT SPECIES THAT MAY OCCUR WITHIN THE STUDY AREA

The following list of plant species may occur within the study area of the proposed development (Source: <http://posa.sanbi.org/searchsp.php>).

Table 9.1 List of plant species that may occur within the proposed development area.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Sensitive species A				-
Sensitive species B				-
Acanthaceae	<i>Barleria</i>	<i>rotundifolia</i>	Indigenous; Endemic	- LC
Acanthaceae	<i>Blepharis</i>	<i>subvolubilis</i>	Indigenous	- LC
Acanthaceae	<i>Crossandra</i>	<i>greenstockii</i>	Indigenous	- LC
Acanthaceae	<i>Dyschoriste</i>	<i>fischeri</i>	Indigenous	- LC
Aizoaceae	<i>Delosperma</i>	sp.		
Aizoaceae	<i>Khadia</i>	<i>alticola</i>	Indigenous; Endemic	- Rare
Alliaceae	<i>Tulbaghia</i>	<i>leucantha</i>	Indigenous	- LC
Anacardiaceae	<i>Searsia</i>	<i>keetii</i>	Indigenous; Endemic	- LC
Anacardiaceae	<i>Searsia</i>	<i>leptodictya</i>	Indigenous	- Not Evaluated
Anacardiaceae	<i>Searsia</i>	<i>sekhukhuniensis</i>	Indigenous	- Rare
Anacardiaceae	<i>Searsia</i>	<i>zeyheri</i>	Indigenous; Endemic	- LC
Apocynaceae	<i>Asclepias</i>	sp.		
Apocynaceae	<i>Aspidoglossum</i>	<i>interruptum</i>	Indigenous	- LC
Apocynaceae	<i>Pachycarpus</i>	<i>asperifolius</i>	Indigenous	- LC
Apocynaceae	<i>Pachycarpus</i>	<i>concolor</i>	Indigenous	- LC
Apocynaceae	<i>Raphionacme</i>	<i>galpinii</i>	Indigenous	- LC
Asphodelaceae	<i>Aloe</i>	<i>castanea</i>	Indigenous	- LC
Asteraceae	<i>Amphiglossa</i>	<i>triflora</i>	Indigenous	- LC
Asteraceae	<i>Gerbera</i>	<i>jamesonii</i>	Indigenous	- LC
Asteraceae	<i>Gerbera</i>	<i>piloselloides</i>	Indigenous	- LC
Asteraceae	<i>Gerbera</i>	<i>viridifolia</i>	Indigenous	- LC
Asteraceae	<i>Kleinia</i>	<i>stapeliiformis</i>	Indigenous; Endemic	- LC
Asteraceae	<i>Laggera</i>	<i>decurrens</i>	Indigenous	- LC
Asteraceae	<i>Pseudopegolettia</i>	<i>tenella</i>	Indigenous	
Asteraceae	<i>Psiadia</i>	<i>punctulata</i>	Indigenous	- LC
Asteraceae	<i>Schistostephium</i>	<i>rotundifolium</i>	Indigenous	- LC
Asteraceae	<i>Senecio</i>	<i>oxyriifolius</i>	Indigenous	- LC
Capparaceae	<i>Maerua</i>	<i>cafra</i>	Indigenous	- LC
Celastraceae	<i>Robsonodendron</i>	<i>eucleiforme</i>	Indigenous	- LC
Colchicaceae	<i>Ornithoglossum</i>	<i>vulgare</i>	Indigenous	- LC
Combretaceae	<i>Combretum</i>	<i>hereroense</i>	Indigenous	- LC
Combretaceae	<i>Combretum</i>	<i>petrophilum</i>	Indigenous	- Rare
Commelinaceae	<i>Commelina</i>	<i>africana</i>	Indigenous	- LC
Crassulaceae	<i>Crassula</i>	<i>capitella</i>	Indigenous	- LC



FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Cucurbitaceae	<i>Cucumis</i>	<i>myriocarpus</i>	Indigenous	- LC
Cyperaceae	<i>Cyperus</i>	<i>rupestris</i>	Indigenous	- LC
Droseraceae	<i>Drosera</i>	<i>madagascariensis</i>	Indigenous	- LC
Ebenaceae	<i>Euclea</i>	<i>crispa</i>	Indigenous	- LC
Ebenaceae	<i>Euclea</i>	<i>linearis</i>	Indigenous	- LC
Ebenaceae	<i>Euclea</i>	sp.		
Entodontaceae	<i>Entodon</i>	<i>macropodus</i>	Indigenous	
Fabaceae	<i>Bolusanthus</i>	<i>speciosus</i>	Indigenous	- LC
Fabaceae	<i>Crotalaria</i>	<i>monteiroi</i>	Indigenous	- LC
Fabaceae	<i>Dichilus</i>	<i>lebeckioides</i>	Indigenous	- LC
Fabaceae	<i>Dichrostachys</i>	<i>cinerea</i>	Indigenous	- Not Evaluated
Fabaceae	<i>Indigofera</i>	<i>hedyantha</i>	Indigenous	- LC
Fabaceae	<i>Lablab</i>	<i>purpureus</i>	Indigenous	- Not Evaluated
Fabaceae	<i>Lotononis</i>	<i>laxa</i>	Indigenous	- LC
Fabaceae	<i>Melolobium</i>	<i>wilmsii</i>	Indigenous; Endemic	- LC
Fabaceae	<i>Ormocarpum</i>	<i>trichocarpum</i>	Indigenous	- LC
Fabaceae	<i>Pearsonia</i>	<i>aristata</i>	Indigenous	- LC
Fabaceae	<i>Peltophorum</i>	<i>africanum</i>	Indigenous	- LC
Fabaceae	<i>Senegalia</i>	<i>ataxacantha</i>	Indigenous	- LC
Hyacinthaceae	<i>Dipcadi</i>	<i>gracillimum</i>	Indigenous	- LC
Hyacinthaceae	<i>Dipcadi</i>	<i>papillatum</i>	Indigenous	- LC
Hyacinthaceae	<i>Dipcadi</i>	<i>rigidifolium</i>	Indigenous	- LC
Hyacinthaceae	<i>Eucomis</i>	<i>autumnalis</i>	Indigenous	- Not Evaluated
Hyacinthaceae	<i>Eucomis</i>	<i>montana</i>	Indigenous	- LC
Hyacinthaceae	<i>Eucomis</i>	<i>pallidiflora</i>	Indigenous	- LC
Hyacinthaceae	<i>Eucomis</i>	<i>vandermerwei</i>	Indigenous; Endemic	- VU
Hyacinthaceae	<i>Ledebouria</i>	<i>atropurpurea</i>	Indigenous; Endemic	- LC
Hyacinthaceae	<i>Ledebouria</i>	<i>dolomiticola</i>	Indigenous; Endemic	- VU
Hypoxidaceae	<i>Hypoxis</i>	<i>galpinii</i>	Indigenous	- LC
Iridaceae	<i>Freesia</i>	<i>laxa</i>	Indigenous	- LC
Iridaceae	<i>Watsonia</i>	<i>pulchra</i>	Indigenous	- LC
Iridaceae	<i>Watsonia</i>	<i>wilmsii</i>	Indigenous; Endemic	- LC
Kirkiaceae	<i>Kirkia</i>	<i>wilmsii</i>	Indigenous	- LC
Lamiaceae	<i>Leonotis</i>	<i>pentadentata</i>	Indigenous	- LC
Lamiaceae	<i>Orthosiphon</i>	<i>fruticosus</i>	Indigenous; Endemic	- LC
Lamiaceae	<i>Syncolostemon</i>	<i>canescens</i>	Indigenous	- LC
Lamiaceae	<i>Tinnea</i>	<i>rhodesiana</i>	Indigenous	- LC
Lamiaceae	<i>Vitex</i>	<i>obovata</i>	Indigenous	- LC
Linderniaceae	<i>Craterostigma</i>	<i>wilmsii</i>	Indigenous; Endemic	- LC
Maesaceae	<i>Maesa</i>	<i>lanceolata</i>	Indigenous	- LC
Malpighiaceae	<i>Triaspis</i>	<i>glaucophylla</i>	Indigenous; Endemic	- LC
Malvaceae	<i>Grewia</i>	<i>vernica</i>	Indigenous; Endemic	- LC
Malvaceae	<i>Hermannia</i>	<i>montana</i>	Indigenous; Endemic	- LC



FAMILY	GENUS	SPECIES	ECOLOGY	STATUS
Malvaceae	<i>Hermannia</i>	<i>umbratica</i>	Indigenous; Endemic	- LC
Malvaceae	<i>Waltheria</i>	<i>indica</i>	Indigenous	- LC
Meliaceae	<i>Turraea</i>	<i>obtusifolia</i>	Indigenous	- LC
Moraceae	<i>Ficus</i>	<i>ingens</i>	Indigenous	- LC
Ochnaceae	<i>Ochna</i>	<i>serrulata</i>	Indigenous	- LC
Oleaceae	<i>Jasminum</i>	<i>quinatum</i>	Indigenous; Endemic	- LC
Orchidaceae	<i>Disa</i>	<i>cooperi</i>	Indigenous	- LC
Orchidaceae	<i>Eulophia</i>	<i>streptopetala</i>	Indigenous	- LC
Orobanchaceae	<i>Graderia</i>	<i>subintegra</i>	Indigenous	- LC
Pedaliaceae	<i>Sesamum</i>	<i>triphillum</i>	Indigenous	- LC
Poaceae	<i>Panicum</i>	<i>deustum</i>	Indigenous	- LC
Polygalaceae	<i>Polygala</i>	<i>ohlendoriana</i>	Indigenous	- LC
Polygalaceae	<i>Polygala</i>	sp.		
Polygalaceae	<i>Polygala</i>	<i>sekhukhuniensis</i>	Indigenous	- VU
Polygalaceae	<i>Securidaca</i>	<i>longepedunculata</i>	Indigenous	- LC - Protected
Proteaceae	<i>Protea</i>	<i>caffra</i>	Indigenous	- LC
Proteaceae	<i>Protea</i>	<i>parvula</i>	Indigenous	- NT
Rhamnaceae	<i>Berchemia</i>	<i>zeyheri</i>	Indigenous	- LC
Rhamnaceae	<i>Rhamnus</i>	<i>prinoides</i>	Indigenous	- LC
Rubiaceae	<i>Canthium</i>	<i>suberosum</i>	Indigenous	- LC
Rubiaceae	<i>Pavetta</i>	<i>lanceolata</i>	Indigenous	- LC
Rubiaceae	<i>Pentanisia</i>	<i>prunelloides</i>	Indigenous	- LC
Rubiaceae	<i>Vangueria</i>	<i>infausta</i>	Indigenous	- LC
Santalaceae	<i>Thesium</i>	<i>goetzeanum</i>	Indigenous	- LC
Santalaceae	<i>Viscum</i>	<i>combreticola</i>	Indigenous	- LC
Santalaceae	<i>Viscum</i>	<i>verrucosum</i>	Indigenous	- LC
Sapindaceae	<i>Hippobromus</i>	<i>pauciflorus</i>	Indigenous	- LC
Sapotaceae	<i>Mimusops</i>	<i>zeyheri</i>	Indigenous	- LC
Scrophulariaceae	<i>Jamesbrittenia</i>	<i>macrantha</i>	Indigenous; Endemic	- NT
Stilbaceae	<i>Nuxia</i>	<i>gracilis</i>	Indigenous; Endemic	- LC
Thymelaeaceae	<i>Lasiosiphon</i>	<i>capitatus</i>	Indigenous	- LC
Thymelaeaceae	<i>Passerina</i>	<i>montana</i>	Indigenous	- LC
Verbenaceae	<i>Priva</i>	<i>flabelliformis</i>	Indigenous	- LC
Vitaceae	<i>Cyphostemma</i>	<i>woodii</i>	Indigenous	- LC
Vitaceae	<i>Rhoicissus</i>	<i>sekhukhuniensis</i>	Indigenous; Endemic	- LC
Vitaceae	<i>Rhoicissus</i>	<i>tridentata</i>	Indigenous	- LC



9.2 LIST OF PLANT SPECIES RECORDED WITHIN THE ASSESSMENT FOOTPRINT ON SITE

The following list of plant species were recorded within the assessment footprint during the site visit on 9 November 2021.

Table 9.2 List of plant species recorded within the assessment footprint.

FAMILY	GENUS	SPECIES	ECOLOGY	STATUS	TRANSECT #
Asphodelaceae	<i>Aloe</i>	<i>cryptopoda</i>	Indigenous	- LC	4
Asphodelaceae	<i>Aloe</i>	<i>marlothii</i> subsp. <i>marlothii</i>	Indigenous	- LC	3, 4
Poaceae	<i>Arunda</i>	<i>donex</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated - Cat 1b	4
Asteraceae	<i>Berkheya</i>	<i>carlinopsis</i>	Indigenous; Endemic	- LC	7
Asteraceae	<i>Berkheya</i>	<i>insignis</i>	Indigenous	- LC	7, 8
Asteraceae	<i>Brachylaena</i>	<i>ilicifolia</i>	Indigenous	- LC	2, 6
Poaceae	<i>Chloris</i>	sp.			3
Combretaceae	<i>Combretum</i>	<i>hereroense</i>	Indigenous	- Not evaluated	4, 6
Combretaceae	<i>Combretum</i>	<i>molle</i>	Indigenous	- LC	3, 8
Crassulaceae	<i>Crassula</i>	<i>ovata</i>	Indigenous; Endemic	- LC	6
Araliaceae	<i>Cussonia</i>	<i>paniculata</i>	Indigenous	- LC	2, 4, 6, 8
Araliaceae	<i>Cussonia</i>	<i>transvaalensis</i>	Indigenous; Endemic	- LC	4
Vitaceae	<i>Cyphostemma</i>	<i>woodii</i>	Indigenous	- LC	6, 7
Fabaceae	<i>Dichrostachys</i>	<i>cinerea</i>	Indigenous	- Not Evaluated	4, 6, 8
Ebenaceae	<i>Diospyros</i>	<i>lycioides</i>	Indigenous	- LC	2, 3
Malvaceae	<i>Dombeya</i>	<i>rotundifolia</i>	Indigenous	- LC	1, 2, 3, 4
Boraginaceae	<i>Ehretia</i>	<i>rigida</i>	Indigenous	- LC	1, 2
Celastraceae	<i>Elaeodendron</i>	<i>transvaalense</i>	Indigenous	- NT	3, 4, 8
Cyperaceae	<i>Eleocharis</i>	<i>dregeana</i>	Indigenous	- LC	4
Fabaceae	<i>Elephantorrhiza</i>	<i>praetermissa</i>	Indigenous; Endemic	- LC	1, 2, 4, 7, 8
Poaceae	<i>Eragrostis</i>	<i>curvula</i>	Indigenous	- LC	3, 4
Poaceae	<i>Eragrostis</i>	<i>rigidior</i>	Indigenous	- LC	1, 2, 4, 7, 8
Ebenaceae	<i>Euclea</i>	<i>crispa</i>	Indigenous	- LC	1, 2, 6
Ebenaceae	<i>Euclea</i>	<i>sekhukhuniensis</i>	Indigenous	- Not evaluated	1, 2, 3
Malvaceae	<i>Grewia</i>	<i>monticola</i>	Indigenous	- LC	2
Malvaceae	<i>Grewia</i>	<i>vernicaosa</i>	Indigenous; Endemic	- LC	2, 4, 6
Poaceae	<i>Heteropogon</i>	<i>contortus</i>	Indigenous	- LC	1, 3, 4
Sapindaceae	<i>Hippobromus</i>	<i>pauciflorus</i>	Indigenous	- LC	1, 3
Poaceae	<i>Hyparrhenia</i>	<i>tamba</i>	Indigenous	- LC	2, 4
Hypoxidaceae	<i>Hypoxis</i>	<i>rigidula</i>	Indigenous	- LC	4, 8
Scrophulariaceae	<i>Jamesbrittenia</i>	<i>macrantha</i>	Indigenous; Endemic	- NT	1, 3



FAMILY	GENUS	SPECIES	ECOLOGY	STATUS	TRANSECT #
Oleaceae	<i>Jasminum</i>	<i>quinatum</i>	Indigenous; Endemic	- LC	3
Euphorbiaceae	<i>Jatropha</i>	<i>latifolia</i> var. <i>angustata</i>	Indigenous; Endemic	- LC	4
Crassulaceae	<i>Kalanchoe</i>	sp.			6
Kirkiaceae	<i>Kirkia</i>	<i>wilmsii</i>	Indigenous	- LC	4, 5
Verbenaceae	<i>Lantana</i>	<i>camara</i>	Not indigenous; Cultivated; Naturalised; Invasive	- Not Evaluated - Cat 1b	4
Thymelaeaceae	<i>Lasiosiphon</i>	<i>capitatus</i>	Indigenous	- LC	1, 2, 6, 8
Celastraceae	<i>Lydenburgia</i>	<i>cassinoides</i>	Indigenous; Endemic	- NT	2
Poaceae	<i>Melinis</i>	<i>repens</i>	Indigenous	- LC	3, 4
Sapotaceae	<i>Mimusops</i>	<i>zeyheri</i>	Indigenous	- LC	3
Poaceae	<i>Monocymbium</i>	<i>ceresiiforme</i>	Indigenous	- LC	2
Fabaceae	<i>Mundulea</i>	<i>sericea</i>	Indigenous	- LC	2, 3, 4
Stilbaceae	<i>Nuxia</i>	<i>gracilis</i>	Indigenous; Endemic	- LC	3, 4
Anacardiaceae	<i>Ozoroa</i>	<i>sphaerocarpa</i>	Indigenous	- LC	2, 3, 4, 8
Poaceae	<i>Pennisetum</i>	<i>setaceum</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated - Cat 1b	3
Proteaceae	<i>Protea</i>	<i>caffra</i> subsp. <i>caffra</i>	Indigenous	- LC	2
Vitaceae	<i>Rhoicissus</i>	<i>sekhukhuniensis</i>	Indigenous; Endemic	- LC	1, 6, 7, 8
Fabaceae	<i>Rhynchosia</i>	<i>komatiensis</i>	Indigenous	- LC	1, 2, 7
Anacardiaceae	<i>Searsia</i>	<i>keetii</i>	Indigenous; Endemic	- LC	4
Anacardiaceae	<i>Searsia</i>	<i>lancea</i>	Indigenous	- LC	7
Anacardiaceae	<i>Searsia</i>	<i>pyroides</i>	Indigenous	- LC	3, 4, 7, 8
Asteraceae	<i>Senecio</i>	<i>latifolius</i>	Indigenous	- LC	4
Asteraceae	<i>Senecio</i>	<i>microglossus</i>	Indigenous	- LC	2, 4, 7
Fabaceae	<i>Senegalia</i>	<i>ataxacantha</i>	Indigenous	- LC	8
Poaceae	<i>Setaria</i>	<i>sphacelata</i>	Indigenous	- Not Evaluated	3, 8
Solanaceae	<i>Solanum</i>	<i>incanum</i>	Indigenous	- LC	4
Asteraceae	<i>Tagetes</i>	<i>minuta</i>	Not indigenous; Naturalised; Invasive	- Not Evaluated	3
Combretaceae	<i>Terminalia</i>	<i>prunioides</i>	Indigenous	- LC	1, 6
Poaceae	<i>Themeda</i>	<i>triandra</i>	Indigenous	- LC	2
Malpighiaceae	<i>Triaspis</i>	<i>glaucophylla</i>	Indigenous; Endemic	- LC	3
Fabaceae	<i>Vachellia</i>	<i>karroo</i>	Indigenous	- LC	1, 2
Araceae	<i>Zantedeschia</i>	<i>albomaculata</i>	Indigenous	- LC	7
Rhamnaceae	<i>Ziziphus</i>	<i>mucronata</i>	Indigenous	- LC	1



10 APPENDIX C: LIST OF FAUNAL SPECIES

10.1 LIST OF AMPHIBIAN SPECIES

The following list of amphibian species have distribution ranges which include the study area of the proposed development, based on the following sources:

1. Amphibian Taxon Search for coordinate 25°00'00.0"S 30°06'36.0"E (IUCN, 2021);
2. The Frog Map, species list search for Quarter Degree Square (QDS) 2430CC and 2530AA (ADU, 2022);
3. Amphibian Taxon Search (iNaturalist, 2022); and
4. The DFFE Screening Reports (2022).

Table 10.1 List of amphibian species with a distribution range which includes the proposed development area.

FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
Brevicipitidae	<i>Breviceps adspersus</i>	Bushveld Rain Frog	LC	1, 2
	<i>Breviceps mossambicus</i>	Mozambique Rain Frog	LC	1, 2
Bufonidae	<i>Schismaderma carens</i>	Red Toad	LC	1, 2, 3
	<i>Sclerophrys capensis</i>	Raucous Toad	LC	1
	<i>Sclerophrys garmani</i>	Garman's Toad	LC	1
	<i>Sclerophrys gutturalis</i>	Guttural Toad	LC	1, 2
	<i>Sclerophrys pusilla</i>	Merten's Striped Toad	LC	1
Heleophrynidae	<i>Hadromophryne natalensis</i>	Natal Cascade Frog	LC	2
Hyperoliidae	<i>Hyperolius marmoratus</i>	Painted Reed Frog	LC	1, 2
	<i>Kassina senegalensis</i>	Bubbling Kassina	LC	1, 2, 3
	<i>Semnodactylus wealii</i>	Rattling Frog	LC	1, 2
Phrynobatrachidae	<i>Phrynobatrachus natalensis</i>	Natal Puddle Frog	LC	1
Pipidae	<i>Xenopus laevis</i>	Common Platanna	LC	1, 2, 3
Ptychadenidae	<i>Ptychadena anchietae</i>	Plain Grass Frog	LC	1, 2
	<i>Ptychadena porosissima</i>	Striped Grass Frog	LC	1, 2
Pyxicephalidae	<i>Amietia delalandii</i>	Delalande's River Frog	LC	1, 2, 3
	<i>Amietia fuscigula</i>	Cape River Frog	LC	2
	<i>Amietia poyntoni</i>	Poynton's River Frog	LC	1
	<i>Cacosternum boettgeri</i>	Common Caco	LC	1, 2
	<i>Cacosternum nanum</i>	Bronze Caco	LC	2
	<i>Cacosternum parvum</i>	Mountain Caco	LC	1
	<i>Pyxicephalus adspersus</i>	Giant African Bullfrog	LC	1
	<i>Pyxicephalus edulis</i>	Lesser Bull-frog	LC	1
	<i>Strongylopus fasciatus</i>	Striped Stream Frog	LC	1, 2
	<i>Strongylopus grayii</i>	Clicking Stream Frog	LC	1, 2
	<i>Tomopterna cryptotis</i>	Catequero Bullfrog	LC	1
	<i>Tomopterna natalensis</i>	Natal Sand Frog	LC	1, 2
	<i>Tomopterna tandyi</i>	Tandy's Sand Frog	LC	1



10.2 LIST OF REPTILE SPECIES

The following list of reptile species have distribution ranges which include the study area of the proposed development, based on the following sources:

1. Reptile Taxon Search for coordinate 25°00'00.0"S 30°06'36.0"E (IUCN, 2021);
2. The Reptile Map, species list search for QDS 2430CC and 2530AA (ADU, 2022);
3. Reptile Taxon Search (iNaturalist, 2022); and
4. The DFFE Screening Reports (2022).

Table 10.2 List of reptile species with a distribution range which includes the proposed development area.

FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
Sensitive Species C			VU	4
LIZARDS				
Agamidae	<i>Acanthocercus atricollis</i>	Southern Tree Agama	LC	1, 2
	<i>Agama aculeata</i>	Ground Agama	Not evaluated	
	<i>Agama aculeata distanti</i>	Distant's Ground Agama	LC	2
	<i>Agama atra</i>	Southern Rock Agama	LC	1, 2, 3
Chamaeleonidae	<i>Bradypodion transvaalense</i>	Wolkberg Dwarf Chameleon	LC	1, 2, 3
	<i>Chamaeleo dilepis</i>	Common Flap-neck Chameleon	LC	1, 2
Cordylidae	<i>Chamaesaura aenea</i>	Coppery Grass Lizard	LC	
	<i>Chamaesaura macrolepis</i>	Large-scaled Grass Lizard	LC	
	<i>Cordylus jonesii</i>	Jones' Girdled Lizard	LC	
	<i>Cordylus vittifer</i>	Common Girdled Lizard	LC	1, 2, 3
	<i>Platysaurus orientalis</i>	Sekukhune flat lizard	LC	1, 3
	<i>Platysaurus orientalis fitzsimonsi</i>	FitzSimons' Flat Lizard	LC	2
	<i>Platysaurus orientalis orientalis</i>	Sekhukhune Flat Lizard	LC	2, 3
	<i>Pseudocordylus melanotus</i>	Highveld Crag Lizard	LC	
	<i>Pseudocordylus melanotus melanotus</i>	Common Crag Lizard	LC	2
	<i>Smaug vandami</i>	Van Dam's Girdled Lizard	LC	1, 2, 3
Gekkonidae	<i>Afroedura leoloensis</i>	Sekhukhuneland Flat Gecko	LC	1, 2
	<i>Chondrodactylus turneri</i>	Turner's Gecko	LC	1, 2
	<i>Homopholis wahlbergii</i>	Wahlberg's Velvet Gecko	LC	1, 2
	<i>Lygodactylus capensis</i>	Common Dwarf Gecko	LC	1, 2, 3
	<i>Lygodactylus nigropunctatus</i>	Black-spotted Dwarf Gecko	LC	
	<i>Lygodactylus ocellatus</i>	Spotted Dwarf Gecko	LC	1, 2
	<i>Pachydactylus affinis</i>	Transvaal Gecko	LC	
	<i>Pachydactylus capensis</i>	Cape Gecko	LC	
Gerrhosauridae	<i>Gerrhosaurus flavigularis</i>	Yellow-throated Plated Lizard	LC	1, 2
	<i>Matobosaurus validus</i>	Common Giant Plated Lizard	LC	1, 2
Lacertidae	<i>Heliobolus lugubris</i>	Bushveld Lizard	LC	1, 2
	<i>Meroles squamulosus</i>	Common Rough-scaled Lizard	LC	1, 2



FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
	<i>Nucras holubi</i>	Holub's Sandveld Lizard	LC	1, 2, 3
	<i>Nucras lalandii</i>	Delalande's Sandveld Lizard	LC	
	<i>Nucras ornata</i>	Ornate Sandveld Lizard	LC	1, 2
	<i>Pedioplanis lineocellata</i>	Spotted Sand Lizard	LC	1, 3
Scincidae	<i>Acontias albigularis</i>	White-throated Legless Skink	DD	2
	<i>Acontias gracilicauda</i>	Thin-tailed Legless Skink	LC	
	<i>Acontias plumbeus</i>	Giant Legless Skink	LC	
	<i>Mochlus sundevallii</i>	Sundevall's Writhing Skink	LC	
	<i>Panaspis maculicollis</i>	Spotted-neck Snake-eyed Skink	LC	2
	<i>Panaspis wahlbergii</i>	Wahlberg's Snake-eyed Skink	LC	1, 2
	<i>Scelotes mirus</i>	Montane Dwarf Burrowing Skink	LC	
	<i>Trachylepis capensis</i>	Cape Skink	LC	1, 2
	<i>Trachylepis damarana</i>	Damara Variable Skink	LC	
	<i>Trachylepis homalocephala</i>	Red-sided Skink	LC	
	<i>Trachylepis margaritifer</i>	Rainbow Skink	LC	
	<i>Trachylepis margaritifera</i>	Rainbow Skink	LC	2
	<i>Trachylepis punctatissima</i>	Speckled Rock Skink	LC	1, 2, 3
	<i>Trachylepis varia</i>	Variable Skink	LC	1, 3
	<i>Trachylepis varia sensu lato</i>	Common Variable Skink Complex	LC	2
Varanidae	<i>Varanus albigularis</i>	White-throated Monitor	LC	
	<i>Varanus niloticus</i>	Nile Monitor	LC	1, 3
SNAKES				
Colubridae	<i>Crotaphopeltis hotamboeia</i>	Red-lipped Snake	LC	1, 2
	<i>Dasypeltis scabra</i>	Rhombic Egg Eater	LC	
	<i>Dispholidus typus</i>	Boomslang	Not evaluated	
	<i>Philothamnus hoplogaster</i>	South Eastern Green Snake	LC	1, 2, 3
	<i>Philothamnus natalensis</i>	Eastern Natal Green Snake	LC	
	<i>Philothamnus semivariegatus</i>	Spotted Bush Snake	LC	1, 2, 3
	<i>Telescopus semiannulatus</i>	Common Tiger Snake	LC	
	<i>Telescopus semiannulatus semiannulatus</i>	Eastern Tiger Snake	LC	2
	<i>Thelotornis capensis</i>	Southern Twig Snake	LC	
	<i>Thelotornis capensis capensis</i>	Southern Vine Snake	LC	3
Elapidae	<i>Aspidelaps scutatus</i>	Eastern Shield-nose Snake	LC	3
	<i>Dendroaspis polylepis</i>	Black Mamba	LC	1, 2
	<i>Elapsoidea sundevallii</i>	Sundevall's Garter Snake	LC	
	<i>Elapsoidea sundevallii media</i>	Highveld Garter Snake	LC	3
	<i>Hemachatus haemachatus</i>	Rinkhals	LC	
	<i>Naja annulifera</i>	Snouted Cobra	LC	
	<i>Naja mossambica</i>	Mozambique Spitting Cobra	LC	1, 2, 3
Lamprophiidae	<i>Amplorhinus multimaculatus</i>	Many-spotted Snake	LC	



FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
	<i>Aparallactus capensis</i>	Black-headed Centipede-eater	LC	
	<i>Atractaspis bibronii</i>	Bibron's Stiletto Snake	LC	1, 2
	<i>Boaedon capensis</i>	Brown House Snake	LC	1, 2
	<i>Duberria lutrix</i>	Common Slug Eater	LC	
	<i>Gracililima nyassae</i>	Black File Snake	LC	1, 2
	<i>Hemirhagerrhis nototaenia</i>	Eastern Bark Snake	LC	
	<i>Lamprophis aurora</i>	Aurora Snake	LC	
	<i>Lamprophis fuscus</i>	Yellow-bellied House Snake	LC	
	<i>Lamprophis guttatus</i>	Spotted Rock Snake	LC	
	<i>Limaformosa capensis</i>	Common File Snake	LC	
	<i>Lycodonomorphus inornatus</i>	Olive Ground Snake	LC	
	<i>Lycodonomorphus rufulus</i>	Brown Water Snake	LC	1, 2
	<i>Lycophidion capense</i>	Cape Wolf Snake	LC	
	<i>Lycophidion capense capense</i>	Cape Wolf Snake	LC	2
	<i>Lycophidion variegatum</i>	Variiegated Wolf Snake	LC	
	<i>Psammophis angolensis</i>	Dwarf Sand Snake	LC	
	<i>Psammophis brevirostris</i>	Short-snouted Grass Snake	LC	1, 2
	<i>Psammophis crucifer</i>	Cross-marked Grass Snake	LC	1, 2
	<i>Psammophis leightoni</i>	Cape Sand Snake	LC	
	<i>Psammophis mossambicus</i>	Olive Grass Snake	LC	
	<i>Psammophis subtaeniatus</i>	Western Yellow-bellied Sand Snake	LC	1, 2
	<i>Psammophylax rhombeatus</i>	Spotted Grass Snake	LC	1, 2
	<i>Psammophylax tritaeniatus</i>	Striped Grass Snake	LC	1, 2
	<i>Pseudaspis cana</i>	Mole Snake	LC	1, 3
Leptotyphlopidae	<i>Leptotyphlops conjunctus</i>	Cape Thread Snake	LC	
	<i>Leptotyphlops incognitus</i>	Incognito Thread Snake	LC	
	<i>Leptotyphlops jacobseni</i>	Jacobsen's Thread Snake	LC	
	<i>Leptotyphlops scutifrons</i>	Peter's Thread Snake	LC	
	<i>Leptotyphlops scutifrons conjunctus</i>	Eastern Thread Snake	LC	2
	<i>Myriopholis longicauda</i>	Long-tailed Thread Snake	LC	
Pythonidae	<i>Python natalensis</i>	Southern African Python	LC	1, 2
Typhlopidae	<i>Afrotyphlops bibronii</i>	Bibron's Blind Snake	LC	1, 2
	<i>Indotyphlops braminus</i>	Brahminy Blindsnake	LC	
	<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake	LC	1, 2
Viperidae	<i>Bitis arietans</i>	Puff Adder	LC	
	<i>Bitis arietans arietans</i>	Puff Adder	LC	2
	<i>Bitis atropos</i>	Berg Adder	LC	
	<i>Causus defilippii</i>	Snouted Night Adder	LC	1, 2, 3
	<i>Causus rhombeatus</i>	Rhombic Night Adder	LC	

TORTOISES, TURTLES AND TERRAPINS



FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
Testudinidae	<i>Kinixys lobatsiana</i>	Lobatse Hinged Tortoise	LC	1, 2
	<i>Stigmochelys pardalis</i>	Leopard Tortoise	LC	2
WORM LIZARDS				
Amphisbaenidae	<i>Monopeltis infuscata</i>	Dusky Worm Lizard	LC	



10.3 LIST OF MAMMAL SPECIES

The following list of mammal species have distribution ranges which include the study area of the proposed development, based on the following sources:

1. Mammal Taxon Search for coordinate 25°00'00.0"S 30°06'36.0"E (IUCN, 2021);
2. The Mammal Map, species list search for QDS 2430CC and 2530AA (ADU, 2022);
3. Mammal Taxon Search (iNaturalist, 2022); and
4. The DFFE Screening Reports (2022).

Table 10.3 List of mammal species with a distribution range which includes the proposed development area.

FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
Bovidae	<i>Aepyceros melampus</i>	Impala	LC	1
	<i>Alcelaphus buselaphus</i>	Hartebeest	LC	1
	<i>Antidorcas marsupialis</i>	Springbok	LC	1
	<i>Connochaetes taurinus</i>	Common Wildebeest	LC	1
	<i>Damaliscus pygargus</i>	Blesbok	LC	1
	<i>Hippotragus niger</i>	Sable Antelope	LC	1
	<i>Kobus ellipsiprymnus</i>	Waterbuck	LC	1
	<i>Oreotragus oreotragus</i>	Klipspringer	LC	1
	<i>Oreotragus oreotragus transvaalensis</i>	Transvaal Klipspringer	LC	3
	<i>Ourebia ourebi</i>	Oribi	EN	1
	<i>Pelea capreolus</i>	Grey Rhebok	NT	1
	<i>Raphicerus campestris</i>	Steenbok	LC	1
	<i>Redunca arundinum</i>	Southern Reedbuck	LC	1
	<i>Redunca fulvorufula</i>	Mountain Reedbuck	LC	1
	<i>Sylvicapra grimmia</i>	Bush Duiker	LC	1, 2
	<i>Syncerus caffer</i>	African Buffalo	LC	1
	<i>Tragelaphus oryx</i>	Common Eland	LC	1
	<i>Tragelaphus oryx oryx</i>	Cape Eland	LC	3
<i>Tragelaphus scriptus</i>	Bushbuck	LC	1	
<i>Tragelaphus strepsiceros</i>	Greater Kudu	LC	1	
Canidae	<i>Canis mesomelas</i>	Black-backed Jackal	LC	1, 2
	<i>Lupulella mesomelas</i>	Black-backed Jackal	LC	3
	<i>Lycaon pictus</i>	African wild dog	EN	2, 4
	<i>Vulpes chama</i>	Cape Fox	LC	1
Cercopithecidae	<i>Chlorocebus pygerythrus</i>	Vervet Monkey	LC	1, 2
	<i>Papio ursinus</i>	Chacma Baboon	LC	1
	<i>Papio ursinus griseipes</i>	Grayfoot Chacma Baboon	LC	3
Chrysochloridae	<i>Amblysomus robustus</i>	Robust Golden Mole	VU	1, 2
	<i>Chrysothalax villosus</i>	Rough-haired Golden Mole	VU	1
Emballonuridae	<i>Taphozous mauritanus</i>	Mauritian Tomb Bat	LC	1
Equidae	<i>Equus quagga</i>	Plains Zebra	LC	1
	<i>Equus quagga burchellii</i>	Burchell's Zebra	NT	3
Felidae	<i>Caracal caracal</i>	Caracal	LC	1
	<i>Felis nigripes</i>	Black-footed Cat	VU	1



FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
	<i>Felis silvestris</i>	Wild Cat	LC	1
	<i>Leptailurus serval</i>	Serval	NT	1, 2
	<i>Leptailurus serval serval</i>	Southern Serval	NT	3
	<i>Panthera pardus</i>	Leopard	VU	1, 2
	<i>Panthera pardus pardus</i>	African Leopard	VU	3
Galagidae	<i>Galago moholi</i>	Southern Lesser Galago	LC	1
	<i>Otolemur crassicaudatus</i>	Thick-tailed Greater Galago	LC	1
Giraffidae	<i>Giraffa camelopardalis</i>	Giraffe	LC	1
	<i>Giraffa camelopardalis giraffa</i>	South African Giraffe	VU	3
Gliridae	<i>Graphiurus microtis</i>	Small-eared Dormouse	LC	1
	<i>Graphiurus murinus</i>	Woodland Dormouse	LC	1
	<i>Graphiurus platyops</i>	Rock Dormouse	LC	1
Herpestidae	<i>Atilax paludinosus</i>	Marsh Mongoose	LC	1, 3
	<i>Cynictis penicillata</i>	Yellow Mongoose	LC	1
	<i>Helogale parvula</i>	Common Dwarf Mongoose	LC	1
	<i>Herpestes sanguineus</i>	Common Slender Mongoose	LC	1, 3
	<i>Ichneumia albicauda</i>	White-tailed Mongoose	LC	1
	<i>Mungos mungo</i>	Banded Mongoose	LC	1
	<i>Suricata suricatta</i>	Meerkat	LC	1, 2
Hipposideridae	<i>Cloetis percivali</i>	Percival's Trident Bat	EN	1
	<i>Hipposideros caffer</i>	Cape Leaf-nosed bat	LC	1
Hyaenidae	<i>Crocuta crocuta</i>	Spotted Hyaena	NT	1
	<i>Hyaena brunnea</i>	Brown Hyena	NT	2
	<i>Parahyaena brunnea</i>	Brown Hyaena	NT	1, 3
	<i>Proteles cristata</i>	Aardwolf	LC	1, 2
Hystriidae	<i>Hystrix africaeaustralis</i>	Cape Porcupine	LC	1
Leporidae	<i>Lepus capensis</i>	Cape Hare	LC	1
	<i>Lepus victoriae</i>	African Savanna Hare	LC	1
	<i>Pronolagus</i>	Red Rockhares	LC	3
	<i>Pronolagus randensis</i>	Jameson's Red Rock Hare	LC	1
	<i>Pronolagus saundersiae</i>	Hewitt's Red Rock Hare	LC	1
Macroscelididae	<i>Elephantulus brachyrhynchus</i>	Short-snouted Sengi	LC	1
	<i>Elephantulus myurus</i>	Eastern Rock Sengi	LC	1
Molossidae	<i>Otomops martiensseni</i>	Large-eared Free-tailed Bat	LC	1
	<i>Tadarida aegyptiaca</i>	Egyptian Free-tailed Bat	LC	1
Muridae	<i>Acomys selousi</i>	Selous's Spiny Mouse	LC	1
	<i>Acomys</i> sp.	Spiny Mice	LC	2
	<i>Aethomys ineptus</i>	Tete Veld Aethomys	LC	1, 2, 3
	<i>Aethomys</i> sp.	Veld rats	LC	2
	<i>Dasymys incomtus</i>	Common Dasymys	NT	1
	<i>Dasymys robertsii</i>	Robert's Shaggy Rat	VU	4
	<i>Gerbilliscus brantsii</i>	Highveld Gerbil	LC	1
	<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil	LC	1



FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
	<i>Lemniscomys rosalia</i>	Single-Striped Lemniscomys	LC	1
	<i>Lemniscomys</i> sp.	Grass Mice	LC	2
	<i>Mastomys coucha</i>	Southern African Mastomys	LC	1
	<i>Mastomys natalensis</i>	Natal Mastomys	LC	1, 2
	<i>Mastomys</i> sp.	Multimammate Mice	LC	2
	<i>Micaelamys namaquensis</i>	Namaqua Rock Rat	LC	1
	<i>Mus (Nannomys) minutoides</i>	Southern African Pygmy Mouse	LC	2
	<i>Mus musculus</i>	House Mouse	LC	1
	<i>Otomys angoniensis</i>	Angoni Vlei Rat	LC	1
	<i>Otomys auratus</i>	Vlei Rat	NT	1
	<i>Rattus rattus</i>	House Rat	LC	1
	<i>Rattus</i> sp.	Genus Rattus	LC	2
	<i>Rhabdomys dilectus</i>	Mesic Four-striped Grass Rat	LC	1
	<i>Rhabdomys pumilio</i>	Xeric Four-striped Grass Rat	LC	2
	<i>Thallomys paedulus</i>	Acacia Thallomys	LC	1
Mustelidae	<i>Aonyx capensis</i>	African Clawless Otter	NT	1
	<i>Hydrictis maculicollis</i>	Spotted-necked Otter	LC	1
	<i>Ictonyx striatus</i>	Zorilla	LC	1
	<i>Mellivora capensis</i>	Honey Badger	LC	1, 2
	<i>Poecilogale albinucha</i>	African Striped Weasel	NT	1
Nesomyidae	<i>Cricetomys ansorgei</i>	East African Savannah Pouched Rat	LC	1
	<i>Dendromus melanotis</i>	Gray African Climbing Mouse	LC	1
	<i>Dendromus mesomelas</i>	Brants's African Climbing Mouse	LC	1
	<i>Dendromus mystacalis</i>	Chestnut African Climbing Mouse	LC	1
	<i>Saccostomus campestris</i>	Southern African Pouched Mouse	LC	1
	<i>Steatomys krebsii</i>	Kreb's African Fat Mouse	LC	1
	<i>Steatomys pratensis</i>	Common African Fat Mouse	LC	1
Nycteridae	<i>Nycteris thebaica</i>	Cape Long-eared Bat	LC	1, 2
Orycteropodidae	<i>Orycteropus afer</i>	Aardvark	LC	1, 2
Pedetidae	<i>Pedetes capensis</i>	Spring Hare	LC	1
Procaviidae	<i>Procavia capensis</i>	Rock Hyrax	LC	1
Pteropodidae	<i>Eidolon helvum</i>	African Straw-coloured Fruit-bat	LC	1
	<i>Epomophorus wahlbergi</i>	Wahlberg's Epauletted Fruit Bat	LC	1
Rhinocerotida	<i>Ceratotherium simum</i>	White Rhino	NT	1
	<i>Diceros bicornis</i>	Black Rhino	CR	1
Rhinolophidae	<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat	LC	1, 2
	<i>Rhinolophus cohenaie</i>	Cohen's Horseshoe Bat	VU	1, 2
	<i>Rhinolophus darlingi</i>	Darling's Horseshoe Bat	LC	1
Soricidae	<i>Crocidura cyanea</i>	Reddish-gray Musk Shrew	LC	1
	<i>Crocidura fuscomurina</i>	Bicolored Musk Shrew	LC	1, 3
	<i>Crocidura hirta</i>	Lesser Red Musk Shrew	LC	1
	<i>Crocidura maquassiensis</i>	Makwassie Musk Shrew	VU	1, 4



FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS	SOURCE
	<i>Crocidura mariquensis</i>	Swamp Musk Shrew	NT	1
	<i>Crocidura silacea</i>	Lesser Gray-brown Musk Shrew	LC	1
	<i>Myosorex</i> sp.	Mouse Shrews	LC	2
	<i>Myosorex varius</i>	Forest Shrew	LC	1
	<i>Suncus lixus</i>	Greater Dwarf Shrew	LC	1
	<i>Suncus varilla</i>	Lesser Dwarf Shrew	LC	1
Suidae	<i>Potamochoerus larvatus</i>	Bushpig	LC	1, 2
Thryonomyidae	<i>Thryonomys swinderianus</i>	Greater Cane Rat	LC	1
Vespertilionidae	<i>Eptesicus hottentotus</i>	Long-tailed House Bat	LC	1
	<i>Kerivoula lanosa</i>	Lesser Woolly Bat	LC	1
	<i>Miniopterus natalensis</i>	Natal Long-fingered Bat	LC	1
	<i>Myotis bocagii</i>	Bocage's Mouse-eared Bat	LC	1
	<i>Myotis welwitschii</i>	Welwitsch's Myotis	LC	1, 2
	<i>Neoromicia capensis</i>	Cape Bat	LC	1
	<i>Neoromicia nana</i>	Banana Pipistrelle Bat	LC	1
	<i>Neoromicia zuluensis</i>	Zulu Pipistrelle Bat	LC	1
	<i>Pipistrellus anchietae</i>	Anchieta's Pipistrelle	LC	1
	<i>Pipistrellus rusticus</i>	Rusty Bat	LC	1
	<i>Scotophilus dinganii</i>	Yellow-bellied House Bat	LC	1
Viverridae	<i>Genetta maculata</i>	Large-spotted Genet	LC	1, 3
	<i>Civettictis civetta</i>	African Civet	LC	1
	<i>Genetta genetta</i>	Common Genet	LC	1
	<i>Genetta tigrina</i>	Cape Genet (Cape Large-spotted Genet)	LC	2

APPENDIX 8.2 – RIVER AND WETLAND ECOSYSTEM REPORT

**PROPOSED DEVELOPMENT OF THREE VENTILATION SHAFTS AT
MOTOTOLO MINE, LIMPOPO PROVINCE**

**RIVER AND WETLAND ECOSYSTEM
SPECIALIST REPORT**

Prepared for:



Portion 1 Thorncliffe Farm, Provincial Route R577, Steelpoort
Postnet Suite 46, Private Bag X20097, Lydenburg, 1120

Prepared by:



CENTURION

*Also in Cape Town, East London, Grahamstown, Port Elizabeth and
Maputo (Mozambique)*

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JULY 2022



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CES Report Revision and Tracking Schedule

Document Title:	Proposed Development of Three Ventilation Shafts at Mototolo Mine, Limpopo Province– River and Wetland Ecosystem Specialist Report		
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PROJECT TEAM EXPERTISE AND DECLARATIONS

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.1. *The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professions (SACNASP), with expertise in the field of aquatic sciences.*

2.7. *The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:*

2.7.1. *Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae; [and]*

2.7.2. *A signed statement of independence by the specialist.*

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SACNASP Registration No.	<i>Cand.Sci.Nat.</i> 121901
SACNASP Field of Practice	Environmental Science
Experience (no. of years)	3 years in environmental consulting and terrestrial biodiversity assessments

Aidan obtained his MSc in Environmental Science (*Cum laude*) from Rhodes University, having conducted research on the spatio-temporal dynamics of *Acacia dealbata* invasions and broader land-use and cover changes in the northern Eastern Cape, funded through a study bursary awarded by the Agricultural Research Council (ARC). Prior to this, he obtained his BSc Honours in Geographical and Environmental Sciences (*Cum laude*) from the University of Pretoria, studying plant ecology and EIA methodology amongst others. Since joining CES in 2018, Aidan has been involved in several projects, including Basic Assessments, Full Scoping and Environmental Impact Assessments, Environmental Amendment Applications, Environmental Audits and Terrestrial Biodiversity Assessments. He is registered with the South African Council for Natural Scientific Professions (SACNASP) as a Candidate Natural Scientist and with the International Association for Impact Assessments (IAIA). Aidan received his certificate of competence in wetland assessments after completing the Tools for Wetland Assessment (TWA) Course in 2020, hosted by Rhodes University in association with GroundTruth, The Water Research Commission and Verdant Environmental. He has since been involved in a number of wetland assessments under the mentorship of Mr Ryan Edwards of Verdant Environmental.

Declaration of Independence

This is to certify that the following report has been prepared as per the requirements of:

- Section 32 (3) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental Impact Assessment Regulations 2017 as per Government Notice No. 40772 Government Gazette, 4 December 2014 (as amended); and
- The Department of Human Settlements, Water & Sanitation for Water Use Licensing and wetland/aquatic assessment, as outlined in the ‘Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals’ contained in the Government Gazette No. 40713 of 24 March 2017.

I, **Aidan Gouws**, hereby declare that this report has been prepared independently of any influence or prejudice as may be specified by the Department of Forestry, Fisheries and the Environment (DFFE) and Department of Human Settlements, Water and Sanitation (DHSWS).

Signed:

Date: 18 January 2022



Name of Specialist	Ryan Edwards
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Highest Qualification	MSc. Environmental Science (Dissertation Topic: Wetland Origin and Evolution)
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SACNASP Field of Practice	Environmental Science
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<p>Ryan is a wetland ecosystem specialist and environmental scientist with thirteen (13) years of experience in the natural scientific and environmental management consulting sector. His core field of focus, specialisation and passion is wetland and riparian ecosystem ecology and has conducted over 100 specialist assessments for a wide variety of clients and sectors in South Africa. Ryan also has over ten (10) years of experience in wetland rehabilitation and management, wetland offset planning and implementation and vegetation assessments. Ryan is one of the leading wetland ecologists in the field of wetland offset planning and implementation in SA and has been involved in several high-profile offset projects and the development of novel offset solutions. Ryan’s highest qualification is a Master of Science (MSc) in Environmental Science (Research Masters) and his Masters dissertation was on wetland geomorphology. Ryan is currently accredited as a professional natural scientist by the South African Council for Natural Scientific Professions (SACNASP) under the field of practice – ‘environmental science’.</p>	
<p>Declaration of Independence</p> <p>This is to certify that the following report has been prepared as per the requirements of:</p> <ul style="list-style-type: none"> • Section 32 (3) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental Impact Assessment Regulations 2017 as per Government Notice No. 40772 Government Gazette, 4 December 2014 (as amended); and • The Department of Human Settlements, Water & Sanitation for Water Use Licensing and wetland/aquatic assessment, as outlined in the ‘Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals’ contained in the Government Gazette No. 40713 of 24 March 2017. <p>I, Ryan Edwards, hereby declare that this report has been prepared independently of any influence or prejudice as may be specified by the Department of Forestry, Fisheries and the Environment (DFFE) and Department of Human Settlements, Water and Sanitation (DHSWS).</p> <p>Signed:</p> <p>Date: 18 January 2022</p>	

Please refer to the Curricula vitae in Appendix B for more information.



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GLOSSARY OF TERMS

TERM	DEFINITION
Alien vegetation	Plants that do not occur naturally within the area but have been introduced either intentionally or unintentionally. Vegetation species that originate from outside of the borders of the biome -usually international in origin.
Alluvial soil	A deposit of sand, mud, etc. formed by flowing water, or the sedimentary matter deposited thus within recent times, especially in the valleys of large rivers.
Biodiversity	The number and variety of living organisms on earth, the millions of plants, animals and micro-organisms, the genes they contain, the evolutionary history and potential they encompass and the ecosystems, ecological processes and landscape of which they are integral parts.
Buffer	A strip of land surrounding a wetland or riparian area in which activities are controlled or restricted, in order to reduce the impact of adjacent land uses on the wetland or riparian area.
Catchment	The area contributing to runoff at a particular point in a river system.
Chroma	The relative purity of the spectral colour which decreases with increasing greyness.
Delineation (of a wetland)	To determine the boundary of a wetland based on soil vegetation and/or hydrological indicators.
Ecoregion	An ecoregion is a "recurring pattern of ecosystems associated with characteristic combinations of soil and landform that characterise that region".
Facultative species	Species usually found in wetlands (76%-99% of occurrences) but occasionally found in non-wetland areas.
Groundwater	Subsurface water in the saturated zone below the water table.
Hydromorphic soil	A soil that in its undrained condition is saturated or flooded long enough to develop anaerobic conditions favouring the growth and regeneration of hydrophytic vegetation (vegetation adapted to living in anaerobic soils).
Hydrology	The study of the occurrence, distribution and movement of water over, on and under the land surface.
Hydromorphy	A process of gleying and mottling resulting from the intermittent or permanent presence of excess water in the soil profile.
Indigenous vegetation	Vegetation occurring naturally within a defined area.
Obligate species	Species almost always found in wetlands (>99% of occurrences).
Perennial	Flows all year round.
Ramsar	The Ramsar Convention (The Convention on Wetlands of International Importance, especially as Waterfowl Habitat) is an international treaty for the conservation and sustainable utilisation of wetlands, i.e., to stem the progressive encroachment on and loss of wetlands now and in the future, recognising the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value. It is named after the city of Ramsar in Iran, where the Convention was signed in 1971.



LIST OF ACRONYMS

ACRONYM	TERM
CBA	Critical Biodiversity Area
CES	CES Environmental and Social Advisory Services
CRD	Coarse Residue Disposal
ECO	Environmental Control Officer
EI	Ecological Importance
ES	Ecological Sensitivity
ESA	Ecological Support Area
FRD	Fine Residue Disposal
GIS	Geographical Information System
IAP	Invasive Alien Plant
IHI	Index of Habitat Integrity
IUCN	International Union for Conservation of Nature
MRD	Mine Residue Deposit
NEMBA	National Environmental Management Biodiversity Act
OCS	Off-Channel Storage
OMWSD	On-Mine Water Storage Dam
PCD	Pollution Control Dam
PES	Present Ecological State
QDS	Quarter Degree Square
RWD	Return Water Dam
SA	South Africa
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SQR	Sub Quaternary Reach
SWCD	Storm Water Control Dam
VOP	Venetia Open Pit Project
VUP	Venetia Underground Project



1 INTRODUCTION

In terms of Section 1 of the Aquatic Biodiversity Protocol (2020):

- 1.1. An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of:
- 1.1.1. “Very high sensitivity” for aquatic biodiversity, must submit an Aquatic Biodiversity Specialist Assessment.
- 1.4. If any part of the proposed development footprint falls within an area of “very high” sensitivity, the assessment and reporting requirements prescribed for the “very high” sensitivity apply to the entire footprint . . . In the context of this protocol, development footprint means the area on which the proposed development will take place and includes any area that will be disturbed.

1.1 PROJECT LOCATION AND DESCRIPTION

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine’s Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thornccliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga) (Figure 1.1).

Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method. Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and -pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³/s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is sub-optimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and associated infrastructure, including the establishment of six borrow pits for material sourcing and the upgrading of access roads and powerlines.

1.1.1 VENTILATION AND EMULSION SHAFTS

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole. The following details are currently available for the proposed ventilation and emulsion shafts.

The proposed **Downcast Shaft** will be located at the western extent of the project area, approximately 2.2 km west of the main Borwa Shaft (Figure 1.2). The technical report from Bluhm Burton Engineering Pty Ltd estimated the position of the downcast shaft to be at the bottom of current excavations below South Strike 17. This shaft needs to be moved into the laterals to lessen the impact on the mine operation and traffic management plan and to get the most favourable position on surface to make



the drilling operation safer and easier. The following additional requirements are noted for the Downcast Shaft:

- All power will be supplied via diesel generator, due to it only being a downcast shaft no permanent power is required.
- Polluted water control processes will need to be established.
- Preparation of underground site for access control and removing of chips while reaming.
- Site establishment by raise bore drilling contractor and start drilling.
 - Area must be banded where drill will be positioned.
 - Drill pilot hole for raise bore.
 - Drill hole for communication to underground.

The proposed **North Exhaust (Upcast) Shaft** will be located to the north-east of the Downcast Shaft, approximately 1.4 km west of the main Borwa Shaft (Figure 1.3). After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Exhaust shaft. The whole process will be the same as for the downcast shaft but after completion of the drilling operation, ventilation structures will be erected with ventilation fans over the excavation. After completion the ventilation fans will be commissioned. The proposed **Southern Exhaust (Upcast) Shaft** will be located to the south-east of the Downcast Shaft, approximately 2.1 km south-west of the main Borwa Shaft (Figure 1.4). After the completion of the raise boring at the North Exhaust shaft, raise boring will move over to the Southern Exhaust Shaft. After the completion of the raise boring at the Downcast Shaft, raise boring will move over to the Northern Upcast Shaft, then to the Southern Upcast Shaft.

The proposed **Emulsion Shaft** will be located en route to the Downcast Shaft, approximately 1.5 km west of the main Borwa Shaft (Figure 1.5). This point will be required to be accessed by a SASOL emulsion tanker every 2 -3 days. Emulsion will be gravity fed down a hole at this point into the workings below. It will also be constructed at the same time as the access roads to ventilations shafts.

An **existing ventilation shaft** occurs within the project area, located approximately 1.1 km south-west of the main Borwa Shaft (Figure 1.6).

1.1.2 BORROW PITS

Construction materials will be sourced from six borrow pits, namely:

- **Borrow pit 01**, located near the entrance to the project area, immediately to the south of the main Borwa Shaft mining area, which will encompass an area of 10 086 m² (Figure 1.7);
- **Borrow pit 02**, located near the Northern Upcast Vent Shaft (Figure 1.3), which will encompass an area of 4 445 m²;
- **Borrow pit 03**, located near the emulsion borehole, which will encompass an area of 3 167 m² (Figure 1.5);
- **Borrow pit 04 and borrow pit 05**, located en route to the Southern Upcast Vent Shaft (Figure 1.8Figure 1.3), which will encompass areas of 2 037 m² and 3 135 m², respectively; and
- **Borrow pit 06**, located near the Southern Upcast Vent Shaft (Figure 1.4), which will encompass an area of 4 044 m².



1.1.3 ACCESS ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole and will be included in the applications (Figure 1.1). Access will be required to enable construction of the ventilation shaft and for future inspections. Road will need to be designed to accommodate environmental and physical vehicle requirements to lessen effect on the environment and enable safe use of the road by vehicles. The proposed upgrades need to accommodate the following:

- The raise bore drill and ancillary equipment need to go up and down along the road;
- The roads are to be used by water trucks and diesel tankers to supply water for drilling operations and diesel for power generator requirements, respectively;
- Concrete trucks need to use the road to supply concrete for civil work;
- Other materials required for drilling operation and construction need to be to the sites via the proposed roads; and
- Although not a direct requirement for the project, but for cost savings, the road needs to accommodate the emulsion tanker and allow pumping of emulsion directly underground to a new transfer station underground through a planned hole on surface.

Route 1 runs westwards from the site entrance, splitting towards each of the proposed ventilation shafts and emulsion borehole sites. Access to the Downcast Shaft will be achieved via the proposed upgrade of **Routes 3 and 5-1**. The designs for **Route 2, 4 and 5-2** will include the road to the finalised position of the Northern Upcast shaft, Southern Upcast shaft and Emulsion borehole, respectively. All access roads will be built at the same time.

1.1.4 POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including:

- The Ventilation Line South (Borwa-South), 2 600 m in length;
- The Ventilation Line North (Borwa-North), 2 000 m in length; and
- The Downcast Line, 1200 m in length (Figure 1.1).

1.1.5 CONSTRUCTION SITE CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination, etc.



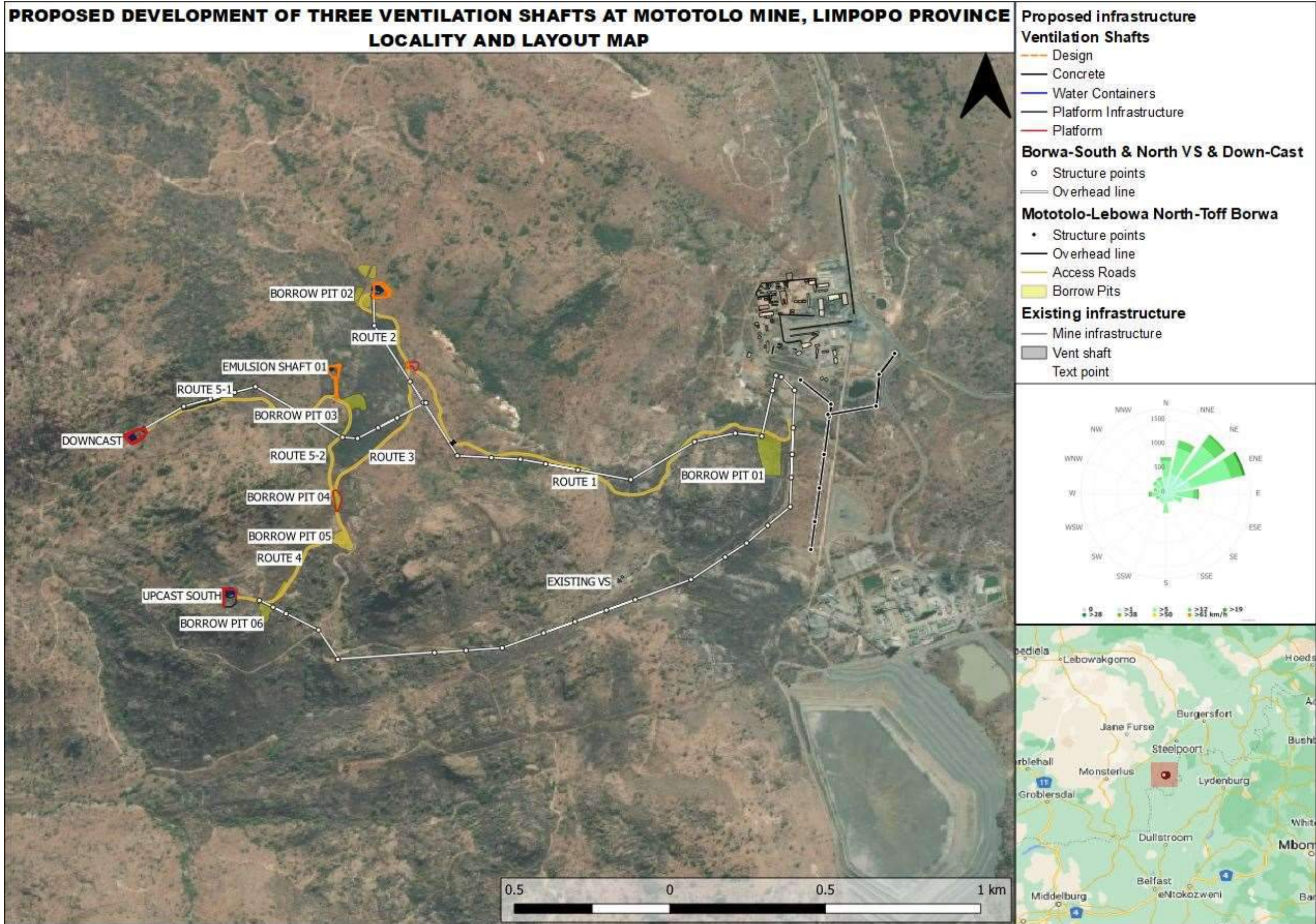




Figure 1.2: Layout map of the proposed downcast ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

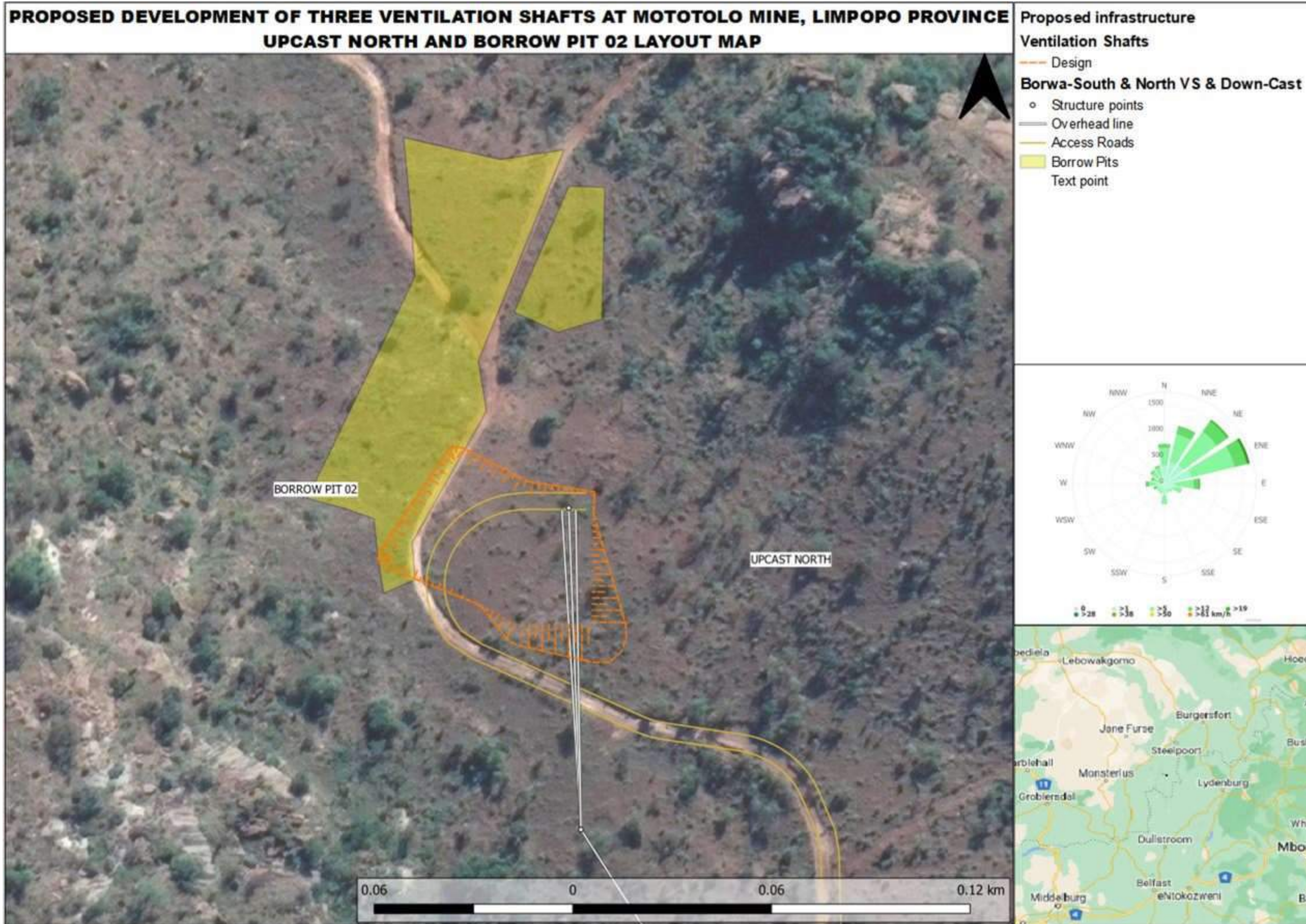


Figure 1.3: Layout map of the proposed upcast north ventilation shaft and borrow pit 02 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

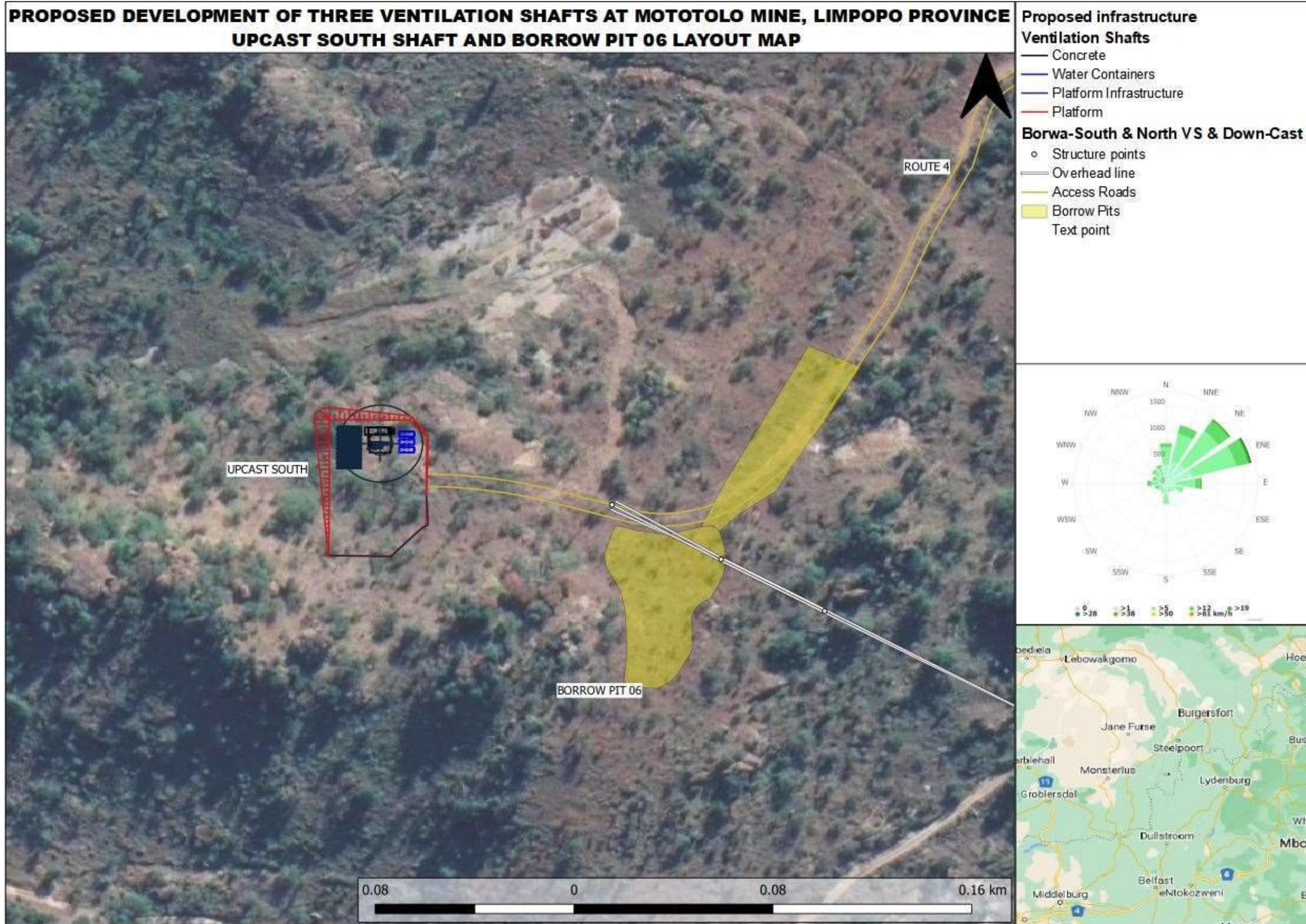


Figure 1.4: Layout map of the proposed upcast south ventilation shaft and borrow pit 03 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

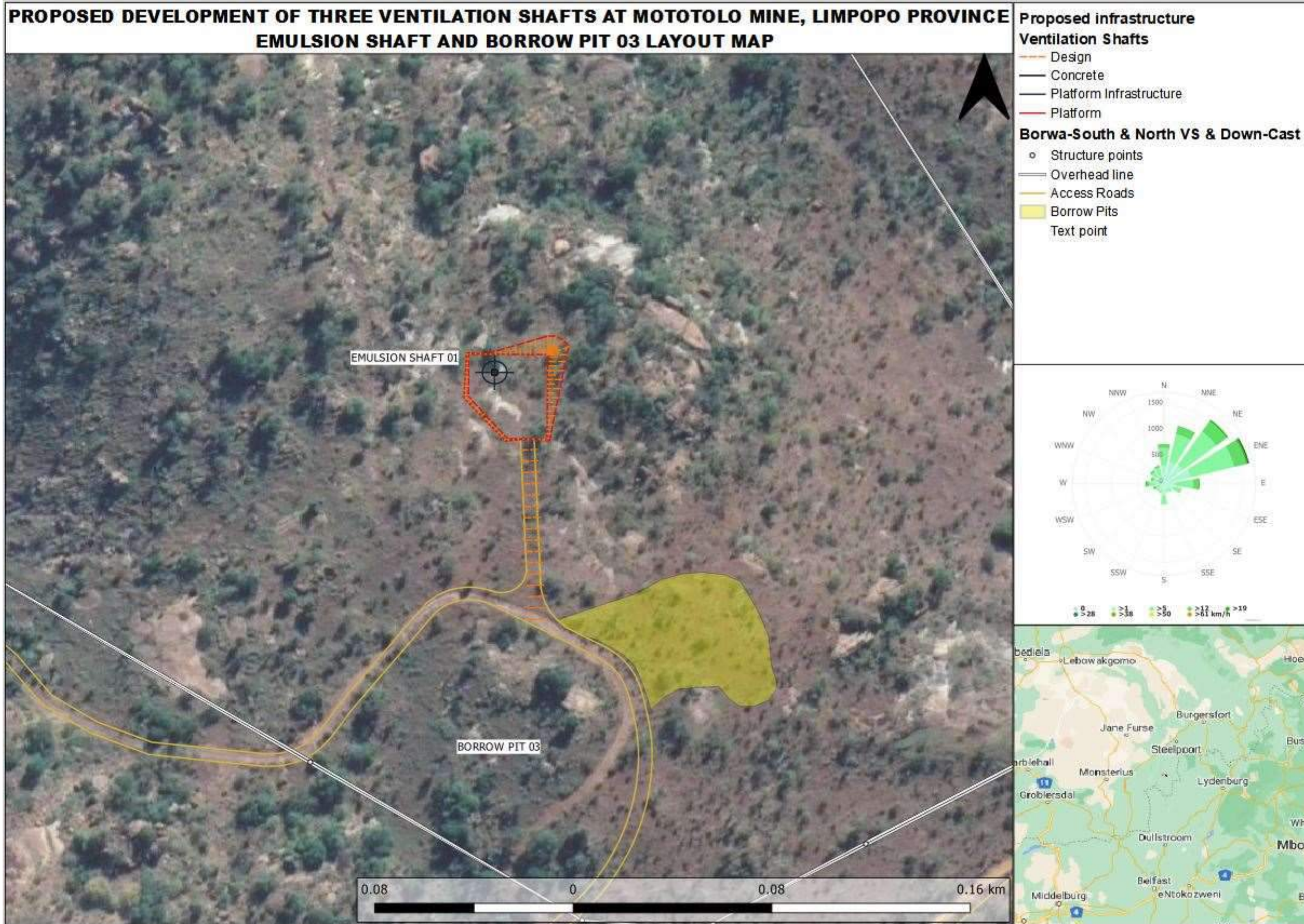


Figure 1.5: Layout map of the proposed emulsion shaft and borrow pit 03 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



Figure 1.6: Layout map of the existing ventilation shaft at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

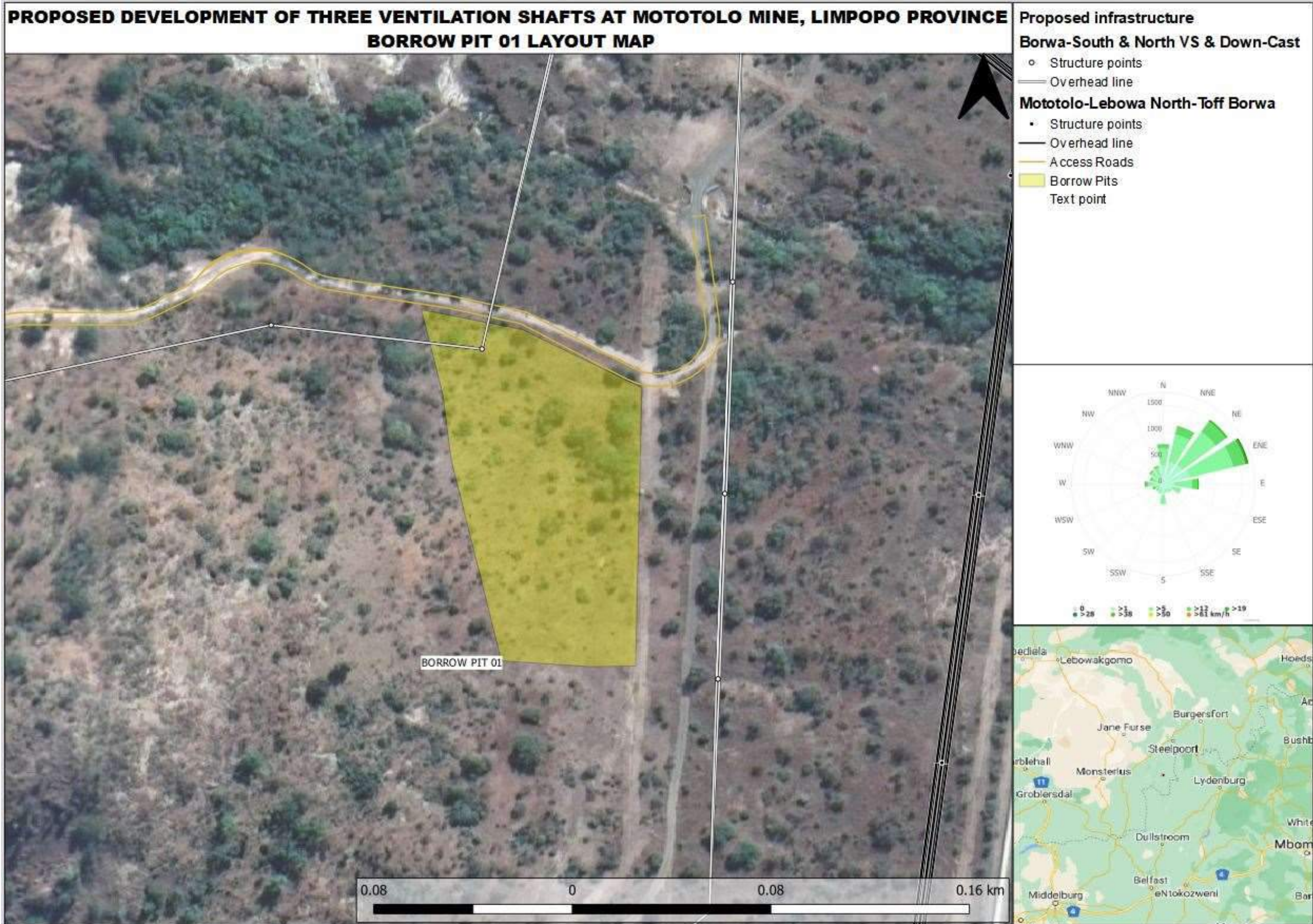


Figure 1.7: Layout map of the proposed borrow pit 01 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

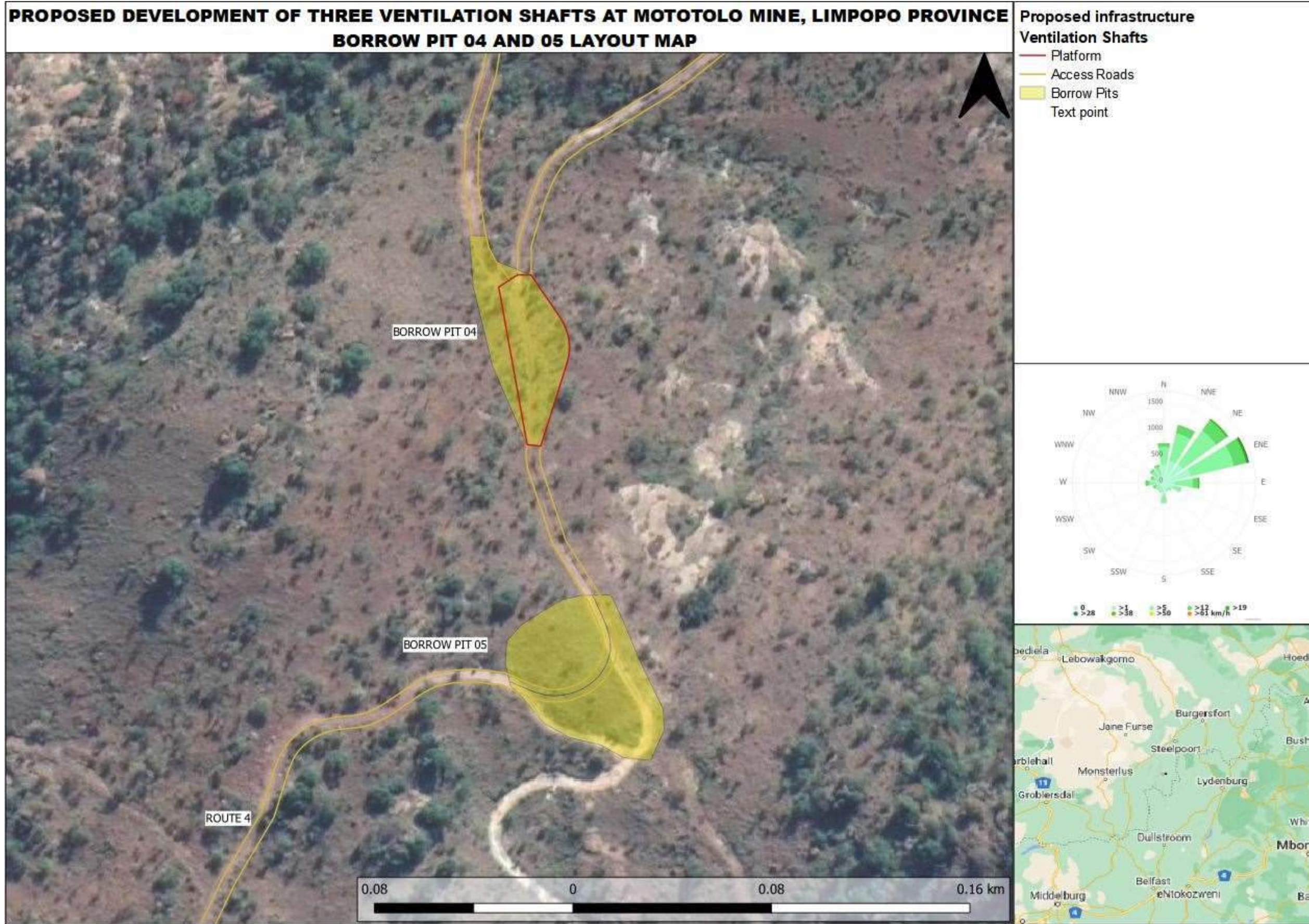


Figure 1.8: Layout map of the proposed borrow pits 04 and 05 at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



1.2 SCOPE OF ASSESSMENT AND CONTENTS OF THE SPECIALIST REPORT

The specialist assessment sought to identify and delineate all watercourses within 100 m and wetland ecosystems within 500 m of the project site that stand to be negatively impacted by the proposed activities and assess these in terms of their health / functionality and functional / ecological importance. Other watercourses directly impacted upon by the project were also delineated and assessed. The terms of reference for the Aquatic Biodiversity and Wetland Ecosystem Assessment were therefore specified as follows, to:

- Undertake a desktop assessment of the freshwater ecosystem (river and wetland) context using available national and regional spatial datasets, assessments, and classifications;
- Undertake a desktop screening of all wetlands, rivers and other watercourses within 500 m of the project site that are likely to be negatively impacted by the project and confirmation of the study area for infield investigation. The remaining watercourses within 500 m were mapped and classified at a desktop level only;
- Delineate the wetlands and riparian zones according to the national wetland and riparian zone delineation guidelines (DWAF, 2005);
- Classify the wetlands and rivers according to the national aquatic ecosystem classification system (Ollis et al., 2013);
- Assess of the Present Ecological State (PES) of the delineated wetland units and river reaches using published assessment tools;
- Assess the importance of the ecosystem services provided by the delineated wetland and riparian zones;
- Assess of the Ecological Importance and Sensitivity (EIS) of the delineated wetlands and rivers using published assessment tools;
- Determine the recommended ecological category (REC) for each of the delineated wetland and river units using a generic matrix for the determination of RECs for water resources (DWAF);
- Provide recommended best practice and site-specific project design (layout and design) measures to avoid and minimise impacts to wetland and freshwater / aquatic ecosystems;
- Identify, describe and assess the potential and likely direct and indirect impacts of the project on local wetlands and rivers, including cumulative impacts;
- Provide the project design, construction phase and operational phase mitigation measures to avoid, minimize and/or rehabilitate the potential impacts;
- Assess the significance of the potential impacts of the project on wetland and river ecosystems using a structured assessment method;
- Assess the qualitative risk of the proposed development activities on wetlands and rivers using the DWS risk matrix for Section 21(c) and 21(i) water uses; and
- Determine any outright fatal flaws associated with the project.

The Aquatic Biodiversity and Wetland Ecosystem Specialist Assessment was conducted in accordance with the Aquatic Biodiversity Protocol (2020). This protocol provides the criteria for the specialist assessment and minimum report content requirements for impacts on aquatic biodiversity for activities requiring EA. This protocol replaces the requirements of Appendix 6 of the EIA Regulations 2014, GN R. 982 (as amended), published under NEMA.



The assessment and reporting requirements of this protocol are associated with a level of environmental sensitivity identified by DFFE's national web-based environmental screening tool screening tool. The screening tool identified the site footprint as falling within an area of "Very High Sensitivity" for Aquatic Biodiversity, namely within a Freshwater Ecosystem Priority Area (FEPA) Quinary Catchment. This triggered the need for a full Aquatic Biodiversity Assessment. Table 1.1 below indicates how the assessment complied with the requirements of the Aquatic Biodiversity Protocol, with reference to specific sections in this report.

Table 1.1: Requirements of an Aquatic Biodiversity Specialist Assessment Report

AQUATIC BIODIVERSITY SPECIALIST ASSESSMENT REPORT REQUIREMENTS		SECTION IN REPORT
2.7.	The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:	Biodiversity Specialist
2.7.1.	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page vi and Appendix A
2.7.2.	A signed statement of independence by the specialist;	Page vii-viii
2.7.3.	A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 3.2
2.7.4.	The methodology used to undertake the site inspection and the specialist assessment, including equipment and modelling used, where relevant;	Chapter 2
2.7.5.	A description of the assumptions made, any uncertainties or gaps in knowledge or data;	Section 2.7
2.7.6.	The location of areas not suitable for development, which are to be avoided during construction and operation, where relevant;	Chapter 4
2.7.7.	Additional environmental impacts expected from the proposed development;	Chapter 5
2.7.8.	Any direct, indirect and cumulative impacts of the proposed development on site;	
2.7.9.	The degree to which impacts and risks can be mitigated;	
2.7.10.	The degree to which the impacts and risks can be reversed;	
2.7.11.	The degree to which the impacts and risks can cause loss of irreplaceable resources;	
2.7.12.	A suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies;	Chapter 4
2.7.13.	Proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr);	Chapter 6
2.7.14.	A motivation must be provided if there were development footprints identified as per paragraph 2.4 [of the Aquatic Biodiversity Protocols] that were identified as having a "low" aquatic biodiversity sensitivity and that were not considered appropriate;	Chapter 0
2.7.15.	A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed development and if the proposed development should receive approval or not; and	Section 7.3 and 7.4
2.7.16.	Any conditions to which this statement is subjected.	Chapter 6

This report was also compiled in accordance with the requirements of a Watercourse/Wetland Delineation Report, as published under the National Water Act, 1998 (Act 36 of 1998) (Table 1.2).

Table 1.2: Requirements of a Wetland Delineation Report

REQUIREMENTS OF A WETLAND DELINEATION REPORT		SECTION IN REPORT
1.	Introduction	Chapter 1
2.	Terms of reference	Section 0
3.	Knowledge gaps	Section 2.7



REQUIREMENTS OF A WETLAND DELINEATION REPORT		SECTION IN REPORT
4.	Study area	Chapter 3
5.	Expertise of the specialist	Page vi
6.	Aims and objectives	Chapter 0
7.	Methodology	Chapter 2
7.1.	Wetland identification and mapping	Section 2.2
7.2.	Wetland delineation	Section 2.2.1
7.3.	Wetland functional assessment	Section 2.3.2
7.4.	Determining the ecological integrity of the wetlands	Section 2.3
7.5.	Determining the Present Ecological State of wetlands	Section 2.3.1
7.6.	Determining the Ecological Importance and Sensitivity of wetlands	Section 2.3.3
7.7.	Ecological classification and description	Section 2.2.2
8.	Results	Chapter 3
8.1.	Wetland delineation	Section 3.2.1
8.2.	Wetland unit identification	Section 3.2.1
8.3.	Wetland unit setting	Section 3.2.1
8.4.	Wetland soils	Section 3.2.1
8.5.	Description of wetland type	Section 3.2.1
8.6.	General functional description of wetland types	Section 3.2.1
8.7.	Wetland ecological functional assessment	Section 4.1
8.8.	The ecological health assessment of the affected area	Section 3.2.2
8.9.	The PES assessment of the remaining wetland areas	Section 3.2.2
8.10.	The EIS assessment of the remaining wetland areas	Section 4.2
9.	Impact assessment discussions	Section 7.1
10.	Conclusions and recommendations	Chapter 6
11.	References	Chapter 8

1.3 RELEVANT LEGISLATION

This specialist assessment was conducted in alignment with the regulatory and legislative requirements for environmental management in South Africa. The environmental legislation relevant to the proposed development is summarised in Table 1.3 below.

Table 1.3: Environmental legislation considered in the preparation of this report

LEGISLATION	DESCRIPTION	RELEVANCE
The Constitution, 1996 (Act No. 108 of 1996).	<p>The Constitution of the Republic of South Africa is the supreme law of the land. As a result, all laws, including those pertaining to this Management Plan, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right:</p> <ul style="list-style-type: none"> a) <i>To an environment that is not harmful to their health or well-being; and</i> b) <i>To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:</i> <ul style="list-style-type: none"> i. <i>Prevent pollution and ecological degradation;</i> ii. <i>Promote conservation; and</i> 	<p>The proponent has an obligation to ensure that the proposed activity will not result in pollution and ecological degradation, as well as an obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.</p>



LEGISLATION	DESCRIPTION	RELEVANCE
	<p><i>iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</i></p>	
<p>National Environmental Management Act (NEMA), 1998 (Act No. 108 of 1998)</p>	<p>The objective of NEMA is: <i>“To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.”</i></p> <p>This report has been guided by the NEMA Principles detailed in Section 2 of the Act. NEMA introduces the “duty of care” concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of responsible persons, including companies, for the conduct of the legal persons.</p>	<p>The undertaking of a specialist study, in this case, the aquatic and wetland study, in order to identify potential impacts on the aquatic environment and to recommend mitigation measures to minimise these impacts, complies with Section 28 of NEMA.</p> <p>The developer must apply the NEMA principles, the fair decision-making and conflict management procedures that are provided for in NEMA.</p>
<p>NEMA EIA Regulations (2014, as amended)</p>	<p>The NEMA EIA Regulations (2014, as amended) aim to avoid detrimental environmental impacts through the regulation of specific activities that cannot commence without prior environmental authorisation. Authorisation either requires a Basic Assessment or a Full Scoping and Environmental Impact Assessment, depending on the type of activity. These assessments specify mitigation and management guidelines to minimise negative environmental impacts and optimise positive impacts. Should any portion of an area be proposed for development (after proclamation) these Regulations should be consulted.</p>	<p>An application for Environmental Authorisation (as triggered by the EIA 2014 Regulations, as amended) is required to be submitted to the Competent Authority.</p>
<p>Aquatic Biodiversity Protocol (2020)</p>	<p>This protocol provides the criteria for the specialist assessment and minimum report content requirements for impacts on aquatic biodiversity for activities requiring EA. This protocol replaces the requirements of Appendix 6 of the EIA Regulations 2014, GN R. 982 (as amended), published under NEMA.</p>	<p>This assessment and report complies with the Aquatic Biodiversity Protocol.</p>
<p>NEMBA: Alien Invasive Species Regulations (2014)</p>	<p>The Alien and Invasive Species Regulations (2014) categorises the different types of alien and invasive plant and animal species and how they should be managed:</p> <ul style="list-style-type: none"> • Category 1a Listed Invasive Species – species which must be <u>combated or eradicated</u>. 	<p>An invasive species management, control and eradication plan for land/activities under their control should be developed, as part of their environmental plans in accordance with Section 11 of NEMA.</p>



LEGISLATION	DESCRIPTION	RELEVANCE
	<ul style="list-style-type: none"> • Category 1b Listed Invasive Species – species which must be <u>controlled</u>. • Category 2 Listed Invasive Species – species which <u>require a permit</u> and must not be allowed to spread outside of the designated area. • Category 3 Listed Invasive Species – species which are <u>subject to exemptions</u> in terms of section requiring a permit, but where such a species occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3. 	
<p>National Water Act (36 of 1998)</p>	<p>Provides details of measures intended to ensure the comprehensive protection of all water resources, including the water reserve and water quality.</p>	<p>All necessary Water Use Licence Applications must be submitted to the Department of Human Settlements, Water and Sanitation for approval.</p>
<p>Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals (2017)</p>	<p>In accordance with the Section 21 of the National Water Act (NWA), 1998 (Act 36 of 1998) and the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals 2017, a Wetland Delineation Report will be required in support of any GA application for water uses associated with development within 500 m of a wetland.</p>	<p>This report was compiled in accordance with the requirements of a Watercourse/Wetland Delineation Report, as outlined in the Water Use Regulations.</p>



2 ASSESSMENT METHODOLOGY

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.7. The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:

2.7.3. A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

2.7.4. The methodology used to undertake the site inspection and the specialist assessment, including equipment and modelling used, where relevant;

2.7.5. A description of the assumptions made, any uncertainties or gaps in knowledge or data;

2.7.12. A suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies.

The aim of the study was to identify and delineate all watercourses within 100 m and wetland ecosystems within 500 m of the project site that are going to measurably negatively impacted by the project activities, evaluate these in terms of their present functionality and health, and assess the potential impacts and risks associated with the proposed development.

2.1 DATA COLLECTION AND ASSESSMENT APPROACH

2.1.1 DESKTOP ASSESSMENT

A desktop assessment of the project area was conducted in terms of current surface water classifications and biodiversity programmes and plans. This included the consideration of the following base data:

- DWS Desktop Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) Model (2014);
- Department of Water Affairs and Forestry: Level 2 River Eco-regional Classification System for South Africa, Lesotho and Swaziland (2005);
- The National Freshwater Ecosystem Priority Areas (NFEPA) project (2011 - 2014); and
- National Biodiversity Assessment (NBA) – South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (2018).

The quality of the base data used for the desktop assessment report is described in Table 2.1 below. It should be noted that only datasets and base data relevant to the study area and affected environmental features have been discussed below.

Table 2.1: Base data used and quality thereof

BASE DATASET	DATA AGE	DATA QUALITY
Department of Water and Sanitation (DWS) Desktop Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) Model.	2014	A combination of expert knowledge and available information on Sub Quaternary Reach (SQR) level were used to derive the Desktop PES and EIS model. The objective of the PESEIS is to provide desktop level information on ecological issues as it relates to the protection and management of SQRs. For management purposes this refers specifically to the consideration of ecological reserve issues, water use licensing issues and EWRM (including the National Aquatic Ecosystem Health Monitoring Programme (NAEHMP) activities) and the determination of priorities for monitoring. The PESEIS relates specifically to Rivers (Instream &



BASE DATASET	DATA AGE	DATA QUALITY
		Riparian aspects) and limited aspects of Valley Bottom Wetlands. Endorheic Wetlands are not addressed. The DWS model has been compiled by the RQIS-RDM, a Planning and Information Branch of the DWS and is the most up to date data set available.
Department of Water Affairs and Forestry: Level 2 River Ecoregional Classification System for South Africa, Lesotho and Swaziland.	2007	The delineation of Ecoregions for SA has been derived from terrain and vegetation data, with altitude, rainfall, runoff variability, air temperature, geology and soil data. The data has been compiled by the RQIS; a Planning and Information Branch of the DWS. DWS will not accept any responsibility for the accuracy of this data -- the outlines may change as the owner incorporates more data sets. Note that transition zones between regions are about 5km wide. The Ecoregions Level 2 document is still in draft form.
The National Freshwater Ecosystem Priority Areas (NFEPA) project	2011-2014	NFEPA was originally completed in 2011 and has recently (2014) been updated. FEPAs were determined through a process of systematic biodiversity planning and involved collaboration of over 100 freshwater researchers and practitioners. FEPAs were identified based on a range of criteria dealing with the maintenance of key ecological processes and the conservation of ecosystem types and species associated with rivers, wetlands and estuaries, described in detail in the NFEPA Technical Report. The data was compiled by a large number of authors/specialists for the Water Research Commission of SA and is the most recent data available.
National Spatial Biodiversity Assessment (NSBA) – River Ecosystems	2004	The River component of the NSBA was based on the work conducted by the DWAF, CSIR and WRC in the National Freshwater Biodiversity Initiative. The status of river ecosystems was assessed based on the river signatures and the integrity of the main rivers. The NSBA was commissioned by the Department of Environmental Affairs (DEA) as part of the National Biodiversity Strategy and Action Plan. The NSBA was the first ever comprehensive spatial assessment of biodiversity throughout the country. This data is old and should only be used as a baseline to show the change in river conditions over time.
The National Wetland Classification System (NWCS)	2013	The NWCS uses hydrological and geomorphological traits to distinguish the direct factors that influence wetland function. This is presented as a 6 tiered structure with four spatially nested primary levels that are applied in a hierarchical manner between different wetland types on the basis of these direct factors. This Classification system has been commissioned by Freshwater Consulting Group (through SANBI). The latest revision of the NWCS (2013) included the National Wetlands Map Version 4 (NWM4, 'NFEPA Wetlands' Map). The NWM4 is the current version used in SANBI's BGIS interactive tool.
National Biodiversity Assessment (NBA) – South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	2018	<p>The National Biodiversity Assessment (NBA) is the primary tool for monitoring and reporting on the state of biodiversity in South Africa. It is used to inform policies, strategies and actions in a range of sectors for managing and conserving biodiversity more effectively.</p> <p>The inland aquatic assessment for the NBA 2018 was led by the Council for Scientific and Industrial Research (CSIR) and was made possible by contributions from at least 121 individuals from 35 institutions between 2015 and 2019. A formal reference committee provided overall oversight, while both rivers and inland wetlands also had separate oversight committees for classification</p>



BASE DATASET	DATA AGE	DATA QUALITY
		<p>and mapping. Numerous species expert groups undertook the species Red List assessments, which were led by SANBI’s Threatened Species Unit.</p> <p>The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) 2018 is a collection of spatial data relating to the extent of river and wetland ecosystems types, as well as information on pressures, confidence and extent of protection. These include the following:</p> <ul style="list-style-type: none"> • NBA 2018 Rivers; • National Wetlands Map Version 5 (NWM5); • NWM5 Confidence Map; and • NBA 2018 Artificial Wetlands.

The NFEPA programme provides strategic spatial priorities for conserving South Africa’s freshwater ecosystems and supports sustainable use of water resources. These priority areas are called Freshwater Ecosystem Priority Areas, or FEPAs. The system comprises a hierarchical classification process of defining a wetland based on the principles of the hydro-geomorphic (HGM) approach at higher levels, with structural features being included at the finer levels (SANBI, 2009).

Wetland ecosystem types were used by NFEPA for representing natural examples of the diversity of wetland ecosystem types across South Africa. Wetlands of the same ecosystem type are expected to share similar functionality and ecological characteristics. The biodiversity target for freshwater ecosystems in South Africa is 20%, which means that we should keep at least 20% of each wetland ecosystem type in a natural or near-natural condition. This serves to conserve many common species and communities, and the habitats in which they evolve. Information used to classify wetlands as FEPAs included:

- Ramsar status;
- Known threatened frog and waterbird occurrences; and
- Expert knowledge on biodiversity importance.

Important rivers are also classified according to the NFEPA rivers maps. These rivers are considered Freshwater Ecosystem Priority Areas (FEPAs). FEPAs are strategic spatial priorities for conserving freshwater ecosystems and supporting sustainable use of water resources. FEPAs are an essential part of an equitable and sustainable water resource strategy meaning that they need to stay in a good condition to manage and conserve freshwater ecosystems, and to protect water resources for human use. This means that the areas should be supported by good planning, decision-making and management to ensure that human use does not impact on the aquatic ecosystem.

The FEPA status of the watercourses and wetlands within the proposed development site and surrounding areas were determined at the desktop level using the NFEPA (2011) and NBA (2018) spatial datasets.

2.1.2 SITE ASSESSMENT

Upon the completion of the desktop assessment a site visit was undertaken to determine the actual condition of the watercourse and wetland features within the study area.



Upon the completion of the desktop assessment a site visit was undertaken to determine the actual condition of the terrestrial ecology within the study area. The site assessment was on 16 November 2021. To some extent, the season during which the assessment was conducted influenced the conditions on site at the time. The site survey was conducted in early summer when most plants were at the end of the flowering stage. Early flowering species, specifically geophytes could therefore not be easily identified. However, the time available in the field, and information gathered during the survey was sufficient to provide enough information to determine the status of the affected area.

Transect were conducted across the desktop-identified watercourses and wetlands. The GPS coordinates were captured, observations and photographs were recorded, and a soil auger was used to extract soil to a depth of up to 50 cm.

2.2 DEFINING AND DESCRIBING AQUATIC ECOSYSTEMS

The National Water Act (NWA), 1998 (Act No. 36 of 1998, as amended in 2013) defines a 'watercourse' as:

- a) *"A river or spring;*
- b) *Natural channel in which water flows regularly or intermittently;*
- c) *A wetland, lake or dam into which, or from which, water flows; and*
- d) *Any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes where relevant, its bed and banks."*

Riparian habitats include *"the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas"* (NWA).

"Wetland" is a name given to a variety of ecosystems ranging from rivers, springs, seeps and mires in upper catchments, to midland marshes, pans and floodplains, coastal lakes, mangrove swamps and estuaries at the bottom of a catchment. These ecosystems all share the common primary driver of water and its prolonged presence is a fundamental determinant of soil characteristics, vegetation and animal life (DWAF, 2005).

The NWA Act defines wetlands as:

"Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."

Thus wetlands must have one or more of the following characteristics:

- **Hydromorphic soils:** characteristic soils of prolonged saturation;
- **Hydrophytes,** at least occasionally: plants that are adapted to waterlogged and anaerobic soil conditions; and
- **High or perched water table,** at least occasionally: a high or perched water table that results in saturation at or near the surface, leading to anaerobic conditions developing in the top 50 cm of the soil.



Wetland formation is controlled by geological, hydrological and topographical factors that encourage prolonged near surface flooding and soil saturation. These landforms form in parts of a catchment where the movement of water is slowed down or obstructed, causing soil to become temporarily, seasonally or permanently waterlogged.

Watercourses and wetlands within the proposed development site and surrounding areas were defined and described using the Department of Water Affairs and Forestry (DWAF) Delineation Guidelines (2005), the National Wetland Classification System (NWCS, 2013), the National Biodiversity Assessment (NBA, 2018) and the National Freshwater Ecosystem Priority Areas (NFEPA, 2014).

2.2.1 RIPARIAN AND WETLAND DELINEATION

The DWAF (2005) guidelines for “a practical field procedure for delineation of wetlands and riparian areas” are recommended in Gazette No. 19182, Notice No. 1091 of the National Water Act, 1998. This guideline explains the field indicators and methods for determining whether an area is a wetland or a riparian area, and how to find its boundaries.

Riparian delineation refers to the determination and demarcation of the boundary of the riparian area/zone, defined as the outer edge of the macro-channel bank and associated vegetation (DWAF, 2005). Three indicators are used to delineate riparian areas, namely topography, vegetation, and alluvial soils and deposited material (DWAF, 2005). Topographically, the outer edge of the macro-channel bank provides a rough indication of the riparian area, with vegetation providing a more exact delineation of the riparian boundary (DWAF, 2005). The boundary of the riparian area is marked by a distinct transition in the structure and composition of vegetation from riparian to terrestrial (DWAF, 2005). Although less reliable without the support of topographical and vegetation indicators, the presence of alluvial soils and recently-deposited materials, such as sand, mud and vegetation debris, can also often be used to confirm the boundary of riparian areas (DWAF, 2005).

Wetland delineation refers to the determination and demarcation of the boundary of the wetland, defined as the outer edge of the temporary wetness zone. In wetland delineation there are three zones which are distinguished according to a changing frequency of saturation. These are the permanent, seasonal and temporary zone. Although the primary driver of a wetland is water, due to its dynamic nature water is not a very useful parameter for identifying the outer boundary of a wetland. What is needed is a method of identifying the indirect indicators of prolonged saturation by water. This includes wetland plants (hydrophytes) and wetland (hydromorphic) soils. Their presence or absence implies the frequency and duration of saturation and is a satisfactory indicator to classify the area as a wetland (DWAF, 2005). There are four important indicators that are used to define the boundaries of a wetland. The most important one is the soil wetness indicator with the terrain unit, soil form and vegetation indicators acting as confirmation. Once a wetland is confirmed, the point where wetland indicators disappear is regarded as the edge of the wetland.

During the site visit, transects were conducted across the watercourses and wetlands within the proposed development site and surrounding areas, starting from the suspected centre of the wetland (i.e. lowest lying and wettest area) and moving outwards. Terrain, soil and vegetation characteristics were noted at each sample point.



2.2.1.1 WETLAND SOILS

Prolonged anaerobic soil conditions result in diagnostic soil features that are characteristic of hydric or hydromorphic soils that are used as the primary indicator of wetland occurrence and delineation in South Africa. The permanently wet zone is characterised by either near black, organic rich or medium to light grey ('gleyed') soil where prolonged saturation and anaerobic conditions result in the reduced rate of organic matter decomposition and organic matter accumulation, and in the reduction of iron and manganese that coats soil particles, which results in a loss of soil colour referred to as 'gleying'. The seasonally wet zone is characterised by dark to light grey soils as a result of mineral reduction but with an abundance of orange and black mottles formed by the repeated wetting (reduction of minerals) and drying (oxidisation of minerals) of the soils. Due to the period of saturation being shorter than seasonal zones, temporary zones are characterised by less soil gleying (i.e. less mineral reduction) and lower abundances of mottles.

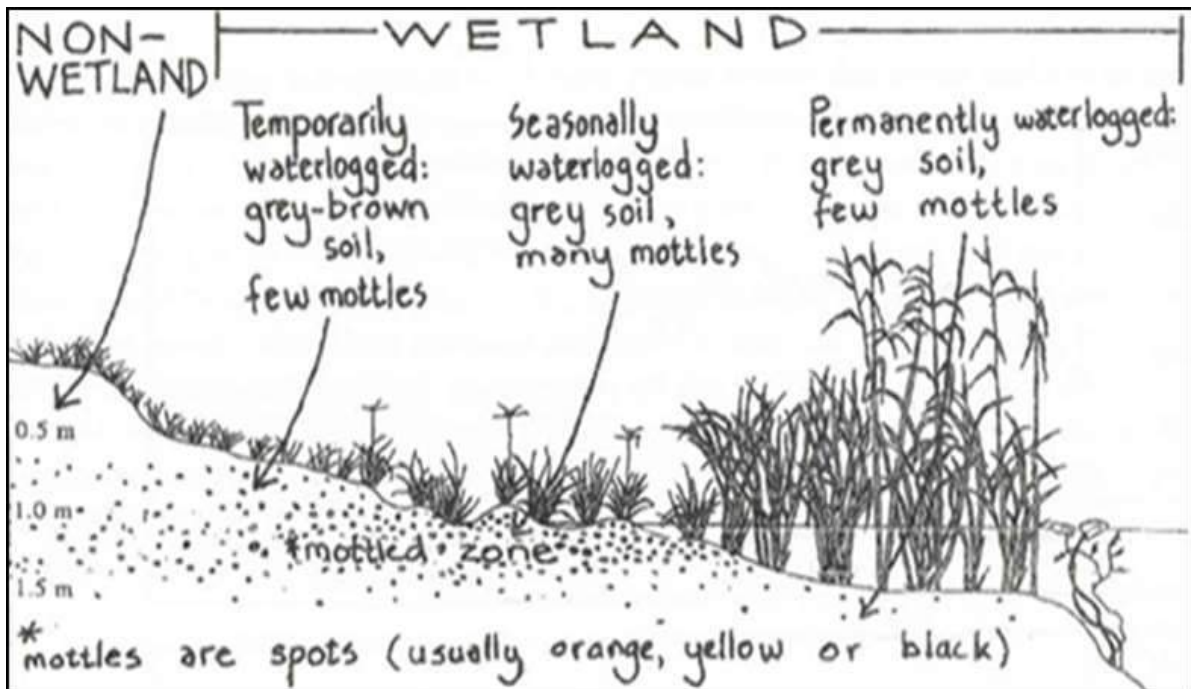


Figure 2.1: A cross-section through a wetland, indicating how the soil wetness and vegetation indicators change as one moves along a gradient of decreasing wetness, from the middle to the edge of the wetland (DWAf, 2005).

During the site visit, soils were examined in 10 cm horizon intervals to a maximum depth of 50 cm at each sample point along the transects. The abovementioned indicators were then used to determine the permanently, seasonally and temporarily wet zones of the wetland, and to distinguish these from the surrounding terrestrial area. The sample points were then designated a wetness zone based on the soil (and vegetation) and the edge of the wetland was determined as the midpoint between the temporary wet zone and the surrounding terrestrial area.

2.2.1.2 WETLAND VEGETATION

Plant species which have adapted to purely terrestrial environments become stressed under periods of prolonged flooding and anaerobic conditions, whereas those adapted to purely aquatic



environments may become stressed during periods of drying. Since tolerance to flooding is species-specific, one can distinguish between the following types of species under natural conditions:

- **Obligate** wetland species, which occur in wetlands >99% of the time;
- **Facultative positive** wetland species, which occur in wetlands 67-99% of the time;
- **Facultative** wetland species, which occur in wetlands 34-66% of the time;
- **Facultative negative** wetland species, which occur in wetlands 1-33% of the time; and
- **Terrestrial** species, which occur in occur in wetlands <1% of the time.

Species composition and the relative cover of obligate and facultative wetland plants are therefore used to confirm hydric or hydromorphic conditions. Hydric conditions are present if more than half the vegetation cover is comprised of obligate and/or facultative wetland plants, possibly present if the vegetation includes some wetland plants but the coverage is less than half, and absent if the vegetation includes no wetland plants.

During the site visit, the composition of species and the relative cover of obligate and facultative wetland plants were assessed where possible. Most of the vegetation had recently been burned prior to the site assessment, making it near impossible to identify the majority of the plant species on site. The sample points were then designated a provisional wetness zone based on the vegetation, where possible, (and soil) indicators and the edge of the wetland was determined as the midpoint between the temporary wet zone and the surrounding terrestrial area. Given the limitations on site at the time of the assessment, a follow up site assessment is recommended for the flowering season.

2.2.2 WATERCOURSE AND WETLAND CLASSIFICATION

The National Wetland Classification System (NWCS) and NBA (2018) use hydrological and geomorphological traits to distinguish the direct factors that influence wetland function. This is presented as a 6 tiered structure with four spatially nested primary levels that are applied in a hierarchical manner between different wetland types on the basis of these direct factors (SANBI, 2009). These include:

- **Level 1:** Distinguishes between marine, estuarine and inland ecosystems based on the degree of connectivity the systems have with the ocean.
- **Level 2:** Categorises the regional wetland setting using a combination of biophysical attributes at the landscape level.
- **Level 3:** Assesses the topographical position of inland wetlands.
- **Level 4:** Concerns the hydrogeomorphic (HGM) units as defined as follows:
 - * *Landform* - considering the shape and localised setting of the wetland;
 - * *Hydrological characteristics* - nature of water movement into, through and out of the wetland; and
 - * *Hydrodynamics* - the direction and strength of flow through the wetland.

The HGM unit is considered the focal point for NWCS as the upper levels mean to classify the broad bio-geographical context for grouping functional wetland units at the HGM level, whilst the lower levels provide more descriptive detail. As wetlands are formed under the influence of geology, hydrology and topography it is necessary to note these features when delineating a wetland as follows:



- **Geology:** Geology influences the formation of a wetland by geological obstructions such as erosion resistant rock or impervious material close to the surface forcing groundwater to move close to or onto the soil surface.
- **Hydrology:** The water transfer mechanisms such as source, movement and exit are important features of a wetland.
- **Topography:** The topography of the landscape influences the likelihood of whether a wetland will form. For instance, under the right conditions wetlands may form in floodplains, valley bottoms, hillslopes, depressions and coastal flats.

A range of 'hydro-geomorphic' types can be defined by considering the above features. Six HGM units are defined for South African inland wetlands (Ollis, et al., 2013):

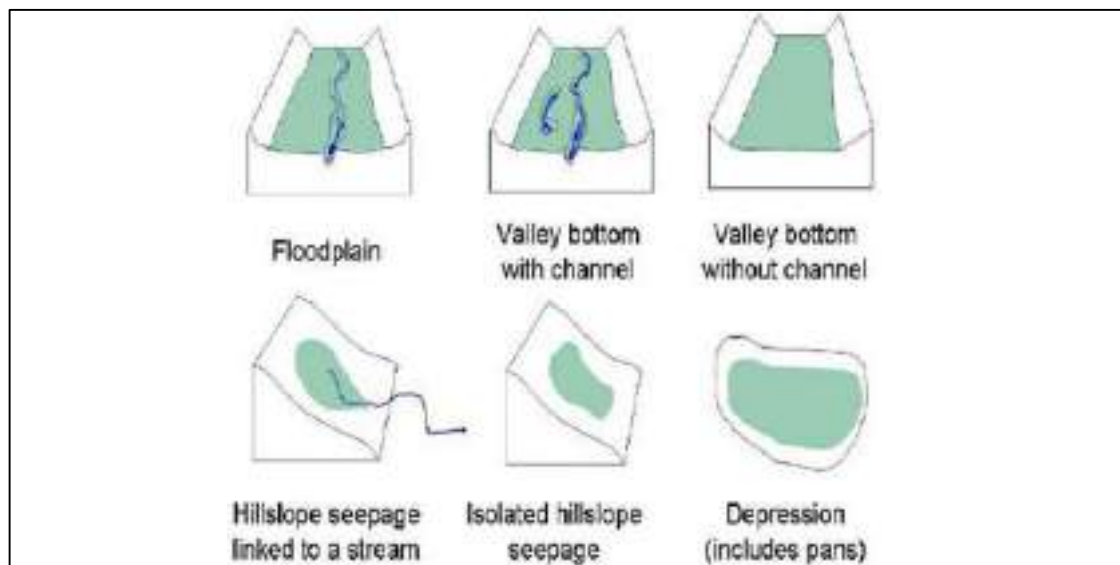


Figure 2.2: The HGM types for South African Inland wetlands (Ollis, et al., 2013).

The wetlands assessed during this study were classified according to their NWCS HGM types. Initially, this was done at the desktop-level, using the NBA (2018) and NFEPA (2014) spatial datasets for all natural and artificial wetlands occurring within 500 m of the assessment footprint. Based on the site assessment, only those wetlands which would likely be affected by the proposed development were further assessed. The classification of these wetlands was based on the existing NWCS HGM types (where available), as well as the consideration of their landforms, hydrological characteristics and hydrodynamics. The likely origins of these wetlands were also determined using historical aerial imagery.

2.3 PRESENT ECOLOGICAL STATE (PES) AND ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS) ASSESSMENTS

The baseline PES / health and EIS of the rivers and streams were assessed using the River Index of Habitat Integrity (IHI) tool, whereas the PES and EIS of wetlands were assessed using the WET-Health and WET-Ecoservices tools, respectively. The latter tools form part of the WET-Management Series, a suite of "integrated tools that can be used to guide well-informed and effective wetland management and rehabilitation" (Dada, et al., 2007, p. 4), developed under the auspices of the Water Research Commission (WRC) of South Africa.



2.3.1 RIVER IHI, WET-HEALTH AND PRESENT ECOLOGICAL STATE ASSESSMENT

Instream habitats and riparian zones were assessed using Version 2 of the River IHI tool (Kleynhans, 2012) was used to obtain a habitat integrity class for the instream habitat and riparian zone. The tool assesses the present state of instream and riparian habitats, including existing impacts, by comparing this to an estimated natural, non-impacted reference state. The assessment involves rating a range of standard impacts to instream and riparian habitats (e.g. water abstraction and flow modification, and vegetation removal and channel modification, respectively). The River IHI tool used site-based observations at the local scale, as well as desktop-based surveying at the reach- and catchment-scales, to determine the impacts influencing the habitat integrity of the river.

For all wetlands assessed, wetland PES was assessed using the Level 1 WET-Health tool (Macfarlane, et al., 2020). This assessment tool defines wetland health as the “perceived deviation from a theoretical reference condition, where the reference condition is defined as the un-impacted condition in which ecosystems show little or no influence of human actions” (Macfarlane, et al., 2020, p. i). A Level 1 Rapid Assessment involves evaluating specific indicators pertaining to four drivers of wetland health, namely hydrology, geomorphology, water quality and vegetation (Figure 2.3). The purposes of WET-Health are to aid users in understanding the ecological condition of the wetland and to identify the causes of degradation. The assessment criteria and information are specific to South Africa. The four drivers are assessed by taking into account the extent, intensity and magnitude of an impact which then produces a health score. Evaluation scores within each driver are then combined to produce an overall impact of activities on the wetland system which corresponds to a Present State health category that provides an impact score scale of 0-10 and associated health category (ecological state) from A-F (Table 2.2). Such categories represent natural, largely natural, moderately modified, largely modified, extensively modified, and critically modified.



Figure 2.3: Four key drivers of Wetland PES considered in WET-Health v2 (Macfarlane, et al., 2020)



Table 2.2: Description of A-F ecological categories (Macfarlane, et al., 2020)

PES DESCRIPTION	COMBINED IMPACT SCORE	PES CATEGORY	LEVEL OF DISTURBANCE
Unmodified, natural.	0-0.9	A	Protected systems; relatively untouched by human hands; no discharges or impoundments allowed
Largely natural with few modifications. A slight change in ecosystem processes is discernable and a small loss of natural habitats and biota may have taken place.	1-1.9	B	Some human-related disturbance, but mostly of low impact potential
Moderately modified. A moderate change in ecosystem processes and loss of natural habitats has taken place but the natural habitat remains predominantly intact	2-3.9	C	Multiple disturbances associated with need for socio-economic development, e.g. impoundment, habitat modification and water quality degradation
Largely modified. A large change in ecosystem processes and loss of natural habitat and biota and has occurred.	4-5.9	D	
The change in ecosystem processes and loss of natural habitat and biota is great but some remaining natural habitat features are still recognizable.	6-7.9	E	Often characterized by high human densities or extensive resource exploitation. Management intervention is needed to improve health, e.g. to restore flow patterns, river habitats or water quality
Modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota.	8-10	F	

The WET-Health Assessment also considers the likely trajectory of change based on the threats to or vulnerability of a wetland. Five categories of the Trajectory of Change include: large improvement, slight improvement, remains the same, slight decline and rapid decline. Overall health of the wetland is then presented by the calculated Present Ecological State scores and the most likely Trajectory of Change.

2.3.2 WET-ECOSERVICES (FUNCTIONAL ASSESSMENT)

The importance of wetlands and riparian areas in terms of their regulating, supporting, provisioning and cultural ecosystem services was assessed using the Level 2 WET-EcoServices tool (Kotze, et al., 2020). The tool provides guidelines for scoring the importance of a wetland in delivering each of 15 different ecosystem services. The first step is to characterise wetlands according to their hydrogeomorphic setting. Ecosystem service delivery is then assessed either at Level 1, based on existing knowledge or at Level 2, based on a field assessment of key descriptors. Where there are characteristics relating to effectiveness and opportunity WET-Ecoservices calculates an average for each of the groups and an overall score is calculated from these averages. The overall score is then rated according to the table below. The Ecoservices that are assessed are illustrated in Table 2.3.

Table 2.3: Relative importance of ecosystem services

SCORE	0-0.79	0.8-1.29	1.3-1.69	1.7-2.29	2.3-2.69	2.7-3.19	3.2-4.0
Relative importance	Very low	Low	Moderately low	Moderate	Moderately high	High	Very high



Table 2.4: Ecosystem services included in, and assessed by, WET-Ecoservices (Kotze, et al., 2020).

Ecosystem services supplied by wetlands	Indirect benefits	Regulating and supporting benefits		Flood attenuation	The spreading out and slowing down of floodwaters in the wetland, thereby reducing the severity of floods downstream			
		Water quality enhancement benefits		Streamflow regulation	Sustaining streamflow during low flow periods			
				Sediment trapping	The trapping and retention in the wetland of sediment carried by runoff waters			
				Phosphate assimilation	Removal by the wetland of phosphates carried by runoff waters			
				Nitrate assimilation	Removal by the wetland of nitrates carried by runoff waters			
				Toxicant assimilation	Removal by the wetland of toxicants (e.g. metals, biocides and salts) carried by runoff waters			
				Erosion control	Controlling of erosion at the wetland site, principally through the protection provided by vegetation.			
	Direct benefits		Provisioning benefits		Carbon storage	The trapping of carbon by the wetland, principally as soil organic matter		
					Biodiversity maintenance ²		Through the provision of habitat and maintenance of natural process by the wetland, a contribution is made to maintaining biodiversity	
					Provision of water for human use	The provision of water extracted directly from the wetland for domestic, agriculture or other purposes		
					Provision of harvestable resources	The provision of natural resources from the wetland, including livestock grazing, craft plants, fish, etc.		
					Provision of cultivated foods	The provision of areas in the wetland favourable for the cultivation of foods		
					Cultural benefits		Cultural heritage	Places of special cultural significance in the wetland, e.g. for baptisms or gathering of culturally significant plants
							Tourism and recreation	Sites of value for tourism and recreation in the wetland, often associated with scenic beauty and abundant wildlife
Education and research	Sites of value in the wetland for education or research							

2.3.3 ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS) ASSESSMENT

The Ecological Importance and Sensitivity (EIS) assessment is comprised of two metrics, namely:

- **Ecological Importance (EI)**, which is the expression of the importance of wetlands and rivers in terms of the maintenance of biological diversity and ecological functioning at a local and landscape level (Kotze, et al., 2020); and
- **Ecological Sensitivity (S)**, which refers to ecosystem fragility or the ability to resist or recover from disturbance (Kotze, et al., 2020).

The Riverine EIS tool was used to assess the ecological importance and sensitivity of the delineated ephemeral streams and riparian areas. This involved rating riparian and instream biota characteristics, including species diversity, the presence of rare/endorsed species, endemics and species that are sensitive to changes in flows/water quality, as well riparian and instream habitat characteristics, including habitat diversity, the sensitivity of habitats to changes in flow and water quality, the importance of riparian areas as ecological corridors and the conservation importance of these areas. The overall riverine EIS rating is derived from the median score of the various instream and riparian biota and habitat scores. The below rating system was used for the riverine EIS assessment (Table 2.5).

Table 2.5. River EIS rating categories

IMPORTANCE CATEGORY	
None, Rating = 0	Rarely sensitive to changes in water quality/hydrological regime
Low, Rating = 1	One or a few elements sensitive to changes in water quality/hydrological regime
Moderate, Rating = 2	Some elements sensitive to changes in water quality/hydrological regime
High, Rating = 3	Many elements sensitive to changes in water quality/ hydrological regime
Very high, Rating = 4	Very many elements sensitive to changes in water quality/ hydrological regime



The Wetland EIS tool was used to assess the ecological importance and sensitivity of the delineated wetlands. The EIS scores for the wetlands within 500 m of the proposed site was determined as the highest score amongst their EI scores, i.e. biodiversity maintenance, regulating services, and provisioning and cultural services importance scores (calculated using the WET-Ecoservices Tool), and their ES score (Kotze, et al., 2020). EIS scores were interpreted using the categories and descriptions provided in Table 2.6 below.

Table 2.6. Wetland EIS rating categories

IMPORTANCE CATEGORY	
Very Low	0-0.79
Low	0.8 – 1.29
Moderately-Low	1.3 – 1.69
Moderate	1.7 – 2.29
Moderately-High	2.3 – 2.69
High	2.7 – 3.19
Very High	3.2 - 4.0

2.4 RECOMMENDED ECOLOGICAL CATEGORY (REC)

The recommended ecological category (REC) is the target or desired state of freshwater ecosystems required to meet water resource management objectives and quality targets. It is determined through the consideration of the PES, EIS and realistic opportunities to improve the PES that is driven by the context / setting.

The modus operandi followed by DWAF’s Directorate: Resource Directed Measures (RDM) is that if the EIS is high or very high, the ecological management objective should be to improve the condition of the watercourse (Kleynhans & Louw, 2007). However, the causes related to a PES should also be considered to determine if improvement is realistic and attainable (Kleynhans & Louw, 2007). This relates to whether the problems in the catchment can be addressed and mitigated (Kleynhans & Louw, 2007). If the EIS is evaluated as moderate or low, the ecological aim should be to maintain the river in its PES (Kleynhans & Louw, 2007). Within the Ecological Reserve context, Ecological Categories A to D can be recommended as future states depending on the EIS and PES (Kleynhans & Louw, 2007). Ecological Categories E and F PES are regarded as ecologically unacceptable, and remediation is needed if possible (Kleynhans & Louw, 2007). A generic matrix for the determination of RECs for water resources is shown in Table 2.7 below.

Table 2.7: Generic matrix for the determination of REC for water resources

CATEGORY			EIS			
			Very high	High	Moderate	Low
PES	A	Pristine/Natural	A Maintain	A Maintain	A Maintain	A Maintain
	B	Largely Natural	A Improve	A/B Improve	B Maintain	B Maintain
	C	Good - Fair	B Improve	B/C Improve	C Maintain	C Maintain
	D	Poor	C Improve	C/D Improve	D Maintain	D Maintain
	E/F	Very Poor	D Improve	E/F Improve	E/F Maintain	E/F Maintain



2.5 BUFFER ZONE ASSESSMENT PROCEDURE

Although no formalised buffer distance have been published by the relevant competent authorities at the time of reporting, the Buffer Zone Guidelines for Rivers, Wetlands and Estuaries is typically used to suggest the appropriate size of the buffers surrounding wetlands (Macfarlane & Bredin, 2017). The procedure takes the aquatic impact buffer zone, potential core habitats and ecological corridors, and mitigation measures into account. In alignment with these guidelines, the following stepwise approach was undertaken to fill out the standard Buffer Tool datasheet to determine the appropriate buffer zones from the proposed development.

STEP	DESCRIPTION
1. Define objectives and scope of assessment and determine the most appropriate level of assessment.	This involved specifying whether the assessment is based solely on desktop data, or whether site-based modifiers are also considered. Site-based modifiers were considered in addition to desktop data.
2. Map and categorise water resources in the study area.	This involved specifying the approach used to delineate the watercourse/wetland (i.e. NFEPA, provincial inventory, aerial photography or site-based delineation). Site-based methods were used to delineate the wetlands.
3. Refer to DWA management objectives for mapped water resources or develop surrogate objectives.	This involved specifying the PES and EIS scores, as well as the overall management objective for the wetland, i.e. improve, maintain or allow degradation. Based on the PES (C) and EIS scores (Low), the management objective to maintain the watercourse/wetland was proposed.
4. Assess the risks of the proposed development and define mitigation measures necessary for protecting mapped water resource in the study area.	<p>This involved assessing the threats posed by the development activity by inputting data desktop- and site-based data, which in turn computed the recommended construction and operation phase buffers. The following was undertaken during this step:</p> <ul style="list-style-type: none"> • The threats to water resources were first assessed to determine the desktop buffer requirements. Here, data regarding the sector of the proposed development (industry – electricity generation works) and the regional climate (mean annual precipitation and rainfall intensity) were required. This produced a crude, desktop-based buffer requirement. • The sensitivity of water resources to threats posed by land land-use impacts were then assessed. Data regarding, <i>inter alia</i>, the size and slope of the watercourse/wetland, its soils, vegetation, catchment, vulnerability to erosion and level of domestic use were required here. • Thereafter, the sensitivity of biodiversity elements to threats posed by land land-use impacts were assessed. This allowed for adjustments to the water resource threats by factoring in sensitive vegetation and biodiversity. In this case, no additional threats were considered. • The desktop-defined buffer requirements were then refined using data from the site-based investigation. This involved inputting data on the slope, the likely characteristics of the vegetation during the construction and operation phases, soil permeability and the topography of the buffer zone. This refined the crude, desktop-based buffer requirement down to a more realistic, site-based buffer requirement. • The site-based buffer was further refined by manually adjusting the threat ratings of the high and very high threats to low and medium threats, respectively. Here, appropriate mitigation measures were required to justify the lowering of the threat ratings.



STEP	DESCRIPTION
	<ul style="list-style-type: none"> Finally, additional mitigations catering for point-source discharges and potential groundwater impacts were considered. <p>The output of this step was the recommended construction and operational phase buffers.</p>
<p>5. Assess risks posed by proposed development on biodiversity and identify management zones for biodiversity protection.</p>	<p>This step comprised of a checklist of biodiversity management considerations, including whether species of conservation concern, ecological corridors and terrestrial habitats were factored into the development of the buffer.</p>
<p>6. Delineate and demarcate final buffer zone requirements.</p>	<p>This step comprised of a checklist of mapping requirements, including the mapping of the delineation of the watercourse/wetland boundary, the final aquatic buffer, and where applicable, biodiversity buffers and biodiversity corridors.</p>
<p>7. Document management measures necessary to maintain the effectiveness of the final buffer zone areas</p>	<p>This step comprised of a checklist of management considerations for maintaining the buffer areas. All management and mitigation measures were considered and documented in this report and the Environmental Management Programme (EMPr.)</p>
<p>8. Monitor implementation of buffer zones.</p>	<p>This step confirms whether construction and operational phase monitoring requirements have been defined. All monitoring requirements were documented in the EMPr.</p>

2.6 IMPACT AND RISK ASSESSMENT

The impacts and risks associated with the proposed development were assessed in accordance with the NEMA’s Aquatic Biodiversity Protocol and the NWA Section 21 Risk Assessment Matrix, respectively. These were broadly characterised into one of the four impact types described in Section 2.6.1, then assessed using the impact assessment criteria described in Section 2.6.2 and risk assessment criteria in Section 2.6.3.

2.6.1 IMPACT CHARACTERISATION

Watercourse and wetland ecosystem impacts can be grouped into the following broad impact types:

- Direct ecosystem modification or destruction / loss impacts** – This impact refers to the direct physical destruction and/or modification of river or wetland vegetation communities, habitat and associated biota. Such impacts may be attributed to a range of activities including vegetation / habitat clearing (stripping / grubbing), earthworks (i.e. excavation and infilling) and deep flooding by impoundments.
- Alteration of hydrological and geomorphological processes** – This impact refers to all the indirect impacts resulting from human activities within the watercourse or catchment that alter hydrological and geomorphological processes i.e. rates of erosion and sedimentation. This includes activities that:

 - Modify landcover characteristics that alter the quantity and pattern of catchment runoff and sediment inputs e.g. earthworks, surface hardening, plantations, etc.; and



- (ii) Activities that regulate, reduce or increase flows e.g. impoundment / dams, abstraction, return flows and decant flows; and activities alter wetland flow hydraulics e.g. establishment of drains, flow canalisation, flow constrictions and flow diversions.
- **Ecological connectivity and edge disturbance impacts** – This impact refers to the alteration of local and regional ecological processes resulting from the transformation of land and disturbance within and/or surrounding a watercourse. Key ecological processes of relevance in this regard include ecological connectivity and edge effects edge effects that are impacted by habitat fragmentation, patch size reduction, increased alien invasive plant invasion, noise pollution, vibrations, light pollution, and the occurrence of barriers to propagule and animal movement.
- **Water pollution impacts** – This impact refers to the alteration of the chemical and biological characteristics of soil and water within watercourses and the associated ecological impacts. In the context of this impact assessment, water quality is assessed in relation to changes to its fitness for use (e.g. for domestic, recreational or agricultural purposes) and ability to maintain the health of aquatic ecosystems. This impact includes a full spectrum of activities ranging from direct inputs (e.g. spillages / point source discharges) through to diffuse source inputs from landuse activities that affects the quality of water entering watercourses (e.g. hazardous substances handling, storage and transport; urban stormwater management; irrigation return flows and acid mine drainage).

2.6.2 IMPACT ASSESSMENT

CES has developed the following impact rating methodology which has been developed in line with the Aquatic Biodiversity Protocol, as well as the content requirements of Appendix 6 and the impact ratings required in Appendix 1 and 3 of the EIA Regulations (2014, as amended). This scale takes into consideration the following variables:

- **Nature**: negative or positive impact on the environment.
- **Type**: direct, indirect and/or cumulative effect of impact on the environment.
- **Consequence**: the consequence scale is used in order to objectively evaluate how severe a number of negative impacts might be on the issue under consideration, or how beneficial a number of positive impacts might be on the issue under consideration.
- **Extent**: the spatial scale defines the physical extent of the impact.
- **Duration**: the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
- **Probability**: the likelihood of impacts taking place as a result of project actions arising from the various alternatives. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development and alternatives. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.
- **Reversibility**: The degree to which an environment can be returned to its original/partially original state.
- **Irreplaceable loss**: The degree of irreplaceable loss which an impact may cause, e.g. loss of non-regenerative vegetation or removal of rocky habitat or destruction of wetland.



- Mitigation potential:** The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in Table 2.8 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.
- Significance:** The criteria in Table 2.8 are used to determine the overall significance of an activity. The impact effect (which includes duration; extent; consequence and probability) and the reversibility/mitigation of the impact are then read off the significance matrix in order to determine the overall significance of the issue. The overall significance is either negative or positive and will be classified as low, moderate or high (Table 2.8).

Table 2.8: Impact rating criteria

CRITERIA	CATEGORIES	DESCRIPTION
Overall nature	Negative	Detrimental/negative impact.
	Positive	Beneficial/positive impact.
Type	Direct	Direct interaction of an activity with the environment.
	Indirect	Impacts on the environment that are not a direct result of the project or activity.
	Cumulative	Impacts which may result from a combination of impacts of this project and similar related projects.
Consequence	Slight	Slight impacts or benefits on the affected system(s) or party(ies).
	Moderate	Moderate impacts or benefits on the affected system(s) or party(ies).
	Severe/Beneficial	Severe impacts or benefits on the affected system(s) or party(ies).
Extent	Localised	Impacts affect a small area of a few hectares in extent. Often only a portion of the project area.
	Study area	The proposed site and its immediate environments.
	Municipal	Impacts affect the municipality, or any towns within the municipality.
	Regional	Impacts affect the wider district municipality or the Eastern Cape Province as a whole.
	National	Impacts affect the entire country.
Duration	Short term	Less than 5 years.
	Medium term	Between 5-20 years.
	Long term	More than 20 years.
	Permanent	Over 40 years or resulting in a permanent and lasting change that will always be there.
Probability	Definite	More than 90% sure of a particular fact. Should have substantial supportive data.
	Probable	Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
	Possible	Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.
	Unsure	Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.
Reversibility	Reversible	The activity will lead to an impact that can be reversed provided appropriate mitigation measures are implemented.
	Irreversible	The activity will lead to an impact that is permanent regardless of the implementation of mitigation measures.



CRITERIA	CATEGORIES		DESCRIPTION
Irreplaceable Loss	Resource will not be lost		The resource will not be lost/destroyed provided mitigation measures are implemented.
	Resource may be partly lost		The resource will be partially destroyed even though mitigation measures are implemented.
	Resource will be lost		The resource will be lost despite the implementation of mitigation measures.
Mitigation Potential	Easily achievable		The impact can be easily, effectively and cost effectively mitigated/reversed.
	Achievable		The impact can be effectively mitigated/reversed without much difficulty or cost.
	Difficult		The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs.
	Very Difficult		The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly.
Impact Significance	Low negative	Low positive	Largely of HIGH mitigation potential, after considering the other criteria.
	Moderate negative	Moderate positive	Largely of MODERATE or partial mitigation potential after considering the other criteria.
	High negative	High positive	Largely of LOW mitigation potential after considering the other criteria.

2.6.3 RISK ASSESSMENT MATRIX

Watercourses and Wetlands have been confirmed within 500m of the proposed development activities / site. Therefore, the project activities are likely to constitute Section 21(c) and 21(i) water uses in terms of the NWA, as described as follows:

- 21(c) impeding or diverting the flow of water in a watercourse (relevant to the construction occurring in close proximity to drainage lines); and
- 21(i) altering the bed, banks, course or characteristics of a watercourse.

Low risk projects qualify for a General Authorisation (GA) in terms of Government Notice 509 for Section 21(c) and 21(i) water uses. The Department of Water and Sanitation (DWS) have developed a Risk Assessment Matrix to assess water risks associated with development activities. The tool uses the following approach to calculating risk:

$$\text{RISK} = \text{CONSEQUENCE} \times \text{LIKELIHOOD}$$

whereby:

$$\text{CONSEQUENCE} = \text{SEVERITY} + \text{SPATIAL SCALE} + \text{DURATION}$$

and

$$\text{LIKELIHOOD} = \text{FREQUENCY OF ACTIVITY} + \text{FREQUENCY OF IMPACT} + \text{LEGAL ISSUES} + \text{DETECTION}$$

This risk rating is used to determine the risk class, which in turn is used to determine the permitting and management requirements (Table 2.9).

Table 2.9: Risk Assessment Rating Classes

RATING	CLASS	MANAGEMENT DESCRIPTION
1 – 55	(L) Low Risk	Acceptable as is or consider requirement for mitigation. Impact to watercourses and resource quality small and easily mitigated.



RATING	CLASS	MANAGEMENT DESCRIPTION
56 – 169	M) Moderate Risk	Risk and impact on watercourses are notably and require mitigation measures on a higher level, which costs more and require specialist input. Licence required.
170 – 300	(H) High Risk	Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve. Licence required.

The key risk stressors associated with each of the four (4) impact groups / types considered were:

1. Direct ecosystem modification or destruction / loss impacts – **Physical disturbance**
2. Alteration of hydrological and geomorphological processes – **Erosive surface runoff, sediment and increased and/or reduced water inputs**
3. Water pollution impacts – **Chemical, organic and biological pollutants**
4. Alteration of ecological connectivity and edge effect processes – **Alien invasive plants, noise pollution, dust pollution**

For each of the above stressors, risk was assessed qualitatively using the DWS risk matrix tool. It is important to note that the risk matrix also makes provision for the downgrading of risk to low in borderline moderate/low cases subject to independent specialist motivation granted that (i) the initial risk score is within twenty five (25) risk points of the 'Low' class and that mitigation measures are provided to support the reduction of risk. The tool was applied to the project for the highest risk activities and watercourses was used to inform WUL requirements for the proposed development.

2.7 ASSUMPTIONS, LIMITATIONS AND GAPS IN KNOWLEDGE

This report is based on current available information and, as a result, the following limitations and assumptions are implicit:

- The report is based on a project description received from the client;
- Species of Conservation Concern (SCC) are difficult to find and difficult to identify, thus species described in this report do not comprise an exhaustive list. It is almost certain that additional SCCs will be found during construction and operation of the development;
- Sampling by its nature means that not all parts of the study area were visited. The assessment findings are thus only applicable to those areas sampled, which were extrapolated to the rest of the study area.
- A Soil Munsell Colour Chart was used to determine the soil matrix colour of the soil sampled. However, it is important to note that the recording of the colours using the soil chart is highly subjective and varies significantly depending on soil moisture and the prevailing light conditions. In this case, all the soils sampled were dry and sampling was undertaken in sunny conditions.
- Soil wetness indicators (i.e. soil mottles, grey soil matrix), which in practice are primary indicators of hydromorphic soils, are not seasonally dependent (wetness indicators are retained in the soil for many years) and therefore seasonality has no influence on the delineation of wetland areas.
- All vegetation information recorded was based on the onsite visual observations of the author and no formal vegetation sampling was undertaken. Furthermore, only dominant and noteworthy plant species were recorded. Thus, the vegetation information provided has limitations for true botanical applications.



- Although every effort was made to correctly identify the plant species encountered onsite, wetland plants, particularly the Cyperaceae (sedge) family, are notoriously difficult to identify to species level. Every effort as made to accurately identify plants species but where identification to species level could not be determined, such species were only identified to genus level.
- This watercourse and wetland assessment excluded the assessment of hydrological, hydrogeological, hydrogeological, water chemistry and flood-line impacts. Qualified, independent specialists will need to be appointed to conduct these assessments if required.
- Due to the ephemeral streams encountered and assessed being dry at the time of assessment, no instream biomonitoring assessments were undertaken i.e. SASS5 (Dickens & Graham, 2002).



3 DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.3. The assessment must provide a baseline description of the site which includes, as a minimum, the following aspects:

- 2.3.1. A description of the aquatic biodiversity and ecosystems on the site, including;
 - (a) Aquatic ecosystem types; and
 - (b) Presence of aquatic species, and composition of aquatic species communities, their habitat, distribution and movement patterns;
- 2.3.2. The threat status of the ecosystem and species as identified by the screening tool;
- 2.3.3. An indication of the national and provincial priority status of the aquatic ecosystem, including a description of the criteria for the given status (i.e. if the site includes a wetland or a river freshwater ecosystem priority area or sub catchment, a strategic water source area, a priority estuary, whether or not they are free-flowing rivers, wetland clusters, a critical biodiversity or ecologically sensitivity area); and
- 2.3.4. A description of the ecological importance and sensitivity of the aquatic ecosystem including:
 - (a) The description (spatially, if possible) of the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the site (e.g. movement of surface and subsurface water, recharge, discharge, sediment transport, etc.); and
 - (b) The historic ecological condition (reference) as well as present ecological state of rivers (in-stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel and flow regime (surface and groundwater).

This chapter provides a description of the affected environment within the vicinity of the proposed infrastructure. This information is provided to assist the reader in understanding the possible effects of the project on the environment within which it is proposed to be developed. This information has been sourced from existing information available for the area. This chapter aims to provide the context within which this assessment is being conducted.

3.1 DESKTOP ASSESSMENT

The proposed development is adjacent to Mototolo Mine's Borwa Shaft, Limpopo Province. The region is characterised by a strongly seasonal summer rainfall, with very dry winters (Mucina & Rutherford, 2018). The Mean Annual Precipitation (MAP) and Mean Annual Potential Evaporation (MAPE) of the area is 609 mm and 2 043 mm, respectively (Mucina & Rutherford, 2018). The Annual Precipitation Coefficient of Variation (APCV) of the area is recorded at 28 % (Mucina & Rutherford, 2018), with the highest average rainfall occurring in December (122 mm) and lowest in July (3 mm) (Meteoblue, 2022). The Mean Annual Temperature (MAT) of the area is 17.5 °C (Mucina & Rutherford, 2018), with the highest mean daily temperatures occurring in December and January (29 °C), and lowest occurring in July (7 °C) (Meteoblue, 2022). An average of 5 days of frost is recorded in the area per year (Mucina & Rutherford, 2018). A summary of the climate at Mototolo Mine is provided in Figure 3.1 below.

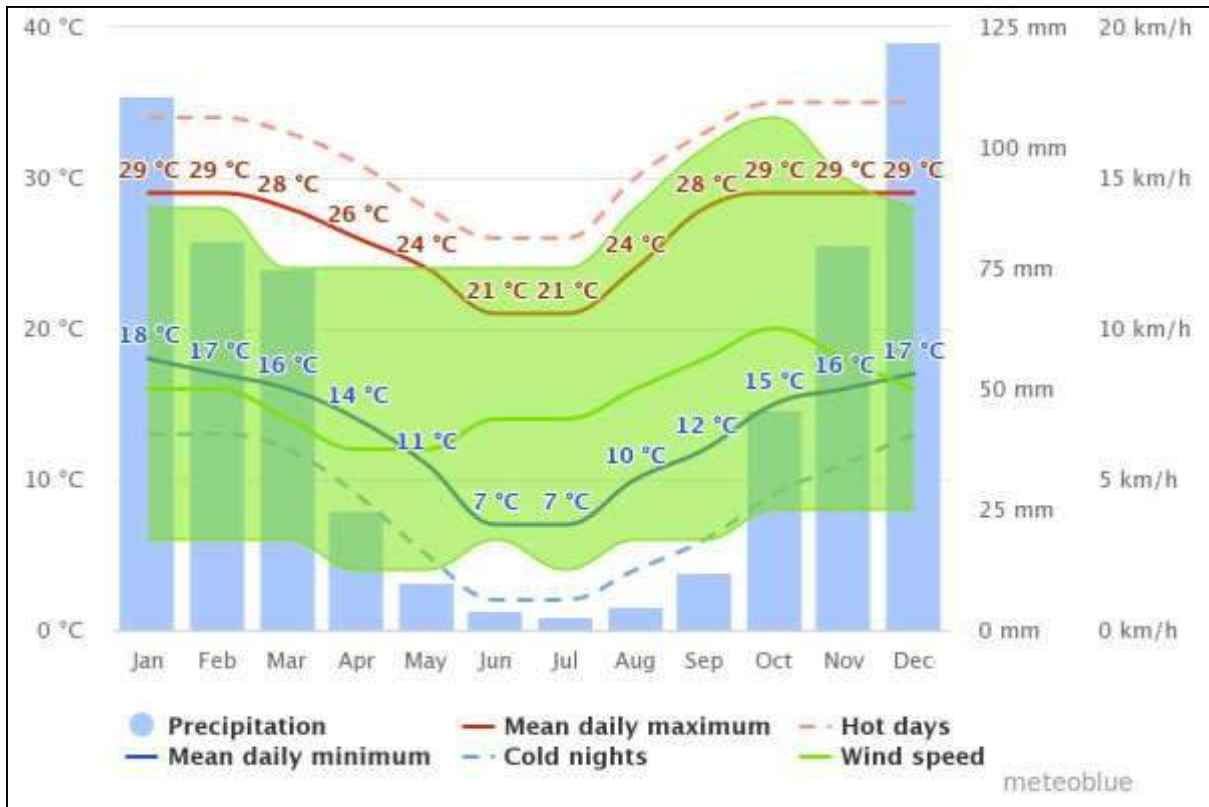


Figure 3.1: Climatic data for Mototolo Mine, Limpopo (Meteoblue, 2022).

3.1.1 TOPOGRAPHY

The topography of the area is characterised by rugged terrain, with steep slopes and incised valleys (Mucina & Rutherford, 2018). The topographic gradient is steep, averaging 18-29 %, and reaching maximum slopes of 60 % in areas. Elevations ranging from 978-1 394 m above mean sea level (mamsl). The topographical profile and map of the site is provided in Figure 3.2.

3.1.2 GEOLOGY AND SOILS

The geology of the area consists of the “ultramafic intrusives of the lower, critical and main zones of the eastern Rustenburg Layered Suite of the Bushveld Igneous Complex (Vaalian)” (Mucina & Rutherford, 2018, p. 481). More specifically the proposed development falls across the Dsjante and Dwarsrivier subsuites (Figure 3.3), comprised of Gabbro, Norite, Pyroxenite and Anorthosite lithologies. The soils are generally shallow, rocky and clayey, varying between soils of a colluvial nature i.e., Glenrosa, Family Dumisa to Mispah form, Family Myhill, with lime occurring in low-lying areas (Mucina & Rutherford, 2018, p. 481). Rocky areas often lack soil, especially in steep slopes (Mucina & Rutherford, 2018, p. 481). According to the SOTER soil association map, the area is dominated by G1 type soils (Figure 3.3), namely “rock with limited soils (association of Leptosols, Regosols, Durisols, Calcisols and Plinthosols)”.

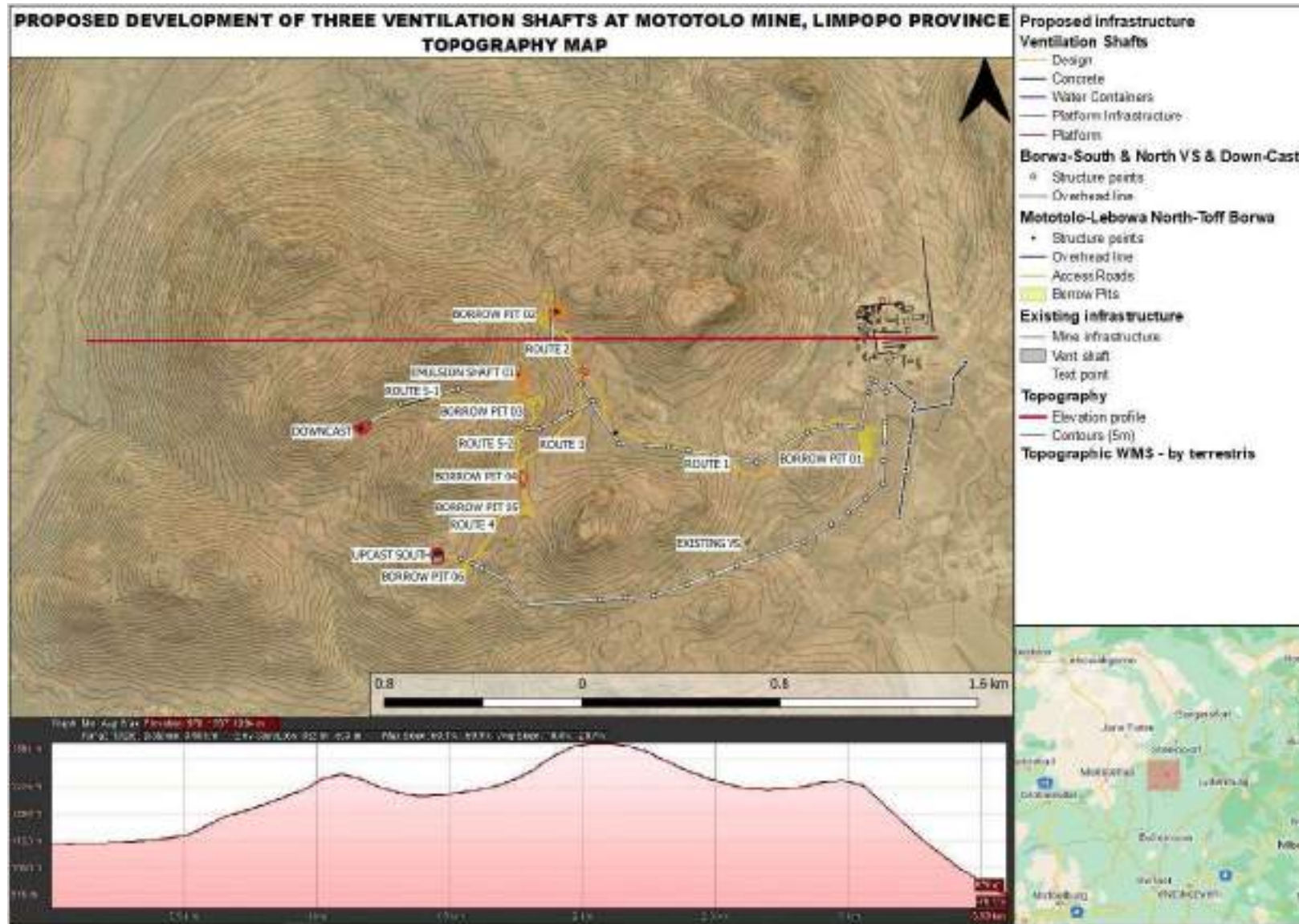


Figure 3.2: Topographic map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province

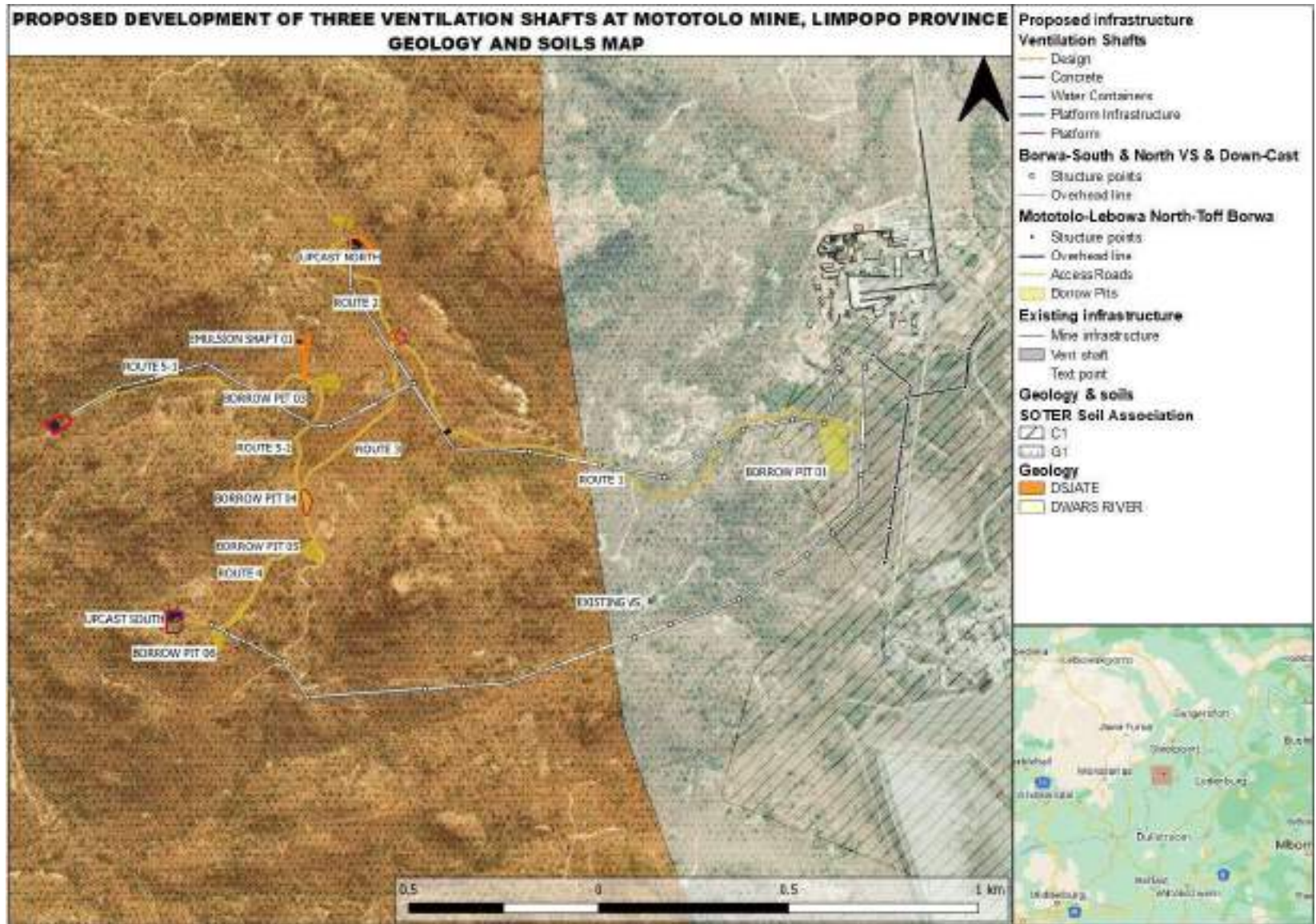


Figure 3.3: Geology and soil map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.1.3 LAND USE AND COVER

The land cover of the area consists of primarily mountain woodland, with patches of natural grassland, sparsely wooded grasslands, rock surfaces and eroded areas. Mining and associated land uses occupy the adjacent area to the east (Figure 3.4). Scattered fallow lands and old fields occur within the broader surrounding area to the north and south-east, with commercial annual crop cultivation occurring to the west.

3.1.4 TERRESTRIAL BIODIVERSITY AND ECOLOGY

3.1.4.1 VEGETATION AND FLORISTICS

According to the SANBI Vegetation Map of South Africa (Mucina & Rutherford, 2018), the project area falls entirely within the **Sekhukune Mountain Bushveld (SMB)** vegetation type (Figure 3.5). Its range includes the Limpopo and Mpumalanga Provinces, distributed along the mountains, undulating hills and steep slopes of the Leolo Mountains, Dwars River Mountains, Thaba Sekhukune and isolated smaller mountains, as well as the small hills of the Steelpoort River valley (Mucina & Rutherford, 2018).

The vegetation structure of the Sekhukune Mountain Bushveld varies from a dry, woody layer comprised of several microphyllous species and broad-leaf savanna species (e.g. *Senegalia nigrescens*, *Senegalia senegal* var. *leiorhachis*, *Combretum apiculatum*, *Kirkia wilmsii*, *Terminalia prunioides*, *Vitex obovata* subsp. *wilmsii* and *Ziziphus mucronata*), to a closed to open grass layer, comprised of several species (e.g. *Aristida canescens*, *Heteropogon contortus*, *Panicum maximum*, *Setaria lindenbergiana* and *Themeda triandra*). Other species include woody shrubs, such as *Dichrostachys cinerea*, *Euclia crispa* subsp. *crispa*, *Elephantorrhiza praetermissa* and *Grewia vernicosa*; succulent shrubs, such as *Aloe castanea* and *Aloe cryptopoda*; and herbaceous species, such as *Berkheya insignis* and *Commelina africana*.

In terms of the conservation status, Mucina and Rutherford (2018) classify the SMB as a **LEAST THREATENED** vegetation type. The NSBA Conservation Target for this vegetation type is 24 %. More than 15 % of SMB vegetation has been transformed for cultivation and urban/built up areas, with an increase in mining activities. The vegetation type is frequently invaded by syringa (*Melia azedarach*).

3.1.4.2 THREATENED ECOSYSTEMS

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) provides a National List of Ecosystems that are threatened and in need of protection – GN 1002 of 2011. According to the NEMBA List of threatened ecosystems, the proposed development site falls within an Endangered ecosystem, namely the Sekhukune Mountainlands (Figure 3.6).

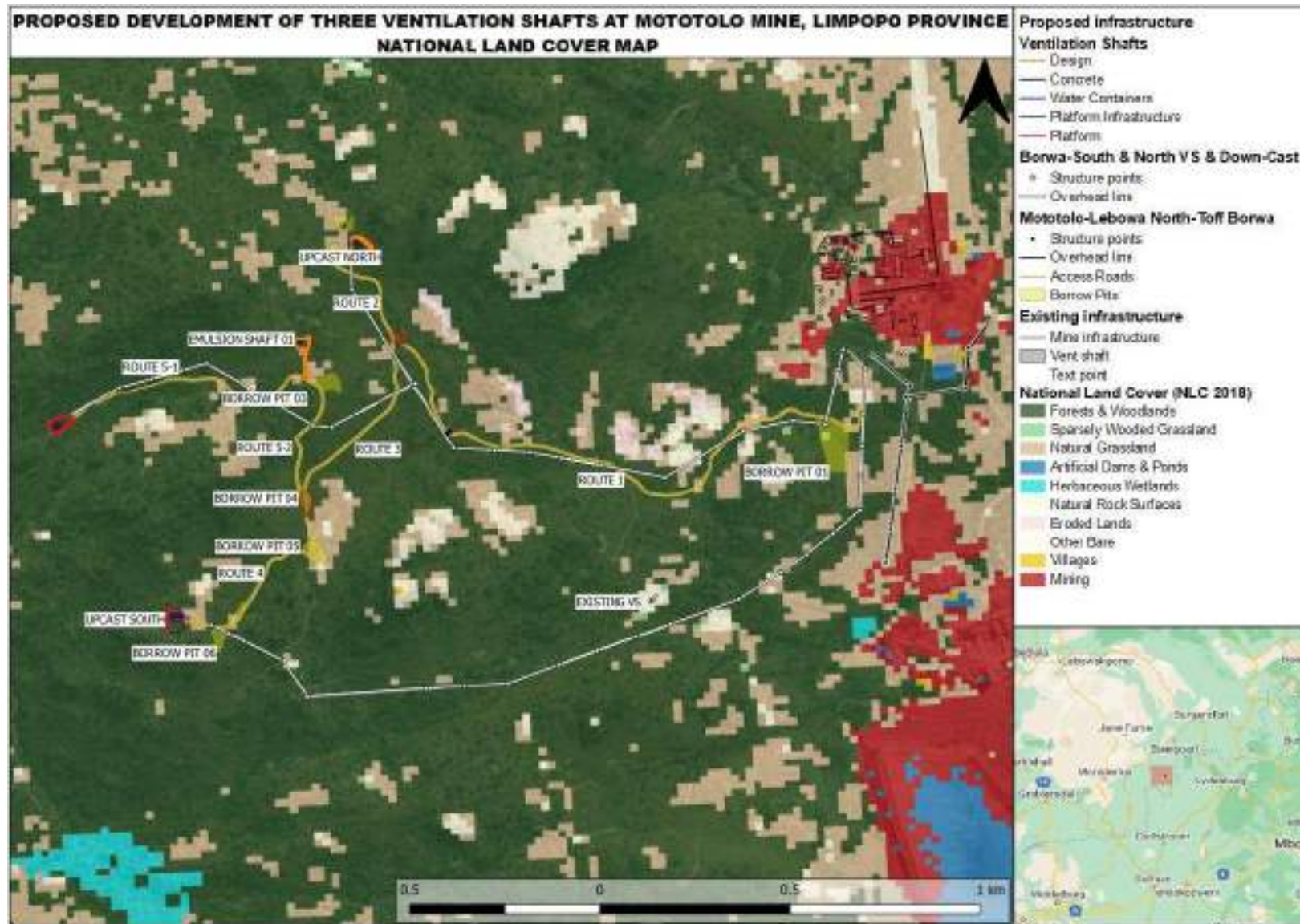


Figure 3.4: Land use and cover map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

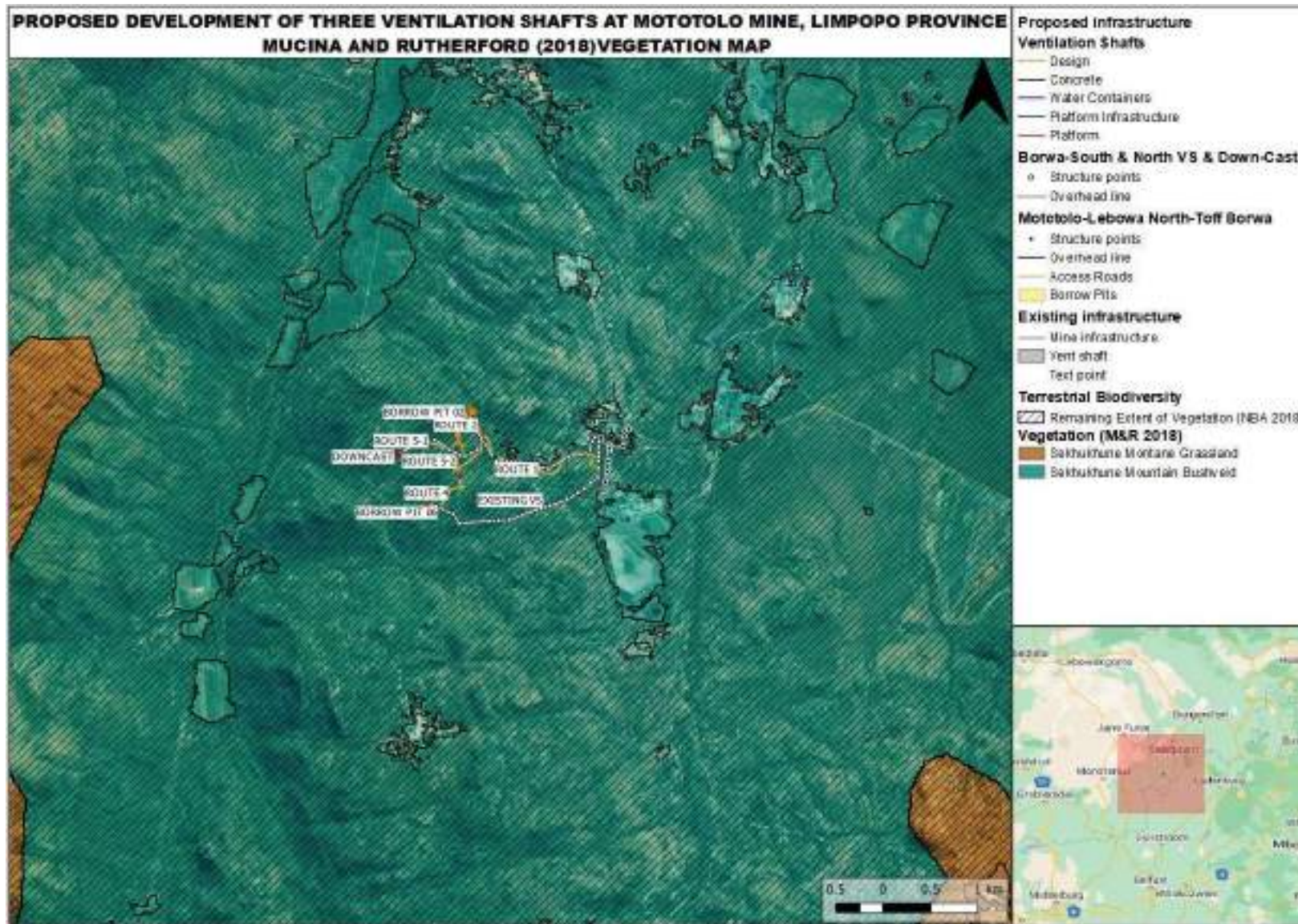


Figure 3.5: Mucina & Rutherford Vegetation map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

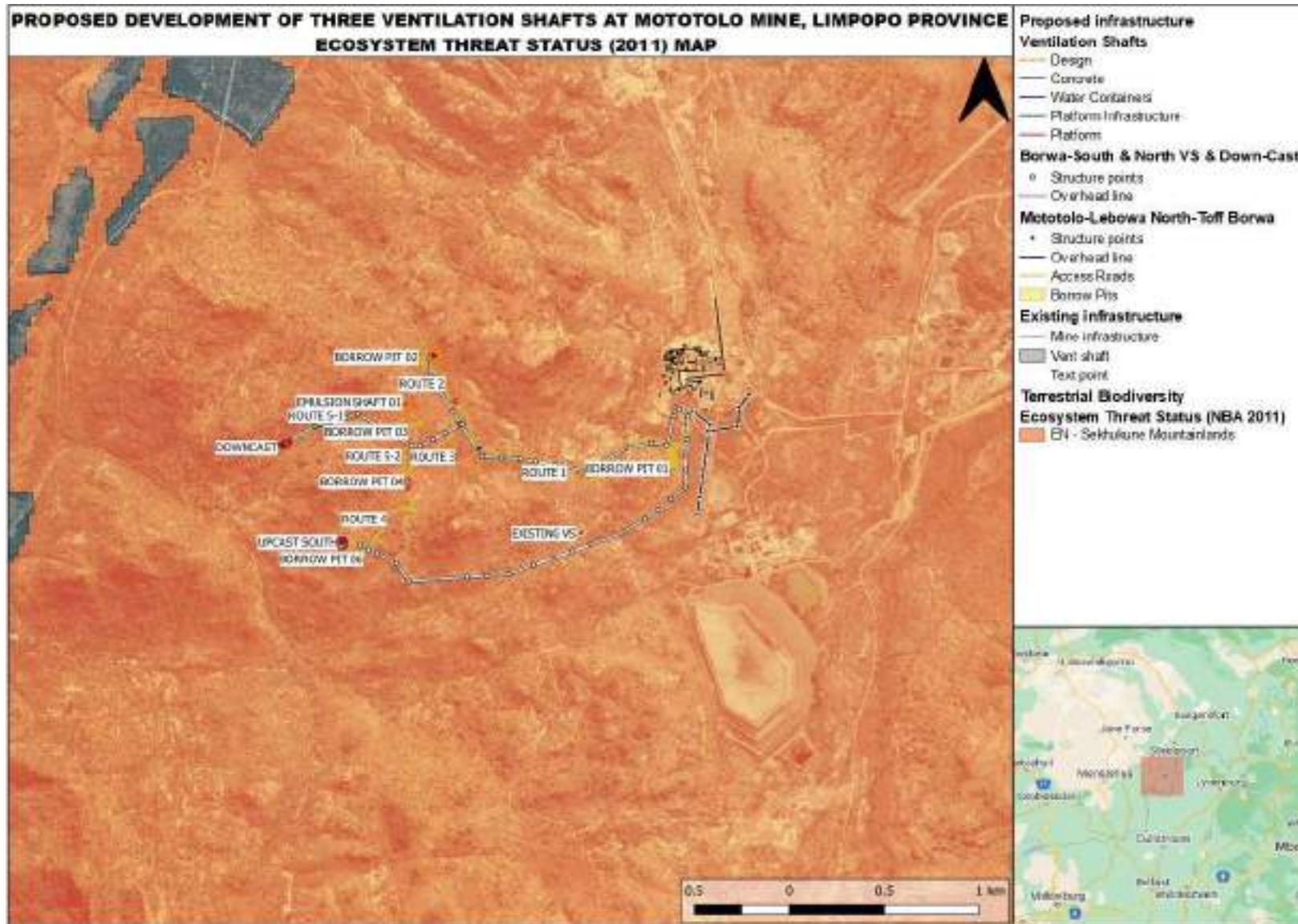


Figure 3.6: Ecosystem threat status map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.1.4.3 LIMPOPO CONSERVATION PLAN (CPLAN)

The purpose of the Limpopo Conservation Plan (LCP, 2013) was to develop a map of Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA), the spatial component to provincial bioregional plan. In alignment with the principles of NEMA and NEMBA, the LCP (v2) was designed to support integrated development planning and sustainable development by identifying an efficient set of CBAs that are required to meet national and provincial biodiversity objectives, in a configuration that is least conflicting with other land uses and activities. In general, CBAs are described as natural or near-natural areas that are important for preserving both biodiversity pattern and ecological process, whereas ESAs are semi-natural or transformed areas that at least retain some ecological function. Almost three-quarters of the province is covered by CBAs (40%), ESAs (23%) and Protected Areas (11%) collectively, with the remainder comprised of Other Natural Areas (ONA) (20%) and areas with No Natural Remaining (NNR) habitat (6%).

The assessment footprint falls across a CBA 1, CBA 2 and ESA 1 in terms of the LCP (Figure 3.7). The management objective of these areas are as follows:

- CBA 1 – To maintain in a natural state with limited or no biodiversity loss. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation (Desmet, et al., 2013, p. 52);
- CBA 2 – To maintain in a natural state with limited or no biodiversity loss. Maintain current agricultural activities. Ensure that land use is not intensified and that activities are managed to minimize impact on threatened species (Desmet, et al., 2013); and
- ESA 1 – To maintain ecosystem functionality and connectivity allowing for limited loss of biodiversity pattern (Desmet, et al., 2013, p. 53).

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) provides a National List of Ecosystems that are threatened and in need of protection – GN 1002 of 2011. According to the NEMBA List of threatened ecosystems, the proposed development site falls within an Endangered ecosystem, namely the Sekhukune Mountainlands (Figure 3.6).

3.1.4.4 PROTECTED AND PRIORITY AREAS

The National Protected Areas Expansion Strategy (NPAES, 2008) was developed to “achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change.” The NPAES originated as Government recognised the importance of protected areas in maintaining biodiversity and critical ecological process. The NPAES sets targets for expanding South Africa’s protected area network, placing emphasis on those ecosystems that are least protected. The site is not located within an NPAES Focus Area, formal/informal protected area or conservation area (Figure 3.8). The nearest NPAES Focus Area (Limpopo Central Bushveld NPAES Focus Area) is located approximately 27 km north of the study site. The nearest nature reserve is located 15 km to the north and the nearest protected area, as identified by the South African Protected Areas Database (SAPAD, 2020), is located approximately 25 km to the north of the project area (Figure 3.8).

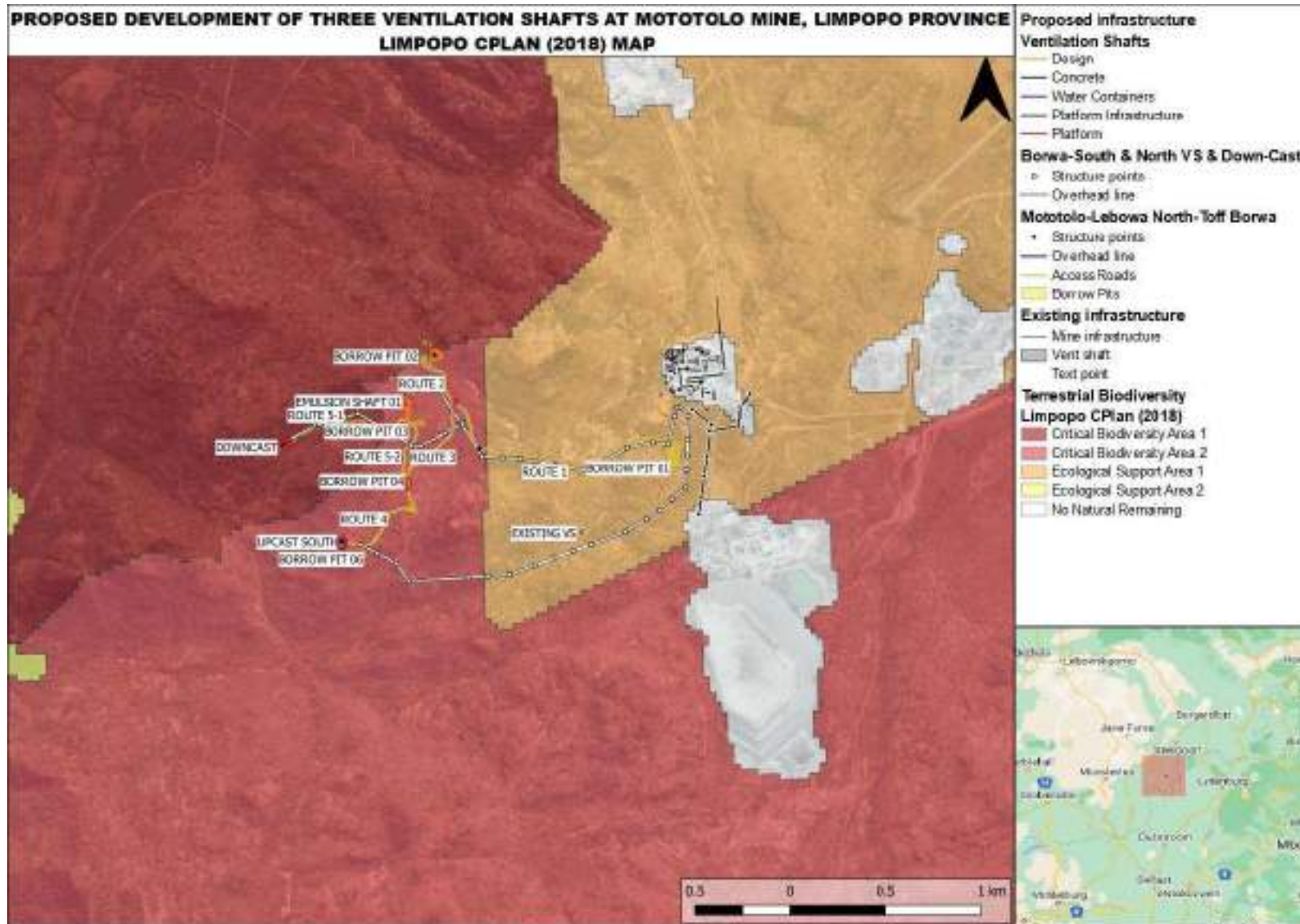


Figure 3.7: Terrestrial CBAs and ESAs map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.

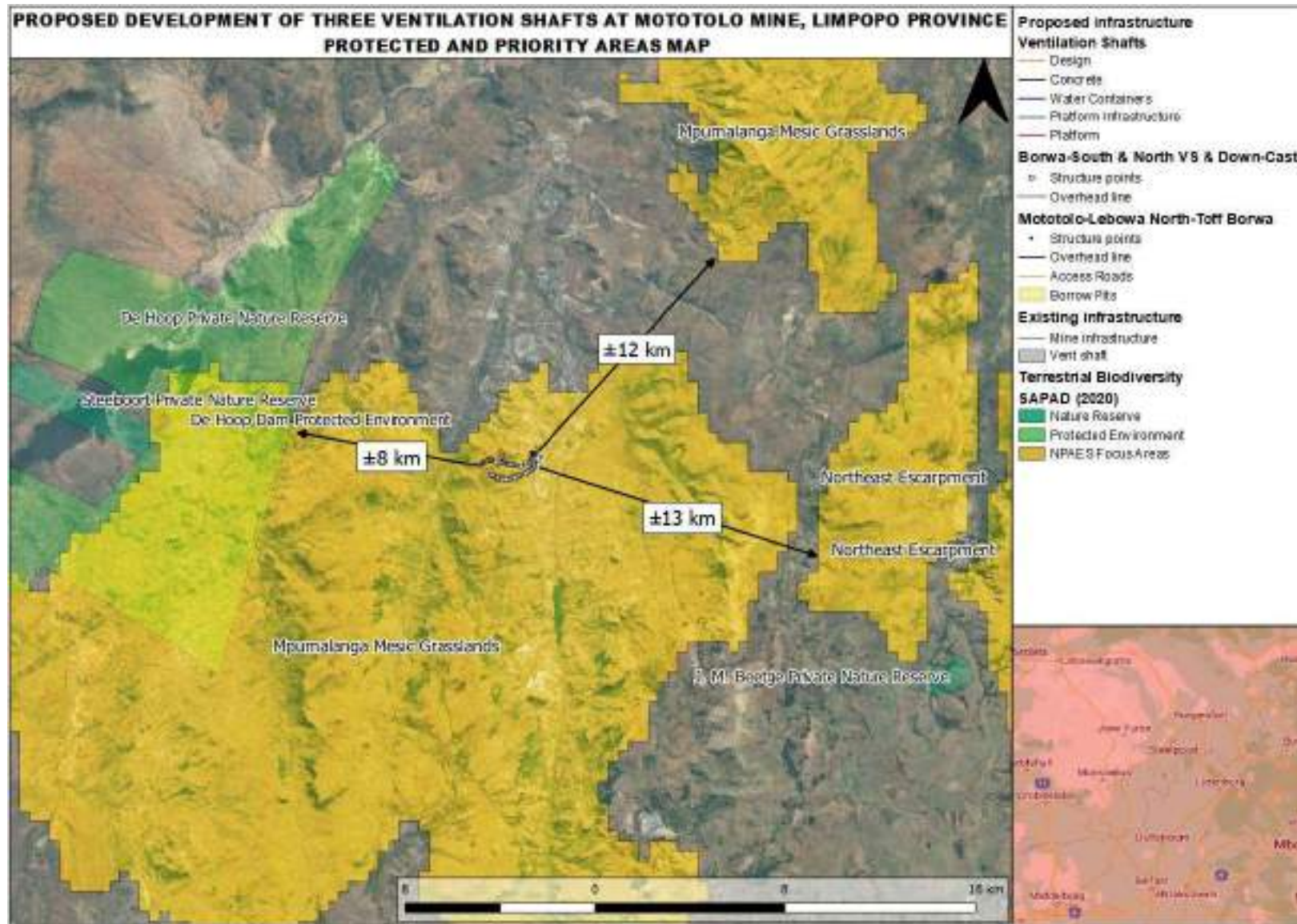


Figure 3.8: Protected and Priority Areas map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.1.4.5 SEKHUKHUNELAND CENTRE OF ENDEMISM (SCOE)

The site forms part of the Sekhukhuneland Centre of Endemism (SCOE). Of the over 2 200 indigenous plant species occurring within the SCOE, 58 are considered endemic and an additional 70 are considered near-endemic to the area. The endemic plants of this area are primarily edaphic specialists that are derived from a unique ecology. Endemics are both herbaceous and woody with endemism high in the Anacardiaceae, Euphorbiaceae, Liliaceae and Lamiaceae. The site lies inside the Sekhukhuneland Centre of Endemism and the shallow, rocky areas of the development site can be considered especially sensitive as part of the centre of endemism and will almost certainly show similar vegetation patterns to the endemic regions, especially since the vegetation is still natural.

3.1.5 ECOREGIONS

Ecoregional classification allows the grouping of aquatic environments according to similarities based on a top-down nested hierarchy. The principle of river and wetland typing is that these are grouped together at a particular level of the typing hierarchy will be more similar to one another than rivers and wetlands in other groups. Ecological regions are regions within which there is relative similarity in the mosaic of ecosystems and ecosystem components (biotic and abiotic, aquatic and terrestrial). All of the rivers and wetlands in the area fall within Level 1 Ecoregion 9: Eastern Bankenveld (Figure 3.9). The Level 1 Ecoregion has the following attributes:

- Mean annual precipitation: Moderate to moderately high;
- Coefficient of variation of annual precipitation: Low to moderate;
- Drainage density: Predominantly medium;
- Stream frequency: Medium/high but low/medium in limited areas;
- Slopes <5 %: <20 %, 20-50 % in limited areas;
- Median annual simulated runoff: Mostly moderate but moderately high in areas; and
- Mean annual temperature: Mostly moderate.

Within the Level 1 Ecoregion, the rivers and wetlands fall within Level 2 Ecoregion 9.03 (Figure 3.9). Table 3.1 provides attributes of the Level 2 Ecoregion.

Table 3.1: Attributes of the Level 2 Ecoregion 9.03

MAIN ATTRIBUTES	9.03
Terrain Morphology	<ul style="list-style-type: none"> • Open Hills, Lowlands, Mountains; moderate to high relief • Hills and Lowlands; Parallel hills and lowlands; Low mountains
Vegetation type	<ul style="list-style-type: none"> • Mixed Bushveld, Clay Thorn Bushveld
Altitude (mamsl.)	500 – 2 300
MAP (mm)	400 – 700
Coefficient of variation (% of annual precipitation)	20 – 34
Rainfall concentration index	55 – 64
Rainfall seasonality	Early summer
Mean annual temp (°C)	14 – 22
Mean daily max temp (°C) Feb	20 – 30
Mean daily max temp (°C) Jul	16 – 20
Mean daily min temp (°C) Feb	12 – 19
Mean daily min temp (°C) Jul	2 – 7
Median annual simulated runoff (mm) for quaternary catchment	20 – 150

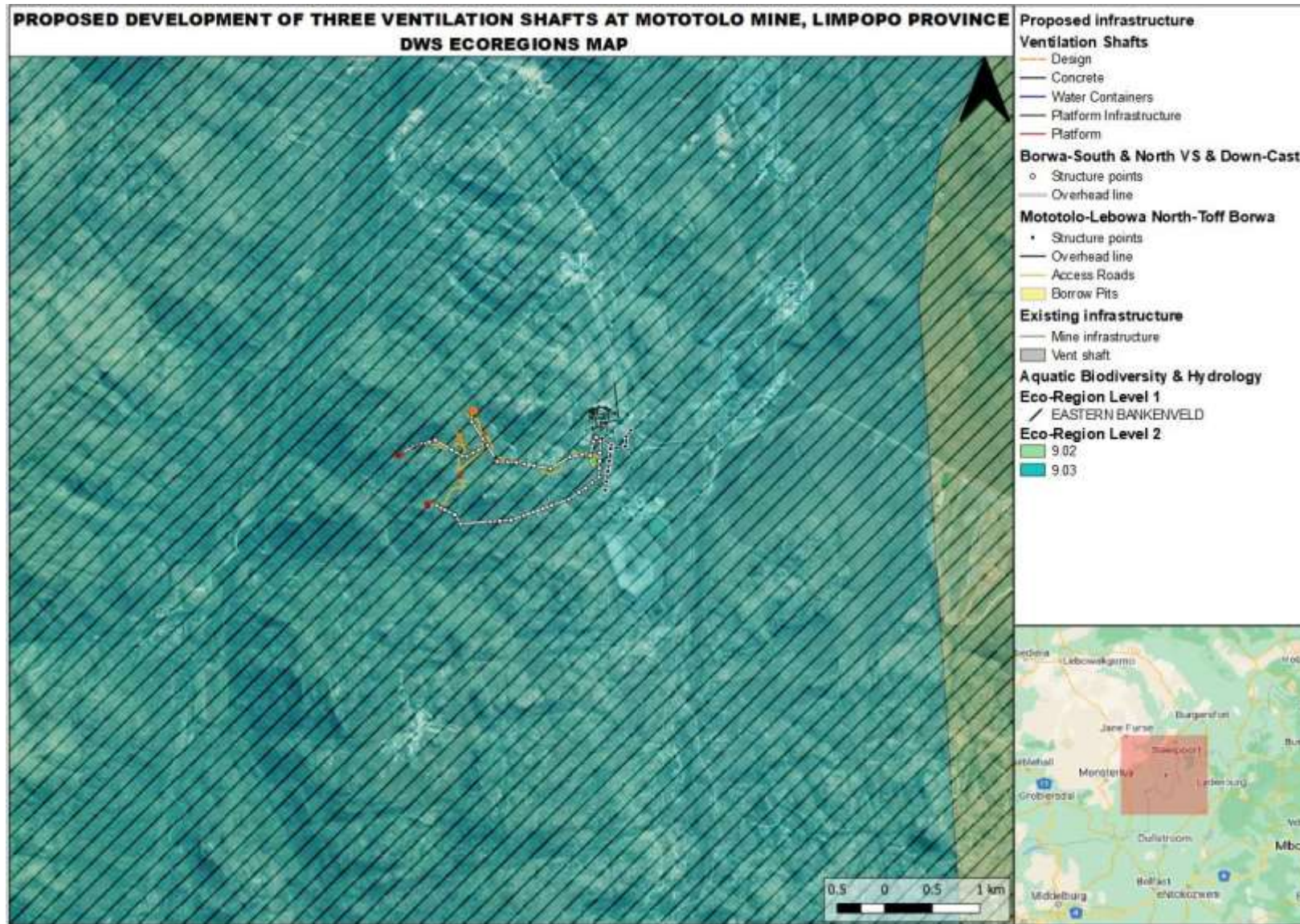


Figure 3.9: Ecoregion map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province.



3.1.6 DRAINAGE AND RIVER ECOSYSTEM CONTEXT

The proposed development falls entirely within Quaternary Catchment B41G, which drains the Groot- and Klein-Dwars Rivers, tributaries of the Steelpoort River within the Olifants Water Management Area (WMA) (Figure 3.10). The Groot- and Klein-Dwars Rivers main channels flow in a northerly direction, approximately 1.3-1.5 km to the east and west of the site, respectively (Figure 3.10). Several smaller drainage lines fall within the project area, crossing the proposed access roads and powerlines.

The Groot- and Klein-Dwars Rivers have been assigned an 'Endangered' to 'Critically Endangered' ecosystem threat status in terms of the National Biodiversity Assessment (NBA, 2018). Critically Endangered ecosystems are ecosystem types that have very little of their original extent (measured as area, length or volume) left in natural or near-natural condition. Most of the ecosystem type has been heavily, severely or critically modified from its natural state. Any further loss of natural habitat or deterioration in condition of the remaining healthy examples of these ecosystem types must be avoided, and the remaining healthy examples should be the focus of urgent conservation action (Nel & Driver, 2012). According to the NBA (2018), the Present Ecological State (PES) of the Groot- and Klein-Dwars Rivers range from "B: Largely Natural" to "D: Largely Modified", with a few areas classified as "F: Critically Modified", i.e. a slight to critical change in ecosystem processes and loss of natural habitat and biota and has occurred. The Groot- and Klein-Dwars Rivers are categorised as River FEPAs in terms of the National Freshwater Ecosystem Priority Areas (NFEPA) project (2014).

3.1.7 WETLAND ECOSYSTEM CONTEXT

Wetlands in South Africa have been mapped on a broad-scale by various stakeholders and have been included in the NFEPA (2011-2014) and NBA (2018). Due to the broad-scale nature of the NFEPA map it is not spatially accurate and, therefore, some error is expected. All wetlands are classified as either 'natural' or 'artificial' water bodies. The NFEPA and NBA wetland maps identify important or sensitive wetlands and wetland clusters. A wetland cluster is a group of wetlands all within 1 km of each other and which are surrounded by relatively natural vegetation. Wetland clusters allow for important ecological processes such as the migration of insects and frogs between the wetlands.

According to the National Wetland Map Version 5 (2018), no natural wetlands occur within 500 m of the proposed development area (Figure 3.10). Only one artificial wetland, an open reservoir, within 500 m of the proposed development area (Figure 3.10). Numerous natural and artificial wetlands occur within the quaternary catchment. No NFEPA wetland clusters fall within the quaternary catchment.

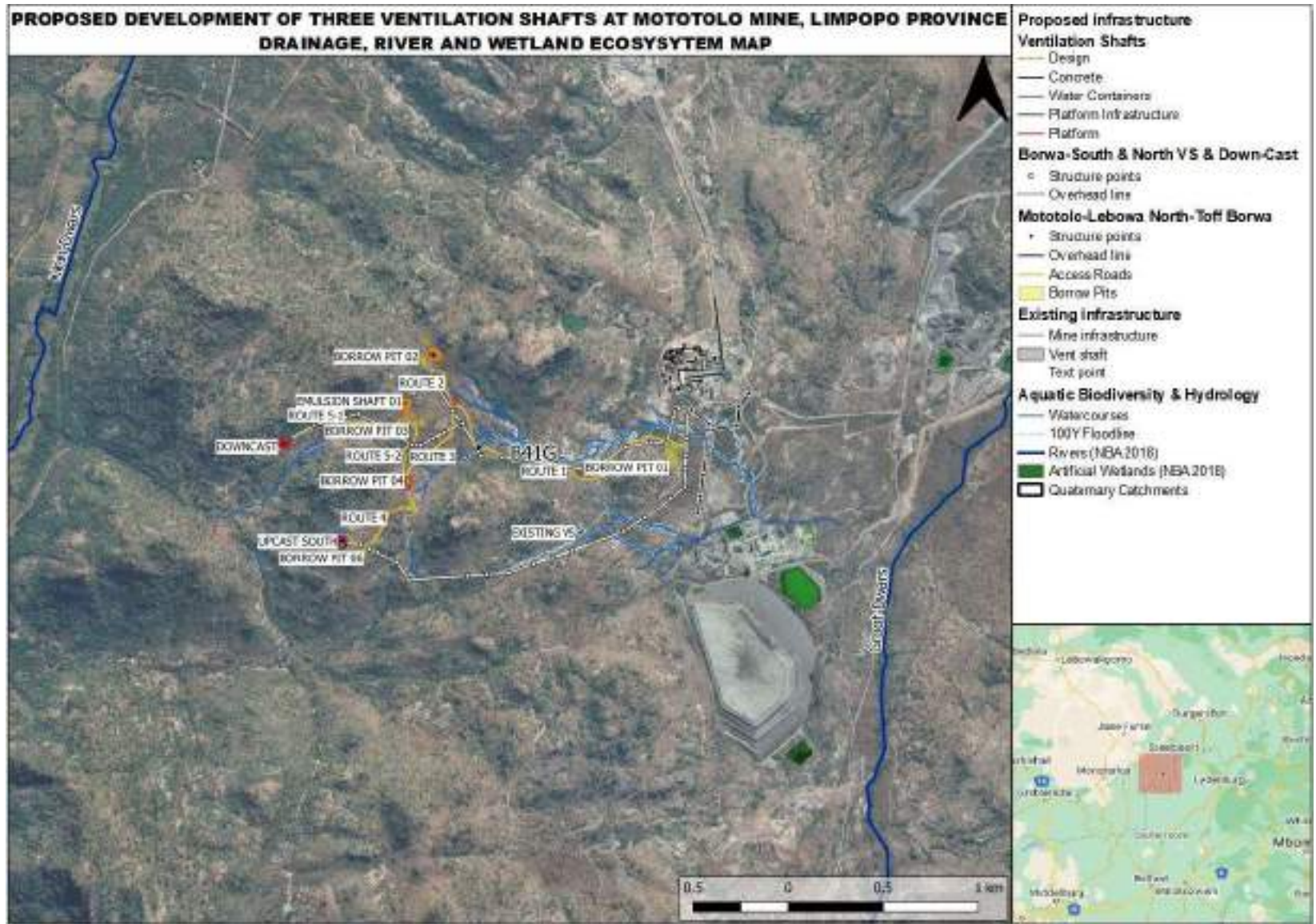


Figure 3.10: Drainage, River and Wetland Ecosystem map of the proposed ventilation shafts at the Anglo American Mototolo Borwa Shaft, Limpopo Province (NBA, 2018).



3.2 SITE ASSESSMENT

On completion of the desktop assessment a site visit was undertaken on 16 November 2021. The purpose of the site visit was to gather data regarding the surrounding watercourses, ground truth the desktop study, delineate watercourses and wetlands, and assess the state of the aquatic and wetland environment. This included identifying any potential impacts that the development may have on the aquatic and wetland environment and the significance of those impacts.

3.2.1 DELINEATION, CLASSIFICATION AND HABITAT CHARACTERISATION OF WATERCOURSES

The in-field sampling of soil and vegetation in conjunction with the recording of diagnostic topographical / terrain indicators and features, enabled the delineation of the following distinct watercourse units, as described below. Four watercourse units were assessed (Figure 3.11). These units are described below.

Watercourse unit W1 is a branched, mostly bare, dry ephemeral channel, with areas of deeply-incised gullies and alluvial deposition (Figure 3.12). The unit originates in the rocky, mountainous bushveld areas, approximately 1.2 – 2 km to the west and south-west of the Mototolo Borwa Shaft. The two main arms of the unit, northern and southern, converge near the Mototolo Concentrator to the south-east of the Borwa Shaft. Sampled sections of the unit (W1.1-1.11) are described below.

W1.1 is divided by an existing road crossing. Upstream of the crossing, the channel is characterised by a 2 m wide alluvial river bed, comprised of mostly sand and recent silt / clay sediment deposition (Plate 3.1). The 4 m deep, incised vertical left bank is mostly bare, with some patchy *Themeda triandra* and *Rhynchosia komatiensis* (Plate 3.1). The right bank includes a narrow flood bench, vegetated by a high abundance of *Cymbopogon caesius* and *Hyparrhenia tamba*, with a low abundance of mixed woody species. The flood bench is comprised of brown loamy silt (0-30 cm), brown sandy loam (30-40 cm), yellow brown sand (40-50 cm) and yellow brown fine sandy loam (>50 cm), with mottles absent throughout.

The channel opens to an excavated area (Plate 3.2), where an erosion gully joins from the north. The gully is sparsely vegetated by *Eragrostis rigidior* along its banks, as well as *Heteropogon contortus* and *Senecio microglossus* along its bed. The section crosses the existing gravel access road via a recently-constructed two-compartment box culvert, with extended gabion sidewalls at both the inlet and outlet (Plate 3.3).

Downstream of the crossing, the stream drops off a 3 m high vertical knick point and narrows to 1 m wide, 4-5 m deep incised bedrock channel (Plate 3.4), with a few seasonal orange brown turbid pools (Plate 3.5), shallow rock alluvium and scattered dryland vegetation. Further downstream, the stream is characterised by dry bowl deposition and a cobble stream bed, with *Hippobromus pauciflorus*, *Rhoicissus sekhukunensis* and *Searsia keetii* occurring along the banks.

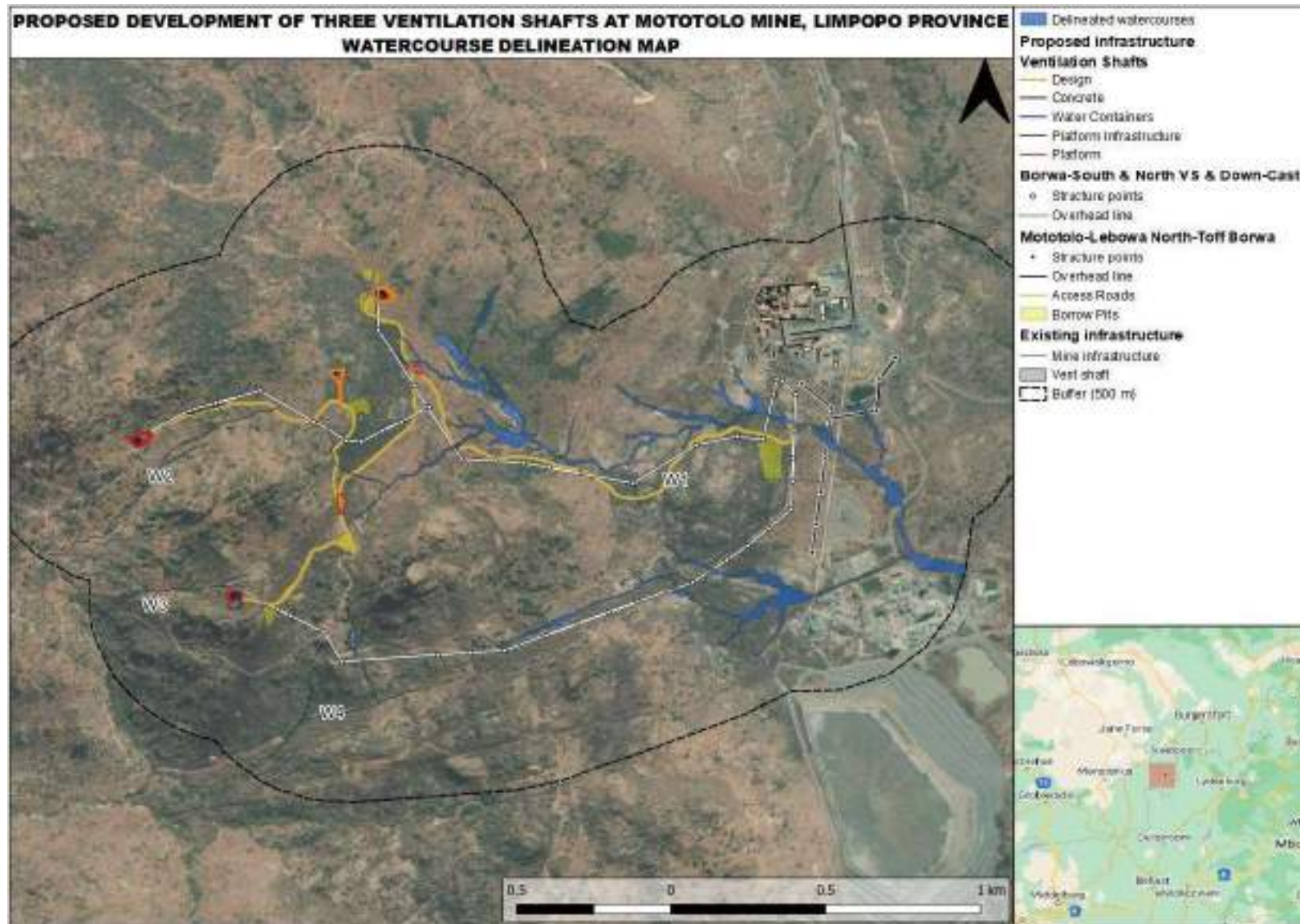


Figure 3.11: Watercourse assessment areas surveyed during the site visit to the study area.

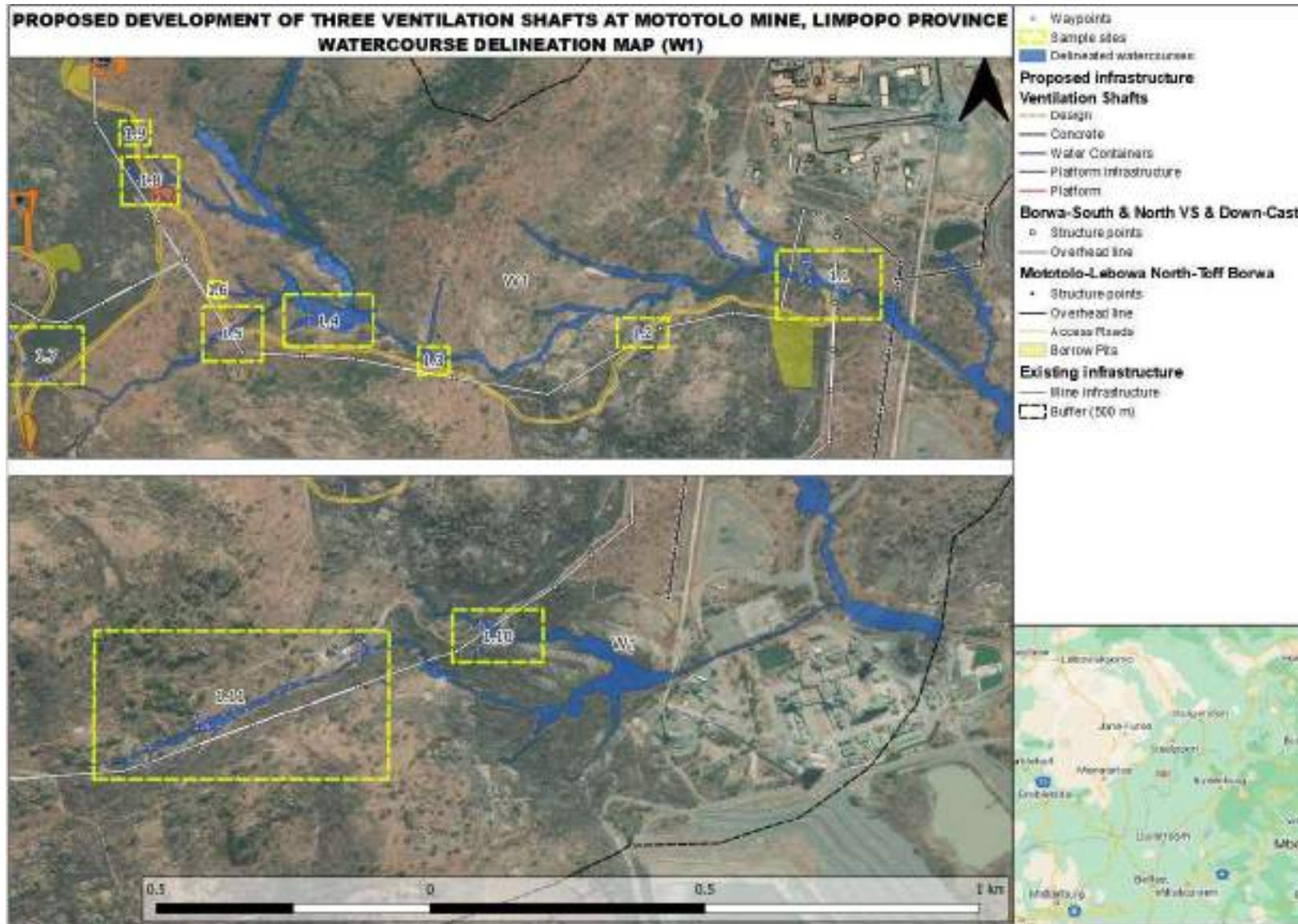


Figure 3.12: Delineation map of unit W1



Plate 3.1: Upstream alluvial section of W1.1



Plate 3.2: Excavated area within W1.1



Plate 3.3: Culvert and gabion side walls of W1.1 road crossing



Plate 3.4: Downstream bedrock section of W1.1



Plate 3.5: Bedrock turbid pools in the downstream section of W1.1



W1.2 is a small gully channel, originating from road runoff, resulting in elevated erosion and sedimentation (Plate 3.6). It is sparsely vegetated by *E. rigidior* and *Setaria sphacelata* (Plate 3.6). **W1.3** is a mixed, alternating alluvial and bedrock stream, with banks dominated by an open *E. rigidior* / *T. triandra* riparian grassland and a low abundance of *Rhynchosia komatiensis* (Plate 3.7). **W1.4** is a broad, mostly bare erosion gully, vegetated by *H. contortus* and *Eragrostis capensis* along its banks (Plate 3.8).



Plate 3.6: Road crossing and downstream gully of W1.2



Plate 3.7: Mixed, alternating alluvial and bedrock stream of W1.3



Plate 3.8: Network of broad erosion gullies of W1.4

W1.5 is characterised by a poorly-defined ephemeral channel (Plate 3.9), with a broad alluvial flood-out area, upstream of an existing dirt road crossing. The channel banks are vegetated by a mixed grassland / woodland, with *Euclea crispa*, *Vachellia karoo* and *H. contortus*. The flood-out vegetation includes *H. tamba* and *C. caesius* in high and moderate abundances, respectively. The downstream section is characterised by a bedrock channel with thin streaks of sediment deposition and a 1 m wide



headcut immediately downstream of the road crossing. **W1.6** is a 1 m wide, well-vegetated, grassy erosion gully headcut, originating from stormwater run-off from an existing dirt road and feeding into W1.4. **W1.7** is a dry, rocky ephemeral stream, crossing two existing access roads. It originates approximately 70 m upstream of the first dirt road and runs parallel with the road for approximately 60 m before crossing (Plate 3.10). The upstream section is intersected by two smaller erosion gullies. Between the two road crossings, the stream is characterised by a small (50 cm wide by 30 cm deep) channel, which cuts through an alluvial flood-out area, generated from elevated sediment from the road. The flood-out widens as it approaches the second road crossing. Downstream of the second road crossing, the channel transitions to a wider and shallower (1.5 m x 10-20 cm) mixed alternating alluvial and bedrock stream (Plate 3.11). The stream is primarily vegetated by *R. sekhukunensis*, *E. rigidior* and *H. contortus* along its bed and banks.



Plate 3.9: Poorly-defined ephemeral channel of W1.5



Plate 3.10: Narrow, rocky upstream section of W1.7 running parallel to the road



Plate 3.11: Wider, shallower downstream section of W1.7



W1.8 starts as a steep bedrock ephemeral stream in its upper reaches before transitioning to an alluvial flood-out, with a 50 cm wide by 30 cm deep incised channel, which shallows and widens until it reaches an existing dirt road (Plate 3.12). The flood-out and incised stream continue downstream of the crossing, reaching 50 cm wide by 30 cm deep once again, before losing confinement further downstream (Plate 3.13). The bed of the channel is sparsely vegetated by *H. tamba*, with *C. caesius*, *Dichrostachys. cinerea* and *T. trianda* occurring along its banks. **W1.9** is a weakly topographically-defined drainage line (Plate 3.14), comprised of a small erosion gully and downstream depositional area, and vegetated by *Paspallum* sp., *Setaria. sphacelata* and *D. cinerea*.



Plate 3.12: Bedrock to alluvial flood-out upstream section of W1.8



Plate 3.13: Unconfined downstream section of W1.8



Plate 3.14: Weakly topographically-defined drainage line of W1.9



W1.10 is a 3 m wide, incised alluvial channel, with a narrow woody riparian zone, dominated by *Mimusops zeyheri* and a moderate abundance of *R. sekhukunensis* (Plate 3.15). This broadens out to a cleared area with material fill before crossing an existing dirt access road via a two-compartment box culvert (Plate 3.15). A narrow erosion gully, vegetated by *Hippobromus pauciflorus* and *Terminalia prunioides*, joins the cleared area from the south. Soils are comprised of dark brown loams (0-30 cm), dark brown loamy sands (30-50 cm) and dark brown clays (>50 cm), without mottles throughout. A fill embankment occurs along the road, with an erosion gully forming downstream as a result of run-off from the road. Immediately downstream of the road, the channel is characterised by a dry alluvial bed comprised of a mixture of sand and stones, with 1.5 m high banks (Plate 3.16). Further downstream, the channel is characterised by sand, stony alluvium from the road construction and a narrow flood bench. This section is vegetated by *E. rigidior* along the bed and few woody species along the banks, including *D. cinerea* and *R. komatiensis*.



Plate 3.15: Upstream incised alluvial channel of W1.10, with cleared area, material fill and culvert crossing



Plate 3.16: Downstream dry alluvial bed of W1.10, comprised of a mixture of sand and stones

W1.11 is a mixed alluvial and bedrock ephemeral stream, narrowing and broadening, losing confinement and reforming, with adjoining side channels and gullies, running north-eastwards along the bushveld valley bottom towards and beyond the existing ventilation shaft. The main channel starts as 1.5-2 m deep incised stream (Plate 3.17), broadening into a concave basin with an alluvial flood-out plain (Plate 3.18), dominated *T. triandra* and *H. contortus*. A mixed alternating alluvial and bedrock



side channel with alluvial flood-out and a small (30 cm) incised gully join the main channel after approximately 80 m on its right and left banks, respectively.

The main channel narrows and broadens for another 100 m, with *C. caesius* and *E. rigidior* becoming dominant along its banks. It is then joined at a 90° bend by a small side channel, before briefly losing confinement and transitioning to a large concave basin with alluvial flood-out. The flood-out soils are characterised by dark grey brown loam in the 0-30 cm topsoil horizon, becoming a mixed loam with light course sand at 30 cm, then a dark brown grey sandy loam in the 30-40 cm subsoil horizon and finally a dark brown grey loamy sand in the 40-50 cm subsoil horizon, with few small orange mottles occurring from a depth of 10-50 cm. The unit reforms as a broad, shallow, mixed alternating alluvial and bedrock dry channel, vegetated by *T. triandra* and *E. rigidior*. A 1 m headcut occurs along the left edge of the reformed channel, vegetated by *C. caesius*, *E. rigidior* and *T. triandra*. Erosion gullies occur along the left bank of the main channel, originating from cattle tracks. The broadened main channel continues for approximately 60-70 m before starting to narrow and deepen to 1.5 m wide by 1.5 deep.

After approximately 80 m, the macro-channel becomes less confined as it runs through a broad, bedrock dominated landscape (Plate 3.19). Here, channelled streamflow occurs mainly through small cracks and crevices, with occasional seasonal pools and narrow paths of alluvial deposition also occurring in areas (Plate 3.19). The weakly-defined, bedrock macro-channel is lined with dense *C. caesius*, *E. rigidior*, *T. triandra* and *Ziziphus mucronata* along its banks and continues for approximately 70 m before transitioning back to the mixed alluvial and bedrock stream just upstream of the existing ventilation shaft. The ventilation shaft is surrounded by a 3 m wide by 1.5 m deep concrete cut-off drain (Plate 3.20), which feeds elevated stormwater run-off, sand and concrete into the left bank of the main channel of W1.11.

The main channel continues as a narrow, mixed alluvial and bedrock stream with a woody riparian zone and open grassy patches along the footprint of the ventilation shaft for approximately 80-90 m, before widening and being joined by a side channel on its left bank. The side channel crosses the existing road to the ventilation shaft via a small culvert, creating a 50 cm deep knick point and downstream erosion and sedimentation (Plate 3.21). The main channel, downstream of the adjoining side channel, is characterised by a mixed alluvial and bedrock stream, with measurable sediment deposition from the ventilation shaft and access road, with instream *S. sphacelata*, marginal *H. tamba* and *E. rigidior* on its banks, and littered with wire waste.



Plate 3.17: Upstream, incised alluvial section of W1.11



Plate 3.18: Upstream, broadened alluvial flood-out of W1.11



Plate 3.19: Bedrock-dominated, weakly-defined macrochannel of W1.11. Channelled streamflow occurring mainly through small cracks and crevices, with occasional seasonal pools.



Plate 3.20: Concrete cut-off drain surrounding existing ventilation shaft and feeding into W1.11.



Plate 3.21: Small culvert, creating a knick point and downstream erosion and sedimentation.



Watercourse unit W2 is a dry ephemeral stream, originating approximately 10 m up-valley of the existing access road to the proposed Downcast Ventilation Shaft and running south-westwards across and between sections of exposed bedrock (Figure 3.13, Plate 3.22). It comprised of small alluvial gullies and vegetated by *D. cinerea*, *R. komatiensis* and *Senecio sp.* **Watercourse unit W3** is a dry ephemeral stream, originating approximately 40 m down-valley of the proposed Upcast South Ventilation Shaft and running westwards across and between sections of exposed bedrock (Figure 3.14, Plate 3.23). **Watercourse unit W4** is a braided alluvial stream, characterised by a 1 m wide active channel and a 30 cm layer of alluvial sand (Figure 3.15, Plate 3.24). The banks of the channel are vegetated by *Paspallum sp.* and *C. caesius*, with *Rhoicissus sekhukunensis* occurring within the upstream riparian zone. Two small stormwater gullies enter the channel from the existing dirt road as the result of rill erosion.



Plate 3.22: Upstream view of W2



Plate 3.23: Downstream view of W3 from the proposed Upcast Shaft site.



Plate 3.24: Access road crossing and downstream braided alluvial channel of W4.

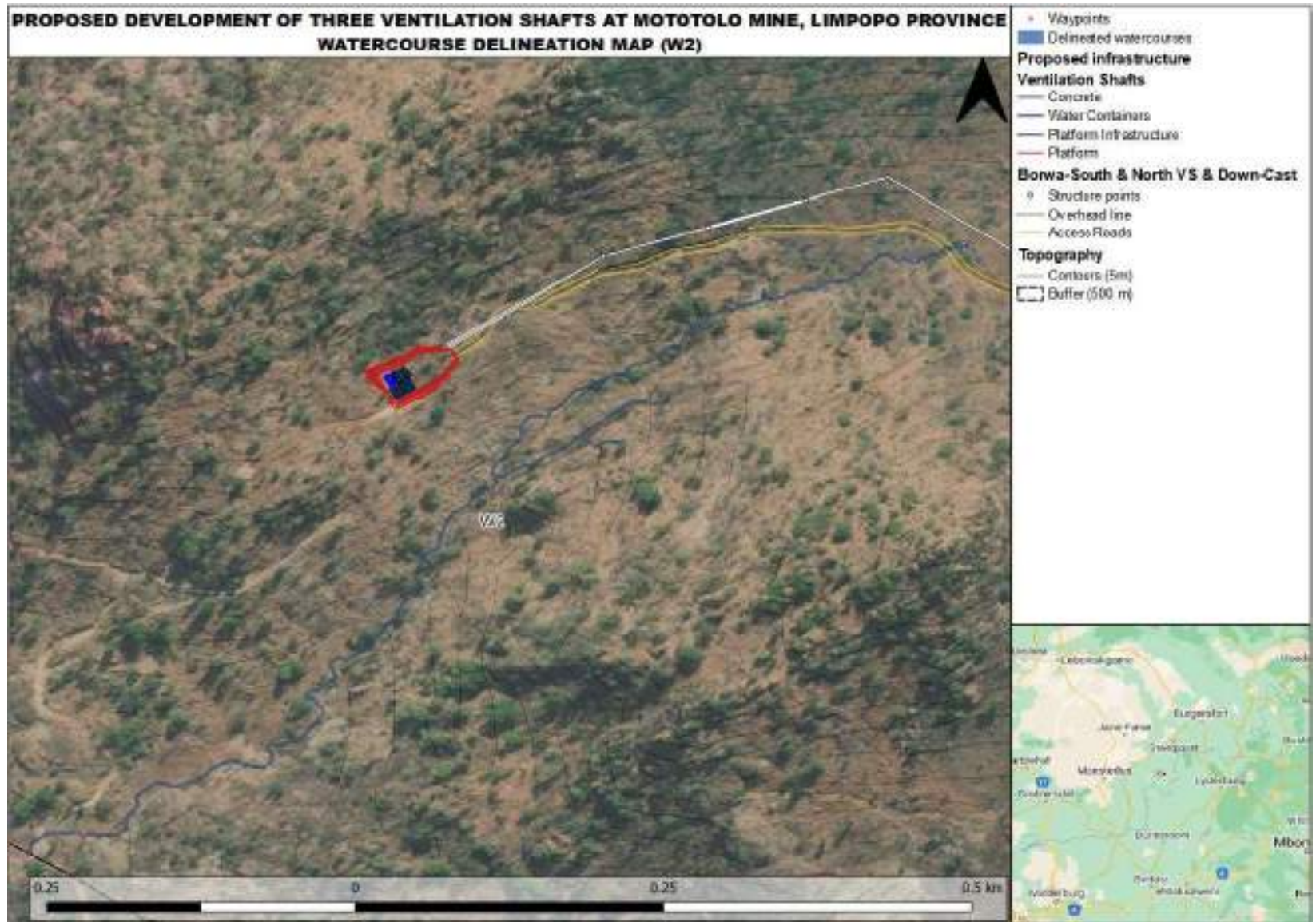


Figure 3.13: Delineation map of W2

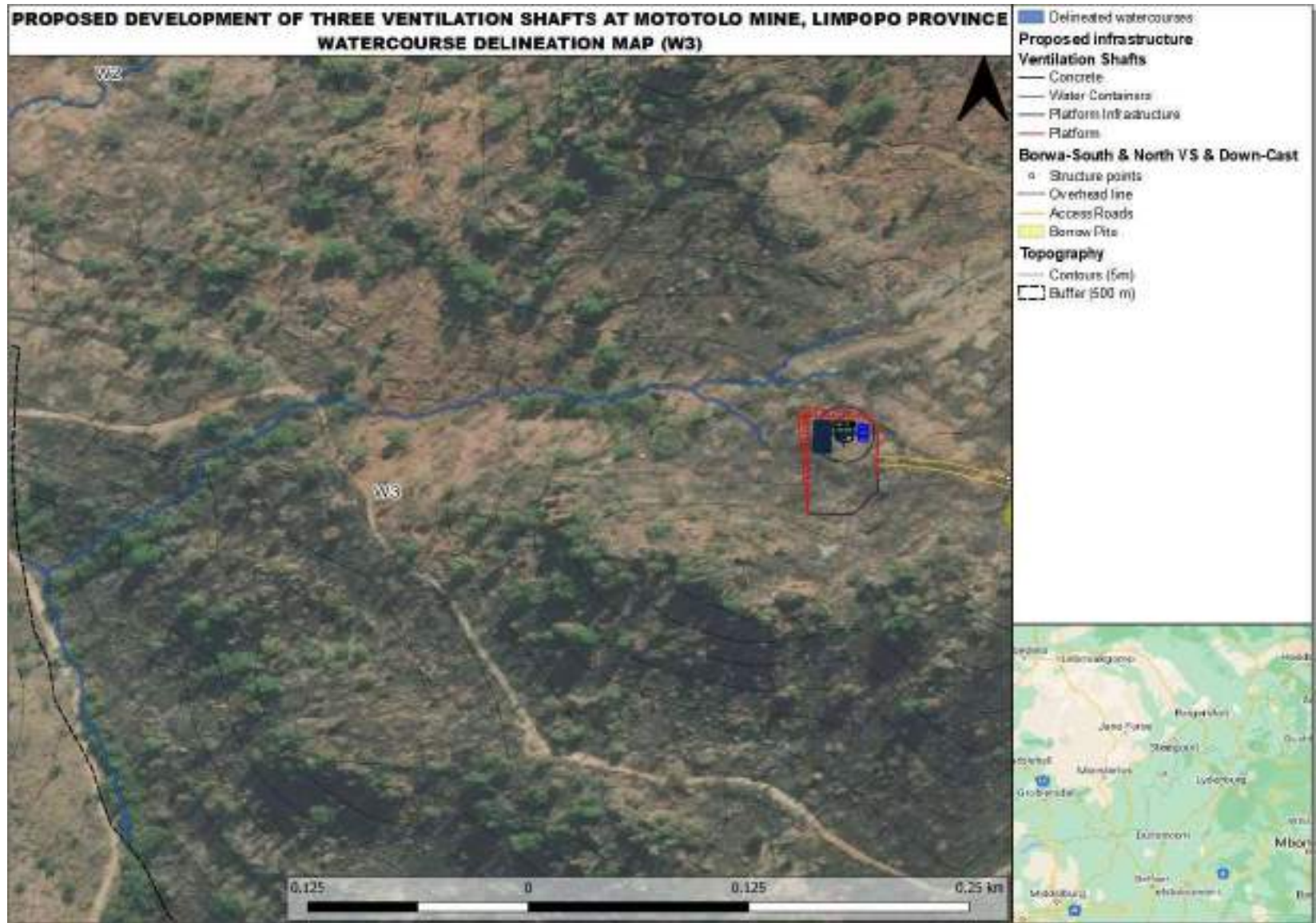


Figure 3.14: Delineation map of W3

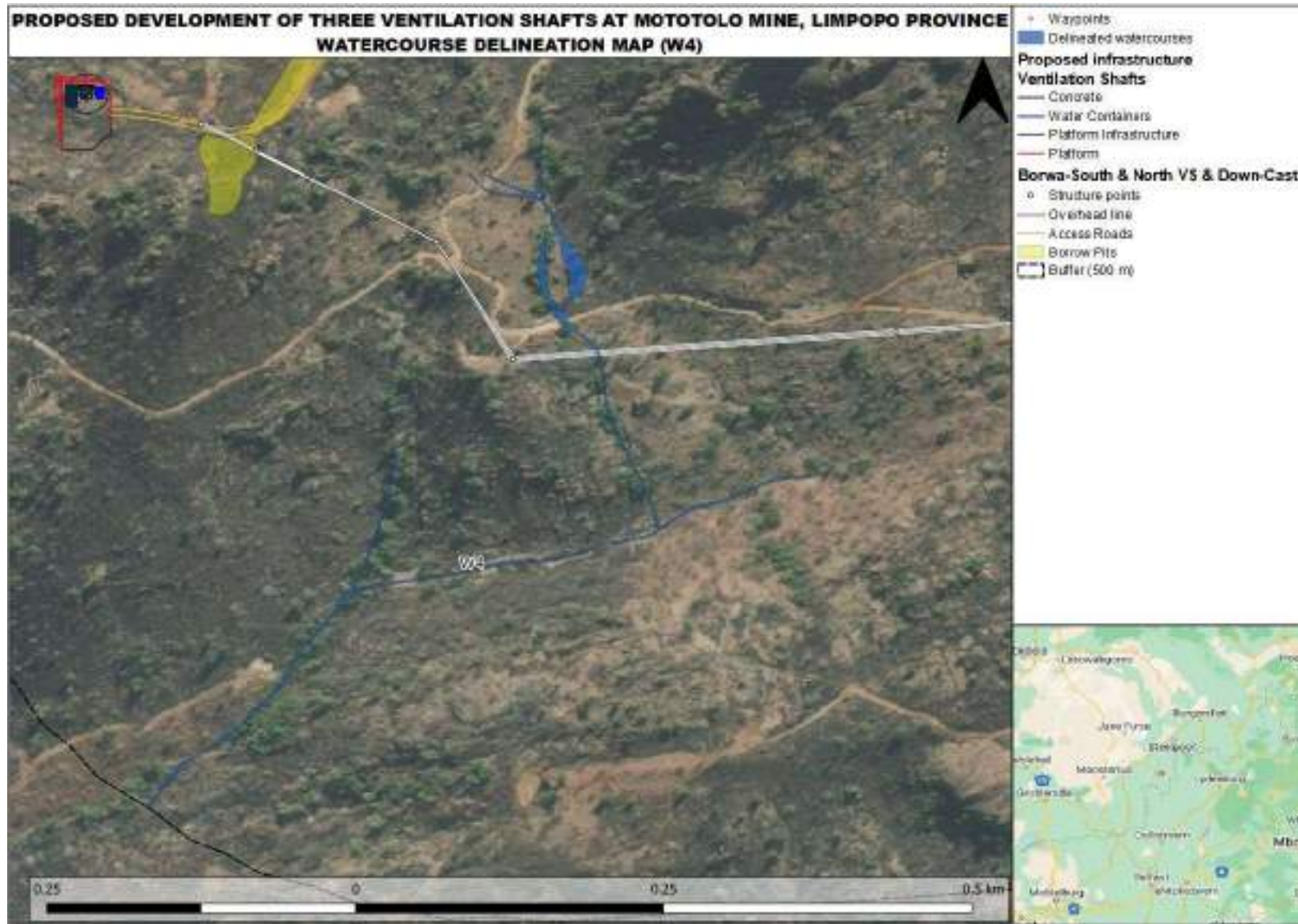


Figure 3.15: Delineation map of W4



3.2.2 PRESENT ECOLOGICAL STATE OF THE WATERCOURSES

The Present Ecological State (PES) for the ephemeral streams were assessed using the rapid (qualitative) River Index of Habitat Integrity (IHI) tool (Kleynhans, 2012), assessing both the instream and riparian habitats. The results of the IHI assessment are summarised in Table 3.2 below. The habitat integrity of the streams in the project area range from largely natural to fair. Unit W1 is in a fair condition, with a few moderate existing impacts, namely several road crossings, some dumping of scrap wire and widespread erosion and sedimentation (Table 3.2). Units W2 and W4 are in a largely natural condition, with only a few minor existing impacts to these systems, including existing access road crossings and the associated localised increased run-off, erosion and sedimentation downstream of these crossings. Unit W3 is in a natural condition, with little to no existing impacts.

Table 3.2: Summary results of the stream and riparian IHI assessment

UNIT	INSTREAM IHI		RIPARIAN IHI		OVERALL PES	
	SCORE	CLASS	SCORE	CLASS	SCORE	CLASS
W1	3.02	C	5.23	D	3.90	C: Fair
W2	1.22	B	1.26	B	1.23	B: Largely Natural
W3	0.74	A	0.76	A	0.75	A: Natural
W4	1.80	B	1.87	C/B	1.83	B: Largely Natural



4 SITE IMPORTANCE AND SENSITIVITY

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.4. The assessment must identify alternative development footprints within the preferred site which would be of a “low” sensitivity as identified by the screening tool and verified through the site sensitivity verification and which were not considered appropriate.

2.7. The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:

2.7.6. The location of areas not suitable for development, which are to be avoided during construction and operation, where relevant.

2.7.12. A suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies.

2.7.14. A motivation must be provided if there were development footprints identified as per paragraph 2.4 above that were identified as having a “low” aquatic biodiversity sensitivity and that were not considered appropriate.

4.1 ECOSYSTEM SERVICES OF THE WATERCOURSES

Ecosystem services were assessed for all watercourse units. The overall importance scores for the goods and services provided by the watercourse units are provided below (Table 4.1). The rating of the extent to which a benefit is being supplied for each ecosystem service is also listed.

Table 4.1: Ecosystem Services provided by the ephemeral streams (E) and associated alluvial flood-outs (A)

ECOSYSTEM SERVICE		W1E	W1A	W2E	W3E	W4E
Regulating and supporting services	Flood attenuation	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Stream flow regulation	-	0.0 (VL)	-	-	-
	Sediment trapping	0.0 (VL)	1.0 (L)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Erosion control	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Phosphate assimilation	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Nitrate assimilation	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Toxicant assimilation	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Carbon storage	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Biodiversity maintenance	1.2 (L)	1.2 (L)	2.2 (M)	2.2 (M)	2.2 (M)
Provisioning services	Water for human use	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Harvestable resources	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Food for livestock	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.5 (VL)
	Cultivated foods	1.0 (L)	1.0 (L)	1.0 (L)	1.0 (L)	1.0 (L)
Cultural services	Tourism and Recreation	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Education and Research	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)	0.0 (VL)
	Cultural and Spiritual	0.5 (VL)	0.5 (VL)	0.5 (VL)	0.5 (VL)	0.5 (VL)

According to the NWA (1998), riparian zones include areas “associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas”. Ephemeral streams often fall outside of this definition, because they experience flooding too infrequently to support sufficiently distinct vegetation compositions and structures, as compared to their surrounding terrestrial environments. In this setting, there is a variety of single channels with limited to no distinct riparian vegetation, but with flood-out / wash-out areas



that can be considered alluvial features and thus riparian in nature. Flood-out / wash-out features in particular are the result of first and second order streams in this setting that do not have the capacity¹ to convey all of their sediment loads. Thus, ephemeral channels can be considered temporary / transitory sediment sinks / traps with some benefits to downstream watercourses in terms of regulating sediment loads and pollutant removal, although such sediment gets re-mobilised during large floods. The flood-out / wash-out areas (A) of unit W1 only scored marginally better for sediment trapping services compared to the channel-bound sections of W1 and the other ephemeral streams.

Biodiversity maintenance scores range from low (W1) to moderate (W2, W3 and W4). Unit W1 scored lower in terms of biodiversity maintenance due to it falling within an Ecological Support Area (ESA) and obtaining a lower PES Score (C: Fair), compared to the other units, which fall within a Critical Biodiversity Area (CBA) and obtained higher PES Scores (A: Natural to B: Largely Natural).

With the exception of cultivated foods, which obtained a low importance rating, all other provisioning and cultural ecosystem services for these streams received very low ratings. This was attributed largely to the lack of wetland biogeochemical conditions and low demand.

4.2 ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS) ASSESSMENT

This section discusses the results of the Ecological Importance and Sensitivity (EIS) assessments. The ephemeral streams were assessed using the Riverine EIS tool. The EIS score generated by the river EIS tool was then integrated with the riparian zone biodiversity maintenance importance score from the WET-EcoServices tool outputs.

The ephemeral streams initially all scored low integrated EIS ratings due to their generally marginal to low importance and sensitivity in terms of instream and riparian biota and habitats (Table 4.2). However, the Riverine EIS rating does not take into account the importance of localised ecosystem services, such as biodiversity maintenance and sediment trapping within the alluvial flood-outs / wash-outs. Taking into consideration the moderate importance of biodiversity maintenance in W2, W3 and W4, the overall integrated EIS rating of these watercourses were revised to moderate.

Table 4.2: Summary of ephemeral streams (E) EIS scores and ratings

UNIT	INTEGRATED EIS SCORE	BIODIVERSITY MAINTENANCE	REVISED INTEGRATED EIS RATING
W1E	1.00 (L)	1.2 (L)	Low
W2E	1.00 (L)	2.2 (M)	Moderate
W3E	1.00 (L)	2.2 (M)	Moderate
W4E	1.00 (L)	2.2 (M)	Moderate

The Wetland EIS tool was used to take into account the alluvial flood-out areas (A) of W1. The unit W1 alluvial flood-outs (A) scored slightly better, though still low, compared to the channelled sections of the unit. Despite offering some sediment trapping services, these flood-outs are localised and are of limited importance and sensitivity. The Wetland EIS assessment results are summarised in Table 4.3 below.

¹ Stream capacity refers to the total amount of sediment that can be transported by the stream.



Table 4.3: Summary of alluvial flood-out /wash-out areas (A) of Unit W1 EIS scores and ratings

UNIT	ECOLOGICAL IMPORTANCE SCORE			ECOLOGICAL SENSITIVITY	INTEGRATED EIS SCORE	INTEGRATED EIS RATING
	BIODIVERSITY MAINTENANCE	REGULATING SERVICES	PROVISIONING AND CULTURAL SERVICES			
W1A	1.2	1.0	1.0	1.20	1.20	Low

4.3 SENSITIVITY MAPPING

A sensitivity map (Figure 4.1 below) was developed based on the above EIS ratings and buffer zones. All activities within high sensitivity areas must be closely monitored by a qualified ECO to ensure that all proposed mitigation measures are implemented to manage and minimize potential impacts on the watercourse. Moderate sensitivity areas act as buffers for the high sensitivity areas. Activities that may have an indirect impact on high sensitivity areas are not to occur within these buffer areas. Such activities would include:

- Stockpiling of topsoil, subsoil, etc.;
- Temporary ablution facilities;
- Site camp establishment;
- Temporary laydown areas for equipment/materials;
- Overnight parking of heavy machinery/vehicles;
- Concrete batching; and
- Storage of chemicals/hazardous substances.

4.4 RECOMMENDED ECOLOGICAL CATEGORY (REC)

The recommended ecological category (REC) is the target or desired state of freshwater ecosystems required to meet water resource management objectives and quality targets. It is determined through the consideration of the PES, EIS and realistic opportunities to improve the PES that is driven by the context / setting. Given the low EIS ratings of the watercourses, all have a REC identical to their PES score (Table 4.4). The management objective of the project should therefore be to ensure that all impacts are minimised such that there is no change in PES for all units assessed.

Table 4.4 Summary of REC for assessed watercourses

UNIT	PES	EIS	REC
W01	C: Fair	Low	C: Maintain
W02	B: Largely Natural	Moderate	B: Maintain
W03	A: Natural	Moderate	A: Maintain
W04	B: Largely Natural	Moderate	B: Maintain

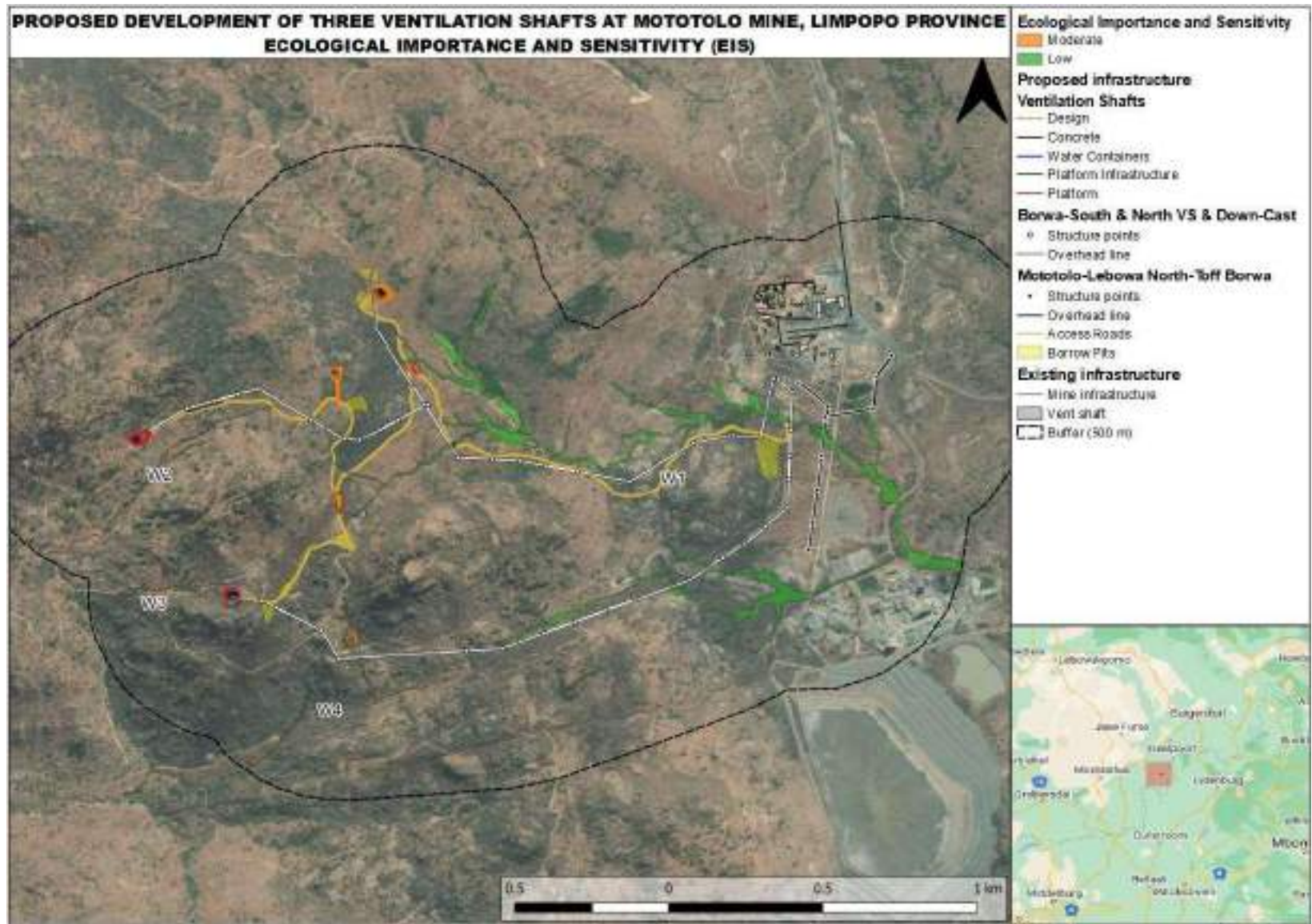


Figure 4.1: Ecological Importance and Sensitivity (EIS) map of the study area.



5 IMPACT AND RISK ASSESSMENT

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.5. Related to impacts, a detailed assessment of the potential impacts of the proposed development . . . must be undertaken.

2.7. The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:

2.7.7. Additional environmental impacts expected from the proposed development.

2.7.8. Any direct, indirect and cumulative impacts of the proposed development on site.

2.7.9. The degree to which impacts and risks can be mitigated.

2.7.10. The degree to which the impacts and risks can be reversed.

2.7.11. The degree to which the impacts and risks can cause loss of irreplaceable resources.

An impact assessment was conducted, using the methodology outlined in Section 2.6.2 and the data collected during the desktop and site assessments, for the construction, operation and decommissioning phases of the proposed development. A breakdown of the assessment and mitigation measures is presented in Table 5.1. Similarly, the risk assessment was conducted, using the methodology outlined in Section 2.6.3, for all phases of the proposed development. A breakdown of the risk assessment is provided in Table 5.2.

The most significant impacts are the direct and indirect impacts of the construction and decommissioning of permanent and temporary access and service road crossings, and catchment drainage and stormwater impacts of the shafts and borrow pits. The construction / upgrade of the access roads and overhead lines will have a moderately significant impact on the watercourses under a poor mitigation scenario, particularly at and immediately downstream of the existing and/or new access road / service road crossings. The decommissioning of the infrastructure will have a similarly moderately significant direct impact.

Although the proposed ventilation shafts, emulsion shaft and borrow pits have been sited 50-100 m away from the watercourses, poor stormwater management could result in gully erosion that could have measurable impacts on the downslope / downstream watercourses. Furthermore, operational emulsion use poses the risk of contaminating surface water, soil and/or groundwater, impacting upon the water quality of the riparian ecosystems in the broader area. Under a worst-case poor mitigation scenario, this could result in impacts of moderate significance. With the proper and effective implementation of the recommended mitigation measures, the significance of the above-listed potentially significant impacts can be reduced to low.

Even under a poor mitigation scenario, the rest of the impacts are not likely to be significant (low significance). The proposed infrastructure will also pose low impacts to ecological connectivity and water quality, during the construction, operational and decommissioning phases. These include downstream erosion and sedimentation, temporary and localised reduced connectivity, and the possibility of vehicle and machinery leaks and/or spills, respectively. These impacts will be reduced to very low, provided that they are appropriately mitigated.



Table 5.1: Impacts and mitigation measures for all phases of the proposed development

IMPACT GROUP	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
CONSTRUCTION PHASE														
Direct ecosystem modification or destruction / loss impacts	Preferred	Direct disturbance and removal of riparian soil and vegetation during the construction of the overhead lines and access roads. The access roads will impact the watercourses most directly as there are a number of stream crossings.	Negative	Direct	Moderate	Study area	Medium-term	Probable	Reversible	Resource will be partially lost	Achievable	MODERATE -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - Construction materials must not be stored within the moderate sensitivity areas. - Stockpiles must not be stored within the moderate sensitivity areas. - Optimally, a buffer of 50 m should be maintained between the riparian edge and the edge of the ventilation shafts, emulsion shaft and borrow pits. Should this not be feasible, a minimum buffer of 30 m should be maintained. - The following best practice powerline crossing alignment measures must be implemented: <ul style="list-style-type: none"> o The number of stream / river crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, a minimum buffer of 30 m should be maintained between the riparian edge and the edge of the road as far as practically possible. 	LOW -
Alteration of hydrological and geo-morphological processes	Preferred	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation shafts, emulsion shaft, borrow pits and at access / service road crossings due to catchment land cover and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	Negative	Indirect, cumulative	Moderate	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	MODERATE -	<p>Minimize/reduce:</p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Appropriate stormwater structures must be implemented during construction to control run-off and minimize erosion. - Vegetation clearing must be kept a minimum and only to the site footprint. - Erosion controls and sediment trapping measures must be put in place. - Stockpiles must be monitored for erosion and mobilisation of materials towards watercourses. - Stockpiles must not exceed 1.5m in height. Stockpiles must be covered during windy periods. - Best practice powerline crossing alignment measures must be implemented. Where wetland and stream / river crossings are required, every effort should be made to minimize the impacts by considering the following: <ul style="list-style-type: none"> o Crossing points should be aligned along areas or corridors of existing disturbance e.g. along existing road crossings. o The length of wetlands and rivers / streams crossed at each crossing must be minimised by adjusting alignments to coincide with narrower sections and ensuring that crossings cross perpendicular to flow. 	LOW -
		Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings during construction. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.	Negative	Indirect, cumulative	Slight	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. - All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	VERY LOW -



IMPACT GROUP	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Ecological connectivity and edge disturbance impacts	Preferred	Temporary reduction of ecological connectivity between sections of watercourse units during construction, associated with the use of existing crossings and/or establishment and use of temporary crossings.	Negative	Direct	Slight	Localised	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, a minimum buffer of 30 m should be maintained between the riparian edge and the edge of the road as far as practically possible. <p>Minimize/reduce:</p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Vegetation clearing must be kept a minimum and only to the site footprint. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	VERY LOW -
Water pollution impacts	Preferred	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during construction e.g. oil and diesel leaks and spills.	Negative	Direct	Slight	Localised	Long-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - No concrete mixing must take place within 32 m of any watercourse. - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Emergency plans must be in place in case of spillages onto bare soil or within water courses. 	VERY LOW -
OPERATIONAL PHASE														
Alteration of hydrological and geo-morphological processes	Preferred	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation and emulsion shaft and borrow pits and at access / service road crossings due to stormwater management and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	Negative	Indirect, cumulative	Moderate	Localised	Permanent	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	<p>Minimize/reduce:</p> <ul style="list-style-type: none"> - All surface runoff / stormwater must be discharged back into the freshwater systems in a manner that does not increase the rates of erosion and sedimentation within the receiving systems. - Stormwater infrastructure must be maintained and monitored for effectiveness with respect to controlling and minimising erosion and sedimentation of watercourses. - The following best practice stormwater management measures must be adhered to: <ul style="list-style-type: none"> o All ventilation shafts and the emulsion shaft must be protected from the ingress and interception of surface runoff and subsurface interflow through the establishment of adequate berms and subsoil drains. o The ventilation shaft and emulsion shaft walls should be sealed to minimise interflow and groundwater interception. o Stormwater generated by the upgraded and new roads should be discharged at regular intervals and many small outlets should be favoured over few large. 	LOW -



IMPACT GROUP	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
		Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.	Negative	Indirect, cumulative	Moderate	Localised	Permanent	Probable	Reversible	Resource will not be lost	Achievable	MODERATE -	<ul style="list-style-type: none"> Stormwater outlets must not be established within wetlands or riparian zones. As far as practically possible, stormwater conveyance should be via open drains rather than pipes and conveyance from the road drains to the outlets should via open drains with vegetated or rough surfaces that are armoured with erosion protection. All outlets must be designed to dissipate the energy of outgoing flows to levels that present a low erosion risk. In this regard, suitably designed energy dissipation (e.g. stilling basins) and erosion protection structures (Reno-mattresses) will need to be installed at appropriate locations. All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground-level. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> The site must be monitored for erosion and should be rehabilitated where applicable. 	LOW -
Ecological connectivity and edge disturbance impacts	Preferred	Inadequate rehabilitation of disturbed areas may lead to the reduction of ecological connectivity and degradation of the surrounding environment.	Negative	Direct, indirect	Slight	Study area	Long-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> Disturbed areas should be rehabilitated and re-vegetated. 	VERY LOW -
Water pollution impacts	Preferred	Operational risk of emulsion use may lead to the contamination of surface water, soil and/or groundwater, impacting upon the water quality of the riparian ecosystems in the broader area.	Negative	Direct	Moderate	Localised	Long-term	Possible	Reversible	Resource will not be lost	Achievable	MODERATE -	<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, etc.) needs to be administered. Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of stormwater. No machinery must be parked overnight within 32 m of the rivers/wetlands. All stationary machinery must be equipped with a drip tray to retain any oil leaks. Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> Emergency plans must be in place in case of spillages onto bare soil or within watercourses. All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. 	LOW -
		Routine maintenance may lead to the introduction of chemical / hazardous substances (e.g. oil spills from vehicles, etc.) into the watercourse, soil and/or groundwater, adversely affecting the aquatic ecosystems in the broader area.	Negative	Direct	Slight	Localised	Long-term	Possible	Reversible	Resource will not be lost	Easily achievable	LOW -	<p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> Emergency plans must be in place in case of spillages onto bare soil or within watercourses. All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. 	VERY LOW -
DECOMMISSIONING PHASE														
Direct ecosystem modification or destruction / loss impacts	Preferred	Direct disturbance and removal of riparian soil and vegetation during the decommissioning of the proposed infrastructure.	Negative	Direct	Slight	Study area	Medium-term	Probable	Reversible	Resource will be lost	Achievable	MODERATE -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> Construction materials must not be stored within the moderate to very high sensitivity areas. Stockpiles must not be stored within the moderate to very high sensitivity areas. <p>Minimize/reduce:</p> <ul style="list-style-type: none"> Decommissioning activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. Appropriate stormwater structures must be implemented during decommissioning to control run-off and minimize erosion. Erosion controls and sediment trapping measures must be put in place. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> Disturbed areas must be monitored for erosion channels and these must be rehabilitated. 	LOW -
Alteration of hydrological and geo-morphological processes	Preferred	Alteration of sections of watercourse units downstream of crossings during decommissioning.	Negative	Indirect, cumulative	Slight	Study area	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> Disturbed areas must be monitored for erosion channels and these must be rehabilitated. 	VERY LOW -



IMPACT GROUP	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Ecological connectivity and edge disturbance impacts	Preferred	Temporary reduction of ecological connectivity between sections of watercourse units during decommissioning.	Negative	Direct	Slight	Localised	Medium-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	- All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable.	VERY LOW -
Water pollution impacts	Preferred	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during decommissioning e.g. oil and diesel leaks and spills.	Negative	Direct	Slight	Localised	Long-term	Possible	Reversible	Resource will not be lost	Achievable	LOW -	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Emergency plans must be in place in case of spillages onto bare soil or within water courses. 	VERY LOW -



Table 5.2: Summary of risk scores and ratings for construction, operational and decommissioning phases of the proposed development.

NO.	PHASES	ACTIVITY	ASPECT	IMPACT	SIGNIFICANCE	RISK RATING	CONTROL MEASURES	BORDERLINE LOW MODERATE RATING CLASSES
1	CONSTRUCTION PHASE	The construction of the proposed infrastructure.	Direct ecosystem modification or destruction / loss impacts	Direct disturbance and removal of riparian soil and vegetation during the construction of the overhead lines and access roads. The access roads will impact the watercourses most directly as there are a number of stream crossings.	60.5	MODERATE RISK	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - Construction materials must not be stored within the moderate sensitivity areas. - Stockpiles must not be stored within the moderate sensitivity areas. - Optimally, a buffer of 50 m should be maintained between the riparian edge and the edge of the ventilation shafts, emulsion shaft and borrow pits. Should this not be feasible, a minimum buffer of 30 m should be maintained. - The following best practice powerline crossing alignment measures must be implemented: <ul style="list-style-type: none"> o The number of stream / river crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. - The following temporary access road alignment measures must be implemented: <ul style="list-style-type: none"> o No new road watercourse crossings should be established as part of the development of the service roads. o All service roads should follow the existing road network as far as practically possible. o If new watercourse crossings are required, the number of new crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided. o Except at planned watercourse crossings, where new service roads are aligned near watercourses, a minimum buffer of 30 m should be maintained between the riparian edge and the edge of the road as far as practically possible. <p>Minimize/reduce:</p> <ul style="list-style-type: none"> - Construction activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Appropriate stormwater structures must be implemented during construction to control run-off and minimize erosion. - Vegetation clearing must be kept a minimum and only to the site footprint. - Erosion controls and sediment trapping measures must be put in place. - Stockpiles must be monitored for erosion and mobilisation of materials towards watercourses. - Stockpiles must not exceed 1.5m in height. Stockpiles must be covered during windy periods. - Best practice powerline crossing alignment measures must be implemented. Where wetland and stream / river crossings are required, every effort should be made to minimize the impacts by considering the following: <ul style="list-style-type: none"> o Crossing points should be aligned along areas or corridors of existing disturbance e.g. along existing road crossings. o The length of wetlands and rivers / streams crossed at each crossing must be minimised by adjusting alignments to coincide with narrower sections and ensuring that crossings cross perpendicular to flow. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. - All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable. 	LOW RISK
2			Alteration of hydrological and geo-morphological processes	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation shafts, emulsion shaft, borrow pits and at access / service road crossings due to catchment land cover and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	58.75	MODERATE RISK		LOW RISK
3			Alteration of hydrological and geo-morphological processes	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings during construction. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.	53.8125	LOW RISK		LOW RISK
4			Ecological connectivity and edge disturbance impacts	Temporary reduction of ecological connectivity between sections of watercourse units during construction, associated with the use of existing crossings and/or establishment and use of temporary crossings.	44.625	LOW RISK		LOW RISK



NO.	PHASES	ACTIVITY	ASPECT	IMPACT	SIGNIFICANCE	RISK RATING	CONTROL MEASURES	BORDERLINE LOW MODERATE RATING CLASSES	
5			Water pollution impacts	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during construction e.g. oil and diesel leaks and spills.	49.5	LOW RISK	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - No concrete mixing must take place within 32 m of any watercourse. - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate: Emergency plans must be in place in case of spillages onto bare soil or within water courses.</p>	LOW RISK	
1	OPERATIONAL PHASE	Operational usage and maintenance of ventilation shafts, emulsion borehole, access roads and powerlines	Alteration of hydrological and geo-morphological processes	Indirect alteration of hydrological and geomorphological processes of sections of watercourse units downstream of ventilation and emulsion shaft and borrow pits and at access / service road crossings due to stormwater management and drainage alteration around infrastructure. Ventilation shaft / borrow pit impacts related to erosion and sedimentation issues, as well as minor runoff capture.	59.0625	MODERATE RISK	<p>Minimize/reduce:</p> <ul style="list-style-type: none"> - All surface runoff / stormwater must be discharged back into the freshwater systems in a manner that does not increase the rates of erosion and sedimentation within the receiving systems. - Stormwater infrastructure must be maintained and monitored for effectiveness with respect to controlling and minimising erosion and sedimentation of watercourses. - The following best practice stormwater management measures must be adhered to: <ul style="list-style-type: none"> o All ventilation shafts and the emulsion shaft must be protected from the ingress and interception of surface runoff and subsurface interflow through the establishment of adequate berms and subsoil drains. o The ventilation shaft and emulsion shaft walls should be sealed to minimise interflow and groundwater interception. o Stormwater generated by the upgraded and new roads should be discharged at regular intervals and many small outlets should be favoured over few large. o Stormwater outlets must not be established within wetlands or riparian zones. o As far as practically possible, stormwater conveyance should be via open drains rather than pipes and conveyance from the road drains to the outlets should via open drains with vegetated or rough surfaces that are armoured with erosion protection. o All outlets must be designed to dissipate the energy of outgoing flows to levels that present a low erosion risk. In this regard, suitably designed energy dissipation (e.g. stilling basins) and erosion protection structures (Reno-mattresses) will need to be installed at appropriate locations. o All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground-level. <p>Remediate/rehabilitate: The site must be monitored for erosion and should be rehabilitated where applicable.</p>	LOW RISK	
Indirect alteration of hydrological and geomorphological processes of sections of watercourse units at and downstream of powerline crossings and associated access / service road crossings. Powerline impacts related to erosion and sedimentation and watercourse flow impacts of temporary crossings.				56.4375	MODERATE RISK				
2			Ecological connectivity and edge disturbance impacts	Inadequate rehabilitation of disturbed areas may lead to the reduction of ecological connectivity and degradation of the surrounding environment.	53.8125	LOW RISK		<p>Remediate/rehabilitate: Disturbed areas should be rehabilitated and re-vegetated.</p>	LOW RISK
3			Water pollution impacts	Operational risk of emulsion use may lead to the contamination of surface water, soil and/or groundwater, impacting upon the water quality of the riparian ecosystems in the broader area.	60.375	MODERATE RISK		<p>Avoid/prevent impact:</p> <ul style="list-style-type: none"> - The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, etc.) needs to be administered. - Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of stormwater. - No machinery must be parked overnight within 32 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. 	LOW RISK
4	Routine maintenance may lead to the introduction of chemical / hazardous substances (e.g. oil spills from vehicles, etc.) into the watercourse, soil and/or groundwater, adversely affecting the aquatic ecosystems in the broader area.	53.8125		LOW RISK	<p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Emergency plans must be in place in case of spillages onto bare soil or within watercourses. - All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. - Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site. - Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site. 	LOW RISK			



NO.	PHASES	ACTIVITY	ASPECT	IMPACT	SIGNIFICANCE	RISK RATING	CONTROL MEASURES	BORDERLINE LOW MODERATE RATING CLASSES
1	DECOMMISSIONING PHASE	Decommissioning of mine, access roads and associated infrastructure	Direct ecosystem modification or destruction / loss impacts	Direct disturbance and removal of riparian soil and vegetation during the decommissioning of the proposed infrastructure.	60.5	MODERATE RISK	<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - Construction materials must not be stored within the moderate to very high sensitivity areas. - Stockpiles must not be stored within the moderate to very high sensitivity areas. <p>Minimize/reduce:</p> <ul style="list-style-type: none"> - Decommissioning activities should be undertaken during the driest part of the year to minimize erosion and downstream sedimentation due to excavation, etc. - Appropriate stormwater structures must be implemented during decommissioning to control run-off and minimize erosion. - Erosion controls and sediment trapping measures must be put in place. <p>Remediate/rehabilitate:</p> <ul style="list-style-type: none"> - Disturbed areas must be monitored for erosion channels and these must be rehabilitated. <p>All trenches/excavations must be backfilled and all disturbed areas backfilled, compacted and revegetated, where applicable.</p>	LOW RISK
2			Alteration of hydrological and geo-morphological processes	Alteration of sections of watercourse units downstream of crossings during decommissioning.	53.8125	LOW RISK		LOW RISK
3			Ecological connectivity and edge disturbance impacts	Temporary reduction of ecological connectivity between sections of watercourse units during decommissioning.	44.625	LOW RISK		LOW RISK
4			Water pollution impacts	Pollution of watercourse units due to the mishandling of hazardous substances and/or improper maintenance of machinery during decommissioning e.g. oil and diesel leaks and spills.	49.5	LOW RISK		<p>Avoid/prevent:</p> <ul style="list-style-type: none"> - No machinery must be parked overnight within 50 m of the rivers/wetlands. - All stationary machinery must be equipped with a drip tray to retain any oil leaks. - Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. - No ablution facilities must be located within 50 m of any river or wetland system. - Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution. - Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it. - All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site. <p>Remediate/rehabilitate:</p> <p>Emergency plans must be in place in case of spillages onto bare soil or within water courses.</p>	LOW RISK



6 RECOMMENDATIONS FOR THE PROPOSED ACTIVITY

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.7. *The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:*

2.7.13. *Proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr).*

2.7.15. *A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed development and if the proposed development should receive approval or not; and*

2.7.16. *Any conditions to which this statement is subjected.*

All the mitigation measures provided below are to be implemented in the Planning and Design, Construction, Operation and Decommissioning Phases of the proposed activity.

6.1 PLANNING AND DESIGN PHASE

- All legal matters pertaining to permitting must be completed prior to any construction activity.
- In particular, all necessary Water Use Authorisations must be in order for any construction and operational activities within 100 m of a watercourse or 500 m of a wetland.
- An Erosion and Stormwater Management Plan should be developed during the planning and design phase, and implemented during the construction, operational and decommissioning phases.
- An Emergency Spillage and Hazardous Waste Management Plan should be developed during the planning and design phase, and implemented during the construction, operational and decommissioning phases.

6.1.1 VENTILATION AND EMULSION SHAFTS

- All ventilation and emulsion shafts must be protected from the ingress and interception of surface runoff and subsurface interflow through the establishment of adequate berms and subsoil drains.
- The ventilation and emulsion shaft walls should be sealed to minimise interflow and groundwater interception.
- All surface runoff / stormwater must be discharged back into the freshwater systems in a manner that does not increase the rates of erosion and sedimentation within the receiving systems. Stormwater infrastructure must be maintained and monitored for effectiveness with respect to controlling and minimising erosion and sedimentation of watercourses.
- The following best practice stormwater management measures must be adhered to:
 - Stormwater generated by the upgraded and new roads should be discharged at regular intervals and many small outlets should be favoured over few large.
 - Stormwater outlets must not be established within wetlands or riparian zones.



- As far as practically possible, stormwater conveyance should be via open drains rather than pipes and conveyance from the road drains to the outlets should via open drains with vegetated or rough surfaces that are armoured with erosion protection.
- All outlets must be designed to dissipate the energy of outgoing flows to levels that present a low erosion risk. In this regard, suitably designed energy dissipation (e.g. stilling basins) and erosion protection structures (Reno-mattresses) will need to be installed at appropriate locations.
- All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground-level.

6.1.2 POWERLINE CROSSINGS

The following best practice planning and design measures should be investigated for inclusion into the project design:

- The number of wetland and stream / river crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided.
- Where wetland and stream / river crossings are required, every effort should be made to minimize the impacts by considering the following:
 - Crossing points should be aligned along areas or corridors of existing disturbance e.g. along existing road crossings.
 - The length of wetlands and rivers / streams crossed at each crossing must be minimised by adjusting alignments to coincide with narrower sections and ensuring that crossings cross perpendicular to flow.

6.1.3 ACCESS AND SERVICE ROADS

The following best practice planning and design measures should be investigated for inclusion into the project design:

- No new road watercourse crossings should be established as part of the development of the service roads.
- All service roads should follow the existing road network as far as practically possible.
- If new watercourse crossings are required, the number of new wetland and stream / river crossings must be minimised as far as practically possible. Unnecessary watercourse crossings (i.e. proposed crossings that can be re-aligned) must be re-aligned and avoided.
- Except at planned watercourse crossings, where new service roads are aligned near wetlands and streams / rivers, a minimum buffer of 30m should be maintained between the wetland / riparian edge and the edge of the road as far as practically possible.
- Where new wetland and stream / river crossings are required, every effort should be made to minimize the impacts by considering the following:



- For all crossing types and designs, flow through road crossings should not be unnecessarily concentrated (or impeded) and flow velocity should not be increased. In this regard, wetland and stream / river crossings should be via box / portal culverts established across the entire width of the wetland or riparian zone to avoid flow narrowing and concentration. Open bottom box culverts should be used and they should be sized to transport not only water, but the other materials that might be mobilized (i.e. debris). Pipe culverts should be avoided.
- Erosion protection and energy dissipation measures should be established at all road crossing outlets e.g. stilling basins and reno-mattresses.
- All culvert inlets and outlets and associated outlet erosion protection structures must not be raised above the wetland/riparian surface and/or stream/river bed and must be established to reflect the natural downstream slope of the wetland / riparian surface and/or stream / river bed.
- Crossing points should be aligned along areas or corridors of existing disturbance e.g. along existing informal road crossings or cattle crossing routes.
- The length of wetlands and rivers / streams crossed at each crossing must be minimised by adjusting alignments to coincide with narrower sections and ensuring that crossings are straight and do not involve using long curves and are aligned at right angles to flow.
- If any road fill is utilised at wetland crossings, a porous layer should be established within the road fill at the appropriate elevation to ensure that wetland interflow and overland flow is able to pass through the road fill.
- For existing watercourse crossings, every effort should be made to minimize the impacts by considering the following:
 - Undersized or under-designed pipe culverts must be replaced with sufficiently sized box or pipe culverts.
 - Erosion protection and energy dissipation measures should be established at all road crossing outlets e.g. stilling basins and reno-mattresses.
 - Every effort must be made to minimise the upgraded footprint of the existing roads at watercourse crossings.

The following road stormwater management measures are recommended:

- Stormwater generated by the upgraded and new roads should be discharged at regular intervals and many small outlets should be favoured over few large.
- Stormwater outlets must not be established within wetlands or riparian zones.
- As far as practically possible, stormwater conveyance should be via open drains rather than pipes and conveyance from the road drains to the outlets should via open drains with vegetated or rough surfaces that are armoured with erosion protection.
- All outlets must be designed to dissipate the energy of outgoing flows to levels that present a low erosion risk. In this regard, suitably designed energy for gravel roads will need to be installed at appropriate locations.
- All erosion protection measures must be established to reflect the natural slope of the surface and located at the natural ground-level.



6.2 CONSTRUCTION PHASE

6.2.1 DEMARCATION OF 'NO-GO' AREAS AND CONSTRUCTION CORRIDORS

- **Optimally, a buffer of 50 m should be maintained** between the riparian edge and the edge of the ventilation shafts, emulsion shaft and borrow pits. Should this not be feasible, a minimum buffer of 30 m should be maintained.
- Prior to the commencement of any construction activities, the following features must be staked out by a surveyor and demarcated using brightly coloured shade cloth:
 - Outer edge of the delineated wetland and riparian areas occurring within 32 m of the proposed powerlines and associated pylons / towers.
- Access to and from the project area should be either via existing roads or within the construction servitude.
- Demarcation of all identified access, haulage and service roads. The alignment and routes for these roads need to be reviewed by the wetland ecologist.
- All excavated soils and soil stockpiles must be stored / sited outside of the watercourses.
- The demarcation work must be signed off by the Environmental Control Officer (ECO) before any work commences.
- Demarcations are to remain until construction and rehabilitation is complete.
- All areas outside of this demarcated working servitude must be considered no-go areas for the entire construction phase. Any contractor found working within No-Go areas must be fined as per fining schedule/system setup for the project.
- No equipment laydown or storage areas must be located within delineated wetland or riparian habitats.
- No equipment laydown or storage areas must be located within delineated wetland and riparian areas.
- All disturbed areas beyond the construction site that are intentionally or accidentally disturbed during the construction phase must be rehabilitated immediately to the satisfaction of the ECO.

6.2.2 METHOD STATEMENTS FOR WORKING IN WATERCOURSES

A detailed method statement for the construction activities within all watercourses must be compiled and appended to the construction (EMPr) prior to construction commencing. The final method statement must be reviewed by a wetland specialist prior to commencement and must include all measures provided in this section where relevant and applicable. The following guidelines should be included in the method statement:

6.2.2.1 SITE SETUP

- All demarcation measures provided in Section 6.2.1 above applicable to the demarcation of the construction corridor/servitude across the watercourse must be implemented.
- A photographic record of the state of the watercourse prior to the commencement of clearing/construction must be kept for reference and rehabilitation monitoring purposes.
- If applicable, the levels should be accurately pegged out by an engineer and the engineer should be onsite to guide the settling of the foundation.



- The location of the topsoil and subsoil stockpile areas, dewatering filtration areas and equipment laydown areas must be agreed to and demarcated to the satisfaction of the ECO prior to any clearing. These areas must be located outside of all watercourses and sufficiently removed from them that in the event of heavy rainfall, the soil will not be carried into the watercourse.
- Before any work commences in the wetland, sediment control/silt capture measures (e.g. bidim/silt curtains) must be installed downstream of the working areas within the wetland. Quantities of silt fences/curtains shall be decided on site with the engineer, contractor and ECO. The ECO should be present during the location and installation of the silt curtains.

6.2.2.2 *SITE CLEARING AND STRIPPING*

- Indigenous vegetation within the wetland areas that are desirable for re-vegetation must be identified upfront before clearing. This vegetation should be removed via sodding so that the sods can be replaced / replanted after the working areas are backfilled and reshaped. The plant sods should be removed taking care to remove the entire sods including root systems and rhizomes.
- For vegetation within the wetland that is not desirable for re-vegetation, this vegetation can be stripped.
- Topsoil and subsoil excavated and stripped must not be mixed and must be stored separately.

6.2.2.3 *RUNNING TRACK AND SOIL STOCKPILE CORRIDOR ESTABLISHMENT (IF APPLICABLE)*

- Firstly, geotextile/geofabric must be laid down along the soil stockpile corridors and running track corridors. This is to avoid the mixing of foreign material with the wetland soils.
- The running track must be established upstream of the road and must double up as a dam wall / berm / bund wall for flow diversion purposes.
- Where applicable, the active channel banks along the running track should be re-graded to a slope that will allow for safe access by workers to the channel bed.

6.2.2.4 *TEMPORARY FLOW DIVERSION AND DEWATERING (IF APPLICABLE)*

- The diversion of flow away from construction works within the wetland should be done by the construction of temporary bunding to isolate compartments.
- Under no circumstances must new channels be created for flow diversion and conveyance purposes.
- The bund wall should be established using sand bags.
- The bund wall should be high enough to cope with 1.5 times the nominal volume of the upstream flows.
- If pipe outlets are required, these should also be armoured against erosion using rip-rap and dump rock to reduce wetland scour.
- The bund wall must be built to specification to minimise failure/breaching and/or flow diversion around the dam that will lead to channel erosion.
- If dewatering is required, pumped water must be discharged back into the watercourses in a manner that does not cause erosion of elevated levels of sedimentation. In this regard, pumped water should be discharged into erosion control and sediment trap structure designed for such a purpose (i.e. series of silt traps or hay-bails). Such a structure should not



be located near steep banks or slopes where water re-entering the watercourses could cause erosion.

- Once the working area is dry, the pump must be kept on standby.
- The location of the filtering area should be approved by the ECO.

6.2.2.5 *RUNOFF, EROSION AND SEDIMENT CONTROL*

- The duration of construction work within the watercourses must be minimised as far as practically possible through proper planning and phasing.
- Construction work within the watercourses should be limited to the dry winter season wherever possible.
- When working within watercourses, downstream silt traps / curtains should be installed to capture sediment eroded from the working area prior to construction activities commencing within the watercourses. These silt traps must be regularly monitored and maintained and replaced / repaired immediately as and when required. These measures regularly checked, maintained and repaired when required to ensure that they are effective.

6.2.2.6 *REHABILITATION (WHERE APPLICABLE)*

- Once instream / within-wetland works are completed, subsoils and topsoils must be reinstated, and wetland surface including channel bed and banks reshaped.
- All surfaces must be adequately ripped/loosened where compacted, as informed by the ECO.
- The bund wall and running track within the watercourse must be removed systematically moving backwards out of the wettest areas. All foreign material (e.g. sand bags, rock fill, imported soils, aggregate, geofabric etc.) must be removed from the watercourse, taking care not to remove natural sediment/rock from the watercourse.
- The rescued sods must be replanted in wetland and an appropriate spacing as advised by a wetland ecologist, and if applicable, channel bank stabilisation and erosion protection should be applied where applicable.
- All channel banks must be protected with a biodegradable geofabric. Temporary measures to prevent soil loss on the banks must be implemented which may include laying rows of sand bags/silt fences and silt fences at the water's edge.
- If there are not enough rescued sods, the wetland must be re-vegetated by the translocation / transplanting of sods from the surrounding wetland as advised by a wetland ecologist and, where applicable, by hydroseeding with an indigenous seed mix approved by a wetland ecologist.
- For dryland areas adjoining watercourses, the construction right-of-way should be re-vegetated by hydroseeding with a locally suitable grass mix that must be approved by the ECO or wetland specialist / ecologist.
- The re-vegetation should be timed to occur before the wet season (ideally at the onset of the wet season in early spring – August to October) so that watering requirements are minimized and plant growth is most vigorous.
- Watering should be gentle so that rill erosion is avoided and minimised.
- Any erosion damage resulting from watering/irrigation must be repaired immediately.
- Alien and weed vegetation that colonize the rehabilitation areas must be removed and eradicated immediately via hand pulling and should be adequately disposed of.



- Once the initial re-vegetation is completed, the planting contractor will need to conduct weekly site visits to remove alien plants (in accordance with the latest revised NEMBA requirements) and address any re-vegetation concerns until re-vegetation is considered successful (i.e. >90% indigenous cover). Thereafter, the rehabilitation must be signed off by the ECO.

6.2.3 RUNOFF, EROSION AND SEDIMENT CONTROL

- Wherever possible, existing vegetation cover on the development site should be maintained during the construction phase. The unnecessary removal of groundcover from slopes must be prevented, especially on steep slopes which will not be developed.
- Clearing activities must only be undertaken during agreed working times and permitted weather conditions. If heavy rains are expected, clearing activities should be put on hold. In this regard, the contractor must be aware of weather forecasts.
- Bare slopes and surfaces to be exposed to the elements during clearing and earthworks must be protected against erosion using rows of hay-bales, sandbags and/or silt fences aligned along the contours and spaced at regular intervals (e.g. every 2 m) to break the energy of surface flows.
- Once shaped, all exposed/bare surfaces and embankments must be re-vegetated immediately.
- If re-vegetation of exposed surfaces cannot be established immediately due to phasing issues, temporary erosion and sediment control measures must be maintained until such a time that re-vegetation can commence.
- All temporary erosion and sediment control measures must be monitored for the duration of the construction phase and repaired immediately when damaged. All temporary erosion and sediment control structures must only be removed once vegetation cover has successfully recolonised the affected areas.
- After every rainfall event, the contractor must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and silt fences or fascine work must be established along the gully for additional protection until vegetation has re-colonised the rehabilitated area.
- Regular maintenance of sediment control dams must be undertaken during the construction / establishment period to ensure that these structures continue to function appropriately.

6.2.4 HAZARDOUS SUBSTANCES / MATERIALS MANAGEMENT

- The proper storage and handling of hazardous substances (e.g. fuel, oil, cement, etc.) needs to be administered.
- Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from the ingress and egress of stormwater.
- Drip trays should be utilised at all dispensing areas.
- No refuelling, servicing or chemical storage should occur within 30m of any watercourse.
- No vehicles transporting concrete, asphalt or any other bituminous product may be washed on site.



- Vehicle maintenance should not take place on site unless a specific bunded area is constructed for such a purpose.
- Hazardous storage and refuelling areas must be bunded prior to their use on site during the construction period following the appropriate SANS codes. The bund wall should be high enough to contain at least 110% of any stored volume. The surface of the bunded surface should be graded to the centre so that spillage may be collected and satisfactorily disposed of.
- All necessary equipment for dealing with spills of fuels/chemicals must be available at the site. Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site.
- Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site.
- Spills must be cleaned up immediately and contaminated soil/material disposed of appropriately at a registered site.

6.2.5 INVASIVE ALIEN PLANT CONTROL

- All alien invasive vegetation that colonise the construction site must be removed, preferably by uprooting. The contractor should consult the ECO regarding the method of removal.
- All bare surfaces across the construction site must be checked for IAPs every two weeks and IAPs removed by hand pulling/uprooting and adequately disposed.
- Herbicides should be utilised where hand pulling/uprooting is not possible. ONLY herbicides which have been certified safe for use in wetlands by independent testing authority are to be used. The ECO must be consulted in this regard.

6.2.6 NOISE, DUST AND LIGHT POLLUTION MINIMISATION

- Temporary noise pollution due to construction works should be minimized by ensuring the proper maintenance of equipment and vehicles and tuning of engines and mufflers as well as employing low noise equipment where possible.
- Water trucks will be required to suppress dust by spraying water on affected areas producing dust. This will likely be required daily in the drier months or during dry periods.
- No lights must be established within the construction area near the watercourses and buffer zones.

6.2.7 PROHIBITIONS RELATED TO ANIMALS

- The handling and/or killing of any animal species present is strictly prohibited and all staff/personnel must be notified of such incidents.
- Wetland fauna (e.g. snakes, frogs, small mammals) that are encountered during the construction phase must be relocated to other parts of the wetland under the guidance of the EO or ECO.
- Poaching/snaring is strictly prohibited.



6.2.8 GENERAL REHABILITATION GUIDELINES

- All land impacted by the proposed development must be rehabilitated by undertaking the following general tasks:
 - All foreign material must be removed from site.
 - Land must be regraded / reshaped and topsoils must be reinstated.
 - Compacted soils must be adequately ripped/loosened where compacted, as informed by the ECO.
 - Re-vegetation should take place as follows:
 - For the permanently and seasonally saturated areas (at present) - via translocation / transplanting of resecured sods and, where there are not enough rescued sods, via the translocation / transplanting of sods from the surrounding wetland as advised a wetland ecologist.
 - For the temporary and dryland areas - via hydroseeding using an appropriate indigenous seed mix as advised by a wetland ecologist.

6.2.9 CONSTRUCTION PHASE MONITORING MEASURES

- Compliance monitoring will be the responsibility of a suitably qualified/trained ECO (Environmental Control Officer) with any additional supporting EO's (Environmental Officers) having the required competency skills and experience to ensure that monitoring is undertaken effectively and appropriately.
- A photographic record of the state of the watercourse prior to the commencement of clearing/construction must be kept for reference and rehabilitation monitoring purposes.
- The ECO must undertake bi-monthly compliance monitoring audits. Freshwater ecosystem aspects that must be monitored related to monitoring freshwater ecosystem impacts include:
 - The condition of the demarcation fence.
 - Evidence of any no-go area incursions.
 - The condition of the temporary runoff, erosion and sediment control measures and evidence of any failures.
 - Evidence of sedimentary deposits / plumes and elevated rates of sedimentation (i.e. vegetation smothering / burial).
 - Evidence of elevated river / stream turbidity levels.
 - Evidence of gully or bed/bank erosion.
 - Visual assessment of stormwater quality and instream water quality.
 - The condition of waste bins and the presence of litter within the working area.
 - Evidence of solid waste within the no-go areas.
 - Evidence of hazardous materials spills and soil contamination.
 - Presence of alien invasive and weedy vegetation within the working area.
 - Rehabilitation and re-vegetation methods and success.
 - Once the construction and rehabilitation has been completed, the ECO should conduct a close out site audit 1 month after the completion of rehabilitation.



6.3 OPERATIONAL PHASE

6.3.1 MAINTENANCE AND MANAGEMENT

- It is the applicant's responsibility to ensure the proper functioning of all ventilation shafts, powerline and service road infrastructure that is likely to require regular on-going maintenance.
- It is important that the location and extent of the wetlands, rivers in the vicinity of project activities be incorporated into all formal maintenance and repair plans for the project.
- The riparian areas occurring within the powerline servitude must not be burnt or cut.
- In terms of management, alien invasive plant control must be practiced on an on-going basis in line with the requirements of Section 2(2) and Section 3 (2) the National Environmental Management: Biodiversity Act (NEM:BA), which obligates the landowner/developer to control IAPs on their property.

6.3.2 MONITORING

It will be important that long-term monitoring of the potential freshwater ecosystem impacts be undertaken to proactively to identify any environmental issues and impacts that may arise as a result of the operational phase of the project. The following key aspects should be monitored:

- Erosion and/or sedimentation of the streams downslope of the ventilation shafts, emulsion shafts and borrow pits.
- Erosion and/or sedimentation of the streams upstream and downstream of service road crossings and powerline crossings.
- Water quality downslope of the ventilation shafts, emulsion shafts and borrow pits.
- Presence of alien invasive plants.

6.4 DECOMMISSIONING PHASE

6.4.1 ECOLOGICAL MONITORING

It will be important that long-term monitoring of the potential freshwater ecosystem impacts be undertaken to proactively to identify any environmental issues and impacts that may arise as a result of the decommissioning and post-closure project. The following key aspects should be monitored:

- A photographic record of the state of the watercourse prior to the commencement of decommissioning must be kept for reference and rehabilitation monitoring purposes.
- During decommissioning:
 - Erosion and/or sedimentation in the watercourses downslope of the vent shafts and borrow pits.
 - Erosion and/or sedimentation in the watercourses upstream and downstream of service road crossings and powerline crossings.
 - Water quality downslope of the ventilation shafts, emulsion shafts and borrow pits.
 - Presence of alien invasive plants.
 - Rehabilitation and re-vegetation methods and success.



- Once the rehabilitation has been completed, the ECO should conduct a close out site audit 1 month after the completion of rehabilitation.
- After decommissioning:
 - Erosion and/or sedimentation in the watercourses downslope of the vent shafts and borrow pits.
 - Water quality downslope of the ventilation shafts, emulsion shafts and borrow pits.



7 IMPACT STATEMENT, CONCLUSION AND RECOMMENDATIONS

In terms of Section 2 of the Aquatic Biodiversity Protocol (2020):

2.8. *The findings of the specialist assessment must be written up in an Aquatic Biodiversity Specialist Assessment Report that contains, as a minimum, the following information:*

2.7.14. *Proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr).*

2.7.17. *A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed development and if the proposed development should receive approval or not; and*

2.7.18. *Any conditions to which this statement is subjected.*

7.1 SUMMARY OF IMPACT SIGNIFICANCE

Table 7.1 provides a summary of the negative impacts of the proposed development on the aquatic and wetland environments along the project route, pre- and post-mitigation, during the construction, operational and decommissioning phases. Prior to mitigation, the proposed development is anticipated to four impacts of MODERATE significance and eight impact of LOW significance. All impacts will be reduce to VERY LOW to LOW after mitigation.

Table 7.1: Assessment of pre- and post-mitigation impact significance.

PHASE	PRE-MITIGATION			POST-MITIGATION		
	LOW	MOD	HIGH	VERY LOW	LOW	MOD
Construction	-3	-2		-3	-2	
Operational	-2	-3		-2	-3	
Decommissioning	-3	-1		-3	-1	
TOTAL	-8	-6	0	-8	-6	0

7.2 WATER USE LICENCING

Four watercourses fall within 100 m of the proposed ventilation shafts and associated infrastructure. The project will therefore require a WUA under Section 21(c) and 21(i) of the NWA. Under Section 21 of the NWA, the proposed development would require either a General Authorisation (GA) or full Water Use Licence (WULA) (depending on the level of risk) for any development occurring within 100 m of a watercourse, due to the triggering of the following water uses:

- 21(c) impeding or diverting the flow of water in a watercourse (relevant to the construction occurring in close proximity to drainage lines); and
- 21(i) altering the bed, banks, course or characteristics of a watercourse (relevant to the construction occurring in close proximity to drainage lines).

The level of risk associated with the water use activities has been assessed using the DWS Risk Assessment Matrix. Activities carrying a LOW risk rating are eligible for a GA, whereas activities with a MODERATE or HIGH risk rating require a full WULA. The outcome of the risk assessment (Table 5.2) shows that the proposed development carries a LOW residual risk after the application of mitigation measure. Consequently, the development triggers the need for a GA. Anglo American will be required to apply for and obtain the GA from DWS prior to the commencement of any activities.



7.3 FATAL FLAWS

It is the opinion of the specialist that **NO FATAL FLAWS** exist with the proposed development, provided that the mitigation measures are implemented.

7.4 ENVIRONMENTAL STATEMENT AND OPINION OF THE SPECIALIST

The aquatic impacts of all aspects for the development were assessed. Impacts are rated as LOW to MODERATE pre-mitigation. The implementation of recommended mitigation measures coupled with comprehensive rehabilitation and monitoring in terms of re-vegetation and restoration is an important element of the mitigation strategy. Implementing the recommended mitigations measures will reduce impacts to VERY LOW to LOW significance for all impacts.



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9 APPENDIX A – CURRICULUM VITAE

AIDAN JOHN GOUWS *Curriculum Vitae*



CONTACT DETAILS

Name of Company	CES – Environmental and Social Advisory Services
Designation	Centurion Branch
Profession	Senior Environmental Consultant
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Nationality	South African
Professional Affiliations	<ul style="list-style-type: none"> • South African Council for Natural Scientific Professions (SACNASP) (<i>Cand.Sci.Nat</i> 121901) • International Association of Impact Assessment (IAIASa)
Key areas of expertise	<ul style="list-style-type: none"> • Environmental Authorisations • Geographical Information Systems (GIS) • Terrestrial Ecology • Wetland Ecology • Database Management

PROFILE

Mr Aidan Gouws

Aidan obtained his MSc in Environmental Science (*Cum laude*) from Rhodes University, having conducted research on the spatio-temporal dynamics of *Acacia dealbata* invasions and broader land-use and cover changes in the northern Eastern Cape, funded through a study bursary awarded by the Agricultural Research Council (ARC). Prior to this, he obtained his BSc Honours in Geographical and Environmental Sciences (*Cum laude*) from the University of Pretoria, studying plant ecology and EIA methodology amongst others. Since joining CES in 2018, he has been involved in several projects, including Basic Assessments (BA), Full Scoping and Environmental Impact Assessments (S&EIA), Environmental Amendment Applications, Environmental Audits and Resettlement Action Plan (RAP) Audits. He works from the Centurion office as a Senior Environmental Consultant. His interests include the general Environmental Impact Assessment (EIA) process, terrestrial and wetland ecology, and database management. Aidan is registered with the South African Council for Natural Scientific Professions (SACNASP) as a Candidate Natural Scientist (*Cand.Sci.Nat.* 121901) and with the International Association for Impact Assessments (IAIA).



AIDAN JOHN GOUWS
Curriculum Vitae



EMPLOYMENT EXPERIENCE	<p>Senior Environmental Consultant – Coastal and Environmental Services (Centurion) <i>August 2020 – Current</i></p> <ul style="list-style-type: none"> • Consulting, project management and conducting assessments in the broad field of Environmental Management, including Basic Assessments, full Scoping and Environmental Impact Assessments, Environmental Management Programmes and Environmental Auditing. • Ecological Impact Assessments • Wetland Impact Assessments • GIS Mapping • Database Management <p>Environmental Consultant – Coastal and Environmental Services (Centurion) <i>July 2018 – July 2020</i></p> <ul style="list-style-type: none"> • Consulting, project management and conducting assessments in the broad field of Environmental Management, including Basic Assessments, full Scoping and Environmental Impact Assessments, Environmental Management Programmes and Environmental Auditing. • Ecological Impact Assessments • GIS Mapping • Database Management <p>Volunteer – Khulisa Social Solutions (Johannesburg) <i>May 2018 – July 2018</i></p> <p>Departmental tutor - Department of Environmental Science, Rhodes University (Grahamstown) <i>January 2016 – December 2017</i></p> <p>Demonstrator - Department of Plant Science, University of Pretoria (Pretoria) <i>July 2015 – December 2015</i></p>
ACADEMIC QUALIFICATIONS	<ul style="list-style-type: none"> • 2014 - BSc Environmental Science (University of Pretoria) • 2015 - BSc (Hons) Geographical and Environmental Science (University of Pretoria) • 2018 - MSc Environmental Science (Rhodes University)
COURSES	<ul style="list-style-type: none"> • 2020 - Tools for Wetland Assessment (Rhodes University, in association with GroundTruth, The Water Research Commission and Verdant Environmental) <i>August 2020</i>
PUBLICATIONS	<ul style="list-style-type: none"> • Gouws, A. J., & Shackleton, C. M. (2019). A spatio-temporal, landscape perspective on <i>Acacia dealbata</i> invasions and broader land use and cover changes in the northern Eastern Cape, South Africa. <i>Environmental Monitoring and Assessment</i>, 191(2), 74. • Gouws, A. J., & Shackleton, C. M. (2019). Abundance and correlates of the <i>Acacia dealbata</i> invasion in the northern Eastern Cape, South Africa. <i>Forest Ecology and Management</i>, 432, 455-466.



AIDAN JOHN GOUWS
Curriculum Vitae



**PROFESSIONAL
EXPERIENCE**

BASIC ASSESSMENTS

Ramotshere Molloa Local Municipality Residential Extensions, Zeerust, North West Province, 2019–2020

Two Basic Assessments for the proposed extension of two residential extensions in Zeerust, North West. Assigned the role of project manager, PPP manager, Terrestrial Ecologist and lead author of the Basic Assessment Report.

SANRAL Koster R52 Road Upgrade, Koster, North West Province, 2018–2021

Basic Assessment for the road upgrade of the R52 route between Koster and the N4 Rustenburg. Assigned the role of project manager, PPP manager, Terrestrial Ecologist, Wetland Ecologist, WULA manager and lead author of the Basic Assessment Report.

Transnet Freight Rail Installation of Telecommunications Masts and Associated Infrastructure at Various Locations in South Africa, 2019–2020

Three Basic Assessments for the installation of telecommunications masts in Gauteng, Mpumalanga and KwaZulu-Natal. Assigned the role of project manager, PPP manager and lead author of the Basic Assessment Report.

PRASA CRES Establishment of Township Leralla Extension 1, Tembisa, Gauteng Province, 2019–2020

Basic Assessment for the proposed township establishment at Leralla Station in Tembisa, Gauteng. Assigned the role of project manager, PPP manager and lead author of the Draft Basic Assessment Report.

FULL SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENTS

SANRAL Zandkraal-Winburg N1 Road Upgrade Quarry S&EIR Authorisation, Winburg, Free State Province, 2018–2021

Full Scoping and Environmental Impact Assessment for the mining of borrow pits and quarries associated with the upgrade of the N1 between Zandkraal and Winburg South. Assigned the role of project manager, PPP manager and lead author of the Scoping Report and Environmental Impact Assessment Report.

SANRAL Masekwaspoort N1 Road Quarry S&EIR Authorisation, Musina, Limpopo Province, 2018–On hold, to resume 2021

Full Scoping and Environmental Impact Assessment for the mining of borrow pits and quarries associated with the upgrade of the N1 between Louis Trichardt and Musina. Assigned the role of co-author of the Scoping Report. Project on hold due to pending design changes.

ENVIRONMENTAL AMENDMENT APPLICATIONS

SANSA Space Operations Installation of Satellite Antennae on Farm Hartebeesthoek 502JQ, Gauteng Province, 2019–2021

Amendment of Environmental Authorisation for the installation of satellite antennae at the South African National Space Agency (SANSA) Space Operations facility. Assigned the role client liaison, Terrestrial Ecologist, Assistant Wetland Ecologist and lead author of the Amendment Report.



AIDAN JOHN GOUWS
Curriculum Vitae



ENVIRONMENTAL AUDITING

SANRAL Hendrina N11 Road Upgrade ECO Audits, Hendrina, Mpumalanga Province, 2018–2019

Environmental Auditing for the construction of the road and mining of borrow pits associated with the upgrade of the N11 route between Hendrina and Hendrina Power Station. Assigned the role of Environmental Control Officer (ECO), author of ECO audit reports and author of the borrow pit closure report.

South African National Biodiversity Institute (SANBI) Office Complex Development, Pretoria, Gauteng Province, 2018

Environmental Auditing for the construction of the Office Complex at the Pretoria National Botanical Gardens. Assigned the role of interim ECO and co-author of ECO audit reports.

RISK ASSESSMENTS

PRASA CRES Inhlanzane Risk Assessment, Jabulani (Soweto), Gauteng, 2019

Social and Environmental Risk Assessment of the Illegal Occupation of the Rail Reserve near Inhlanzane Station - Jabulani (Soweto), Gauteng. Assigned the role of project manager and lead author of the Risk Assessment Report.

RESETTLEMENT ACTION PLAN (RAP) AUDITING

Millennium Challenge Account Malawi (MCA-M) RAP Audits, 2018–2019

Completion audits for six Resettlement Action Plans (RAPs) conducted for the Infrastructure Development Project in Malawi. These RAPs documented the physical and economic displacement impacts and compensation for assets of people affected by wayleave corridors along 400kV, 132kV, 66kV and 33kV OHLs, as well as for substations and permanent access roads. Assigned the role of database support, auditor, training assistant and assistant author. Later assigned the role of database manager.

DATABASE MANAGEMENT

Eswatini Electricity Company (EEC) 132kV Powerline ESIA and RAP, 2020-

Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for the proposed 132kV powerline in the Shiselweni Region of Swaziland. Assigned the role of data analyst and database co-manager.

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Aidan John Gouws

Date: February 2021



Ryan Edwards | Wetland Ecologist & Environmental Scientist

M.Sc., B.Sc. (Hons), B.Sc. UKZN
SACNASP Reg. No.: 400089/13

96 Edmonds Road, Glenwood, 4001
Cell no.: +27 73 121 3392
Email: ryan@verdantenv.co.za

PROFILE

- I am a highly motivated wetland ecosystem specialist and environmental scientist with twelve (12) years experience in the natural scientific and environmental management consulting sector.
- My core field of focus, specialisation and passion is wetland and freshwater ecosystem ecology.
- I regularly conduct wetland and river ecosystem assessments and develop wetland rehabilitation and management plans and wetland offset plans for private, commercial and industrial clients as well as for provincial and national government departments and municipalities.
- My highest qualification is a Master of Science (MSc) in Environmental Science (Research Masters). My Masters dissertation was on wetland geomorphology and as such I have expertise in the methods of data collection and analysis in the discipline of fluvial geomorphology.
- I have developed a wide range of skills and knowledge over my career. I am competent in data collection and analysis methods related to wetland and river ecosystem assessments that include soil and vegetation sampling, description and analysis; ecosystem services assessments; biodiversity / ecological importance assessments; ecological health / condition assessments; and freshwater ecosystem impact assessment.
- I have notable experience in wetland rehabilitation and management (± 10 yrs), wetland and biodiversity offset planning (± 5 yrs), and vegetation / biodiversity assessments (± 8 yrs).
- I have some experience in the compilation of constructed wetland feasibility assessments.
- I have considerable project management experience (± 10 yrs) having successfully led, managed and completed a diverse range of specialist freshwater ecosystem and environmental management related projects.
- I am one of the leading wetland ecologists in the field of wetland offset planning in SA and have been involved in a number of high profile offset projects, two of which I have lead and managed.
- I have completed over 100 specialist wetland assessments.
- I am competent in the basic use of Geographical Information Systems (GIS) for the purpose of mapping wetlands, rivers (riparian zones) and vegetation communities as well as environmental impacts.

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- As a senior scientist in my current post, my role involves the mentorship, management and oversight of junior scientists, a managerial role that I fulfilled over the last five years.
- I am currently accredited as a professional natural scientist by the South African Council for Natural Scientific Professions (SACNASP) under the field of practice – ‘environmental science’.
- My professional interests are wetland ecosystems, ecosystem restoration and rehabilitation, ecosystems services, sustainability, climate resilience, market internalisation of negative environmental externalities, and the mainstreaming of environmental management and sustainability into strategic development planning and governance.

SKILLS PROFILE

A. Technical Scientific Skills:

Proficient in the following ecological / biophysical specialist assessments and plans:

- Wetland and River / Riparian Ecosystem Delineation and Classification
- Wetland and River / Riparian Ecosystem Service/Functional Assessments
- Wetland and River / Riparian Ecosystem Health/Ecological State Assessments
- Wetland and River / Riparian Ecosystem Vegetation Assessments
- Wetland and River / Riparian Ecosystem Geomorphology Assessments
- Wetland and River / Riparian Ecosystem Rehabilitation Plans
- Wetland and River / Riparian Ecosystem Management and Conservation Plans
- Wetland and Biodiversity Offset Plans
- Freshwater ecosystem (wetland and river) impact assessments
- Strategic freshwater ecosystem / wetland management planning
- Terrestrial ecosystem impact assessments (typically in collaboration with botanists and zoologists)
- Alien Plant Eradication and Control Programmes
- Wetland training presentations and courses

Proficient in the following scientific sampling methods and analysis:

- Soil sampling for hydric (wetland / alluvial) soil identification
- Vegetation sampling (plots / quadrats) and wetland / riparian plant identification
- Wetland surface cross-sectional and longitudinal surveys using a dumpy level and a staff
- Wetland sedimentary fill sampling and interpretation

Proficient in the following specialist ecological assessment tools and techniques:

- WET-Health (Macfarlane et al., 2008) – co-author of the current revision of the tool (in preparation)
- WET-EcoServices (Kotze et al., 2007) – co-author of the current revision of the tool (in preparation)
- Wetland Ecological Importance and Sensitivity Assessment (DWAF, 1999)

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- Riverine Index of Habitat Integrity Assessment (Kleyhans & Louw, 2008)
- Riverine Ecological Importance and Sensitivity Assessment (DWAF, 1999)

Have experience with the following river ecosystem assessment techniques:

- Riparian Vegetation Response Assessment Index (VEGRAI) (Kleyhans et al., 2007)
- SASS 5 (not an accredited practitioner but have undertaken the course)
- Mini-SASS

Proficient in the following environmental management activities:

- Leading, managing and compiling Environmental Impact Assessments (EIAs) and Basic Environmental Assessments (BAs)
- Leading, managing and compiling Water Use License Applications (WULAs)
- Environmental Prefeasibility Assessments
- Environmental Auditing/Compliance Monitoring

Proficient in the use of Geographical Information Systems (GIS) for mapping and basic analysis purposes.

B. Project Management and Managerial Skills:

Proficient in the following project management tasks:

- Leading, coordinating and managing specialist ecological assessments.
- Leading and managing the development of wetland rehabilitation and offset plans that often require multi-stakeholder engagement.
- Leading, facilitating and managing Environmental Impact Assessments and Water Use License Applications.

Proficient in the following managerial tasks:

- Managing and mentoring a small team of scientists.
- Consulting business strategic planning.



EDUCATION

1. MSc Environmental Science

University of KwaZulu-Natal, Durban | 2006 – 2009

Thesis / Dissertation Title: The Origin and Evolution of Dartmoor Vlei in the KwaZulu-Natal Midlands.

Supervisor: Prof. Fred Ellery

2. BSc (Hons) Geography and Environmental Management

University of KwaZulu-Natal, Durban | 2005 - 2006

3. BSc Geography and Environmental Management

University of KwaZulu-Natal, Durban | 2001 - 2004

4. Senior Certificate

Northwood Boys High School, Durban-North, Durban | 1996 - 2000

CAREER HISTORY

<p>Verdant Environmental (Pty) Ltd March 2020 – Present</p> <p><i>Owner and Director</i></p> <p><i>Principal Environmental Scientist and Wetland Ecologist</i></p>	<p><u>Duties and Responsibilities:</u></p> <ul style="list-style-type: none"> • Directing and managing a small environmental consulting business. • Data collection and analysis for specialist ecological assessments, plans and programmes. • Project management and compilation of specialist freshwater ecological assessments (wetlands and rivers). • Project management and compilation of specialist ecological plans and programmes including wetland and river rehabilitation plans, wetland and biodiversity offset plans, wetland and river management plans, ecological monitoring programmes, alien invasive plant control plans. • Project management and compilation of Basic Assessments (BAs), Environmental Impact Assessments (EIAs), Water Use License Applications (WULAs), Strategic Environmental Assessments (SEAs), Environmental Management Frameworks (EMFs) and Integrated Environmental Management Plans (IEMPs). • Undertaking ecological monitoring. • Undertaking environmental compliance monitoring.
<p>Eco-Pulse Consulting Services cc Aug 2014 – Feb 2020</p>	<p><u>Duties and Responsibilities:</u></p> <ul style="list-style-type: none"> • Data collection and analysis for specialist ecological assessments, plans and



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<p>Senior Environmental Scientist and Wetland Ecologist</p>	<p>programmes.</p> <ul style="list-style-type: none"> • Project management and compilation of specialist freshwater and terrestrial ecological assessments and plans. • Project management and compilation of specialist ecological plans and programmes including wetland and river rehabilitation plans, wetland and biodiversity offset plans, wetland and river management plans, ecological monitoring programmes, alien invasive plant control plans. • Sign-off on specialist freshwater and terrestrial ecological assessments and plans, and WULA reports. • Project management and compilation of Water Use License Applications (WULAs). • Management and mentorship of junior ecological / scientist staff.
<p>GCS (Pty) Ltd Nov 2012 – August 2014</p> <p>Wetland Specialist and Environmental Scientist</p>	<p><u>Duties and Responsibilities:</u></p> <ul style="list-style-type: none"> • Data collection and analysis for specialist ecological assessments, plans and programmes. • Project management and compilation of specialist freshwater and terrestrial ecological assessments and plans. • Project management and compilation of specialist ecological plans and programmes including wetland and river rehabilitation plans, wetland and biodiversity offset plans, wetland and river management plans, ecological monitoring programmes, alien invasive plant control plans. • Project management and compilation of Basic Assessments (BAs), Environmental Impact Assessments (EIAs), Water Use License Applications (WULAs).
<p>School of Environmental Science, University of KwaZulu-Natal Sept – Nov 2012</p> <p>First Year Atmospheric Science Module Lecturer</p>	<p><u>Duties and Responsibilities:</u></p> <ul style="list-style-type: none"> • Lectured atmospheric science module as part of the first year environmental systems course (ENVS102). • Facilitated module practicals. • Marked atmospheric section of final course exam.
<p>SiVEST SA (Pty) Ltd March 2008 – Nov 2012</p> <p>Wetland Specialist and Environmental Scientist</p>	<p><u>Duties and Responsibilities:</u></p> <ul style="list-style-type: none"> • Project management of specialist wetland ecological assessments and Basic Assessments / Environmental Impact Assessments. • Data collection and analysis for specialist wetland ecological assessments and plans • Reporting for Basic Assessments (BAs) and Environmental Impact Assessments (EIAs).
<p>SiVEST SA (Pty) Ltd May 2007 – March 2008</p>	<p><u>Duties and Responsibilities:</u> Assisted in the review of backlogged EIA's and in the compilation of a number of draft Record of Decisions (ROD's) for large residential</p>



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<p><i>Internship - DEAT Review Mentorship Program (Part Time)</i></p>	<p>developments in KwaZulu-Natal.</p>
<p>Private Wetland Consulting April 2007 – May 2007 <i>Wetland Specialist</i></p>	<p><u>Duties and Responsibilities:</u> Undertook private wetland assessments for small development projects supervised by Professor Fred Ellery of the School of Environmental Sciences at the University of KwaZulu-Natal.</p>

SELECTED PROJECT EXPERIENCE

1. Wetland & River (Freshwater Ecosystem) Impact Assessments:

- Freshwater Habitat Impact Assessment for the Proposed Luhlanga Open Cast Pit Expansion at Somkheke Mine in the Hlabisa Local Municipality, Kwazulu-Natal (2018-2019) | Role: Lead author and project manager | Client: Black Rock Consulting
- Freshwater Habitat Impact Assessment for the Proposed Disposal of Mine Residue Deposits to the KwaQubuka and Luhlanga Open Cast Pits at Somkheke Mine in the Hlabisa Local Municipality, Kwazulu-Natal (2018-2019) | Role: Lead author and project manager | Client: Black Rock Consulting
- Wetland & River Impact Assessment for the Cato Ridge Intermodal Development in KwaZulu-Natal, South Africa (2018) | Role: Lead author and project manager | Client: SIVEST SA (Pty) Ltd
- Freshwater Habitat Impact Assessment for the proposed TradeZone2 Development in La Mercy, KwaZulu-Natal, South Africa (2017) | Role: Lead author and project manager | Client: Dube Tradeport Corporation
- Freshwater Habitat Impact Assessment for the proposed AgriZone2 Development in La Mercy, KwaZulu-Natal, South Africa (2017) | Role: Lead author and project manager | Client: Dube Tradeport Corporation
- Freshwater Habitat Impact Assessment Report for the proposed White iMfolozi Bridge and Link Road in the Ulundi Local Municipality, KwaZulu-Natal, South Africa (2017) | Role: Project manager, senior report review, co-author and report sign-off | Client: Royal HaskoningDHV
- Freshwater Habitat Impact Assessment and Conceptual Rehabilitation plan for the proposed Avoca South Business Estate in the eThekweni Municipality, KwaZulu-Natal, South Africa (2015) | Role: Lead author and project manager | Client: GCS (Pty) Ltd
- Wetland Impact Assessment Report & Conceptual Rehabilitation Plan for the commencement of unauthorised activities within the Balamhlanga wetland associated with bulrush eradication, Jozini, KwaZulu-Natal, South Africa (2015) | Role: Lead author and project manager | Client: Nzingwe Consultancy
- Wetland Impact Assessment Report for the Longridge Mine Closure in the eDumbe Local Municipality, KwaZulu-Natal (2013) | Role: Lead author and project manager | Client: Kangra Coal (Pty) Ltd



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2. Wetland Rehabilitation Plans, Management Plans, Monitoring Plans & Offset Plans:

- Wetland and riparian zone rehabilitation plan for the Dube TradePort Automotive Supply Park Development in Illovo, Durban, KwaZulu-Natal, South Africa (2019) | Role: Lead author and project manager | Client: Dube Tradeport Corporation
- Wetland management and monitoring plan for high conservation value wetlands at World Hardwood Rockvale Plantation near Ixopo, KZN (2019) | Role: Project management, senior report review, co-author and report sign-off | Client: World Hardwood (Pty) Ltd
- River and Buffer Zone Revegetation Plan for the Kudumane Manganese Resources Mine in Hotazel, Northern Cape (2019) | Role: Project manager, senior report review, co-author and report sign-off | Client: Kudumane Manganese Resources (Pty) Ltd
- Baseline Wetland Habitat Monitoring Assessments for four priority wetlands in the eThekweni Municipality hosting the endangered *Hyperolius pickersgillii* (Pickersgill's Reed frog) (2015-2016 & 2018-2019) | Project manager, lead author and assessor | Endangered Wildlife Trust
- Wetland and riparian zone rehabilitation plan for the Dube TradePort TradeZone 2 Development Offset Site in La Mercy, KwaZulu-Natal, South Africa (2017) | Role: Lead author and project manager | Dube TradePort Corporation
- Piseang River floodplain wetland rehabilitation plan, offset strategy and funding plan for the Bridge City-KwaMashu Open Space Project, KwaZulu-Natal, South Africa (2015-2017) | Role: Project manager and lead author | Client: eThekweni Municipality Architects Department
- Wetland offset plan for the proposed Clairwood Racecourse Logistics Development in South Durban, KZN (2015-2017) | Role: Project manager and lead author | Client: Capital Property Fund
- Strategic Wetland Offset Plan for the eThekweni Municipality Northern Region, KwaZulu-Natal, South Africa (2016) | Role: Co-author | Client: Dube TradePort Corporation and Tongaat Hulett Developments
- Baseline (Tier 2) Monitoring Assessment for the Ivanhoe Wetland (T32B-05) in KwaZulu-Natal, South Africa (as part of the Monitoring and Evaluation Programme for Working for Wetlands) (2015) | Role: Lead author | Client: Working for Wetlands
- Interim Wetland Rehabilitation Plan for the commencement of unauthorised activities within the Balamhlanga wetland associated with bulrush eradication, Jozini, KwaZulu-Natal, South Africa (2015) | Role: Lead author and project manager | Client: Nzingwe Consultancy
- Foskor Rock Phosphate Storage Facility Wetland Offset Mitigation Study and Wetland Rehabilitation and Management Plan (2013) | Role: Lead author and project manager | Client: GIBB
- Cornubia Mixed Use Development Phase 1 Wetland Rehabilitation Plan in Verulam/Umhlanga, KZN (2011-2012) | Role: Co-author | Tongaat Hulett Developments

3. Constructed Wetland Feasibility Assessments:

- Constructed Wetland Feasibility Assessment for the proposed Kangra Longridge Mine Closure in KwaZulu-Natal (2014) | Role: Lead author and project manager | Client: Kangra Coal (Pty) Ltd



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4. Development of Wetland Assessment Tools & Management Guidelines:

- Revision of the WET-EcoServices and Ecological Importance and Sensitivity (EIS) assessment tools for South African wetlands (2017-2019) | Role: Contributing author and developer | Client: Water Research Commission
- Development of wetland management guidelines for South African municipalities (2017-2018) | Role: Lead author, technical content development, sub-consultant coordination | Client: ICLEI: Africa

5. Terrestrial Ecological / Vegetation Assessments:

- Terrestrial ecosystem impact assessment for the Proposed Umlass Gates Light Industrial Development in Umlaas Road, KwaZulu-Natal (2018-2019) | Project manager, senior report review, co-author and report sign-off | Client: Super Digger Holdings (Pty) Ltd
- Vegetation Assessment for the Proposed Apron Stands and Bravo Taxiway at King Shaka International Airport (KSIA) (2018) | Role: Co-author and project manager | Client: BMK Consulting Engineers
- Terrestrial Habitat Impact Assessment Report for the proposed White iMfolozi Bridge and Link Road in the Ulundi Local Municipality, KwaZulu-Natal, South Africa (2017) | Role: Project manager, senior report review, co-author and report sign-off | Client: Royal HaskoningDHV

6. Alien Invasive Plant Eradication and Control Plans / Programmes:

- Alien Invasive Plant Eradication and Control Programme for the Kudumane Manganese Resources (KMR) Mine near Hotazel, Northern Cape (2019) | Role: Project manager, senior report review, co-author and report sign-off | Client: Kudumane Manganese Resources (Pty) Ltd
- Alien Plant Eradication and Control Programme Implementation Plan for the King Shaka International Airport (KSIA) (2014) | Role: Lead author and project manager | Client: Airports Company of South Africa (ACSA)

Selected Environmental Assessment Practitioner (EAP) Experience:

1. Basic Assessments and Environmental Impact Assessments:

- Environmental Impact Assessment for the Proposed Magdalena Colliery Discard Dump Extension (2013-2014) | Role: Project manager and lead author | Client: Forbes Coal (Pty) Ltd
- Environmental Impact Assessment for the Proposed Kingthorpe Equestrian Estate in Lynfield Park, KZN (2011-2012) | Role: Lead author and project assistant | Client: Stars Away Investments (Pty) Ltd
- Basic Assessment for the Proposed Lungisisa Indlela Village (LIV) Development in Hazelmere, KwaZulu-Natal (2011-2012) | Role: Project manager and co-author | Client: LIV
- Environmental Impact Assessment for the Proposed Madimeni Low Cost Housing Project in Molweni, KwaZulu-Natal (2009-2011) | Role: Lead author and project assistant | Client: eThekweni Municipality
- Environmental Impact Assessment for the Proposed Lower Langefontein 5 Low Cost Housing Project in Molweni, KwaZulu-Natal (2009-2011) | Role: Lead author and project assistant | Client: eThekweni Municipality

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- Environmental Impact Assessment for the Proposed Umzinto Slums Clearance Low Income Housing Project, KwaZulu-Natal (2009-2011) | Role: Lead author and project assistant | Client: Umdoni Municipality
- Environmental Impact Assessment for the Proposed Motala Farm Affordable Housing Project in Tongaat, KZwaZulu-Natal (2009-2010) | Role: Lead author and project assistant | Client: Shield Homes

2. Water Use License Applications:

- R61 Road Upgrade WULA (2018-2019) | Role: Project manager, senior review and report sign-off | Client: SANRAL

3. Desktop Environmental Feasibility Investigations:

- Desktop Environmental Feasibility Assessment for the eThekweni Wards 99 & 100 Rural Housing Project, KwaZulu-Natal (2011) | Role: Lead author and assessor | Client: MGM Holdings (Pty) Ltd
- Desktop Environmental Feasibility Assessment for the Umzumbe Wards 8 & 9 Rural Housing Project, KwaZulu-Natal (2011) | Role: Lead author and assessor | Client: MGM Holdings (Pty) Ltd
- Desktop Environmental Feasibility Assessment for the KwaYanguye Rural Housing Project, KwaZulu-Natal (2011) | Role: Lead author and assessor | Client: Ilima Rural Housing

4. Environmental Compliance Monitoring / Auditing:

- Zimbali Lakes Estate Golf Course in Ballito, KwaZulu-Natal (2011-2012) | Role: Environmental Control Officer | Client: IFA Hotels & Resorts
- Rocky Park Integrated Housing Project in Stanger, KwaZulu-Natal (2011) | Role: Environmental Control Officer | Client: KwaDukuza Municipality
- Philani Valley Redevelopment Phases 17-25 in Umlazi, KwaZulu-Natal (2008-2009) | Role: Environmental Control Officer | Client: eThekweni Municipality

PROFESSIONAL MEMBERSHIPS

- Professional Natural Scientist (Reg. No. 400089/13) under the South African Council for Natural Scientific Professions (SACNASP)
- South African Wetland Society (SAWS)

PUBLICATIONS

- Edwards, R. J., Ellery, W. N. and Dunlevey, J. 2014. The role of the insitu weathering of dolerite in the formation of a peatland: the origin and evolution of Dartmoor Vlei in the KwaZulu-Natal Midlands, South Africa. *Catena* 143: 232-243.

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- Lead author for: ICLEI Africa¹. 2018. Wetland Management Guidelines: Building Capacity and Supporting Effective Management of Wetlands within South African Municipalities.

CONFERENCE AND SYMPOSIA PRESENTATIONS

- Implementing a wetland offset: application of the Draft Wetland Offset Guidelines and lessons learnt: The case of the Clairwood Logistics Park Development – National Wetlands Indaba 2017 (Port Edward)
- Understanding the Origin and Evolution of Dartmoor Vlei in KwaZulu-Natal Midlands – National Wetlands Indaba 2006 (Johannesburg)
- Social and environmental justice in environmental decision making: The case of Wolraad Park in Wentworth, KwaZulu-Natal, South Africa – National IAIA Conference 2005 (Free State)

AWARDS

- International Association for Impact Assessment South Africa (IAIASA) 'Young Person' Award for: Best Paper and Presentation at the 2005 IAIA Conference.

INTERESTS

Personal fields of interest:

- Wetland ecology and conservation
- Wetland origin and evolution (geomorphology)
- Restoration ecology
- Botany
- Environmental / ecological sustainability and sustainable development
- Ecosystem services and their value
- Climate resilience
- Ecological economics
- Addressing market failures related to the environment (e.g. internalisation of negative environmental externalities)
- Social and environmental justice

¹ (ICLEI) Local Governments for Sustainability – Africa Secretariat



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REFERENCES

Prof. Fred Ellery
Company/Institution:
Relationship:
Tel:
Email:

Head of Geography Department
Rhodes University
Master of Science (MSc) Supervisor (2006 – 2009)
046 603 7453
f.ellery@ru.ac.za

Greg Mullins
Company/Institution:
Relationship:
Tel:
Email:

Senior Environmental Scientist
eThekweni Municipality Environmental Planning Department
Colleague (2008 – 2012)
031 322 4560
greg.mullins@durban.gov.za

Adam Teixeira-Leite
Company/Institution:
Relationship:
Tel:
Email:

Principal Wetland Ecologist & Environmental Scientist
Eco-Pulse Environmental Consulting Services
Colleague (2014 – Present)
082 310 6769
ateixeira@eco-pulse.co.za

APPENDIX 8.3 – HERITAGE ASSESSMENT REPORT



**CES: PROPOSED BORWA VENT SHAFT & BULK POWER
SUPPLY PROJECT ON THE REMAINDER OF FARM MALOKELA
370 KT AND PORTION 7 OF FARM THORNCLIFFE 374 KT,
SEKHUKHUNE DISTRICT MUNICIPALITY LIMPOPO PROVINCE**

Heritage Impact Assessment Report

Submitted subject to Section 38(3) and Section 38(8) of the NHRA



Prepared for: **CES**

Prepared by: **Exigo Sustainability**



HERITAGE IMPACT ASSESSMENT (HIA) ON THE REMAINDER OF FARM MALOKELA 370 KT AND PORTION 7 OF FARM THORNCLIFFE 374 KT FOR THE PROPOSED BORWA VENT SHAFT & BULK POWER SUPPLY PROJECT, SEKHUKHUNE DISTRICT MUNICIPALITY, LIMPOPO PROVINCE

Conducted for:
CES

Compiled by:
Nelius Kruger (BA, BA Hons. Archaeology Pret.)

Reviewed by:
Aidan Gouws (CES)

DOCUMENT DISTRIBUTION LIST

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Aidan Gouws	CES
Gregory Shaw	CES

DOCUMENT HISTORY

Date	Version	Status
20 February 2022	1.0	Draft

DECLARATION

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Borwa Vent Shaft & Bulk Power Supply Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations.



Signature of specialist

Company: Exigo Sustainability

Date: 20 February 2022

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This Archaeological Impact Assessment report has been compiled considering the National Environmental Management Act 1998 (NEMA) and Environmental Impact Regulations 2014 as amended, requirements for specialist reports, Appendix 6, as indicated in the NEMA Table below.

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable.
1.(1) (a) (i) Details of the specialist who prepared the report	Page 4, Section 1.2 and Addendum 1 of Report.	-
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1.2 and Addendum 1 of Report.	-
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page 4 of the report	-
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1.3 and Section 1.4: Project Brief and Terms of Reference	-
(cA) An indication of the quality and age of base data used for the specialist report	Section 4: Archaeo-Historical Context	-
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 9: Statement of Significance and Impact Rating	-
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3: Method of Enquiry	-
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3: Method of Enquiry	-
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 9: Statement of Significance and Impact Rating	-
(g) An identification of any areas to be avoided, including buffers	Section 5: Results Archaeological Survey	-
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 9: Statement of Significance and Impact Rating	-
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 3.2: Limitations and Constraints	-
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 9: Statement of Significance and Impact Rating	-
(k) Any mitigation measures for inclusion in the EMPr	Section 6.3: Management Actions Section 7: Recommendations	-
(l) Any conditions for inclusion in the environmental authorisation	N/A	None required
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 6.3: Management Actions Section 7: Recommendations	-
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 1 & Section 7	
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and		
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 6.3: Management Actions Section 7: Recommendations	-
(o) A description of any consultation process that was undertaken during the course of carrying out the study	N/A	Not applicable. A public consultation process will be conducted as part of the EIA and EMPr process.
(p) A summary and copies if any comments that were received during any consultation process	N/A	Not applicable.
(q) Any other information requested by the competent authority.	N/A	Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 1.5: CRM: Legislation, Conservation and Heritage Management	-

EXECUTIVE SUMMARY

This report details the results of a Heritage Impact Assessment (HIA) in support of an Environmental Impact Assessment (EIA) process for the proposed Borwa Vent Shaft & Bulk Power Supply Project on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT in the Sekhukhune District Municipality of the Limpopo Province. The proposed project entails the construction of three ventilation shafts and associated infrastructure as well as up and down cast bulk power supply at Mototolo Mine’s Borwa Shaft. The report includes an Archaeological Impact Assessment (AIA) component with background information on the area’s archaeology, paleontology and sense of landscape and place in terms of its representation in Southern Africa as well as project methodologies and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed.

Project Title	Borwa Vent Shaft & Bulk Power Supply Project
Project Location	S25.00549° E30.10118°
1:50 000 Map Sheet	2530AA
Farm Portion / Parcel	The Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT
Magisterial District / Municipal Area	Sekhukhune District Municipality
Province	Limpopo Province

A number of academic archaeological and historical studies have been conducted in this section of the Limpopo Province and these studies all infer a rich and diverse archaeological landscape, representative of most phases of human and cultural development in Southern Africa. The cultural landscape of the Sekhukhune region encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. Sekhukhune is rich in archaeological sites, dating from the Early Iron Age (800AD) to the Pedi occupation of the area. This is most probably due to the safety the valley offered from outside attacks, but also as a result of the deep and rich sedimentary soils of the low-lying area. It is also of historical importance due to the activities of the Berlin Missionary Society who entered the area in the time of Chief Sekwati.

It has been noted that portions of Malokela and Thorncliffe, and the project area have been altered and transformed as a result of more recent mining and quarrying. During the survey, heritage receptors were noted in the project areas and the following recommendations are made based on general observations in the Borwa Vent Shaft & Bulk Power Supply Project in terms of heritage resources management.

- The remains of two Historical Period settlement areas consisting out of stone wall enclosures, lower grind stones, middens and material culture such as glass and metal (as **Site EXIGO-TC374-HP01** and **Site EXIGO-TC374-HP02**) are of medium-low significance due to the more recent provenience and poor preservation of the sites. The sites occur within proposed project development areas and it is recommended that the general area be closely monitored in order to avoid the destruction of

previously undetected heritage remains – particularly potential burials associated with the settlements. In addition, application should be made for a destruction permit from the relevant heritage authorities should the possible Historical Period site be impacted on, altered or destroyed.

- The larger Steelpoort area comprises a rich cultural landscape and tangible and intangible heritage aspects associated with local communities are abundant. A site of apparent ritual importance to local communities occurs in the project area (**Site EXIGO-TC374-FT01**). The site, which consists of a stone cairn under a tree is potentially of medium heritage significance due to its implied local social and ritual value. It is located within proposed project development areas and it is primarily recommended that a strict heritage conservation buffer of at least 50m be implemented around the feature. Here, the redesign the footprint areas of the ventilation shaft platform, borrow pit, access road and power lines would be necessary to avoid the heritage resource and the proposed conservation buffer. It is advisable that the site be fenced and that access control be applied. Generally, careful monitoring should be conducted by a heritage specialist or an informed Environmental Control Officer (ECO) in order to detect any potential impact on the site at the earliest opportunity. However, should impact on the site prove inevitable a full social consultation process with affected parties / communities regarding significance of site, possible conservation management and protection measures will be required. Application should be made for a destruction permit from heritage authorities and affected parties if/when required.
- It is essential that cognisance be taken of the larger heritage landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period. As such, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.

Borwa Vent Shaft & Bulk Power Supply Project Heritage Sites Locations

Site Code	Coordinate S E	Short Description	Impact Aspect	Mitigation Action
EXIGO-TC374-FT01	S25.82279° E25.85091°	Ritual / Intangible Heritage Site	DIRECT PERMANENT: ventilation shaft platform, borrow pit, access road, power line.	Avoidance, 50m conservation buffer, redesign infrastructure, site monitoring. Destruction permitting if impacted on. General site monitoring by informed ECO.
EXIGO-TC374-HP01	S25.00567° E30.10458°	Historical Period Occupation Site	DIRECT PERMANENT: Access road, power line.	Destruction permitting if impacted on.
EXIGO-TC374-HP02	S24.99988° E30.09666°	Historical Period Occupation Site	DIRECT PERMANENT: Access road, power line.	General site monitoring by informed ECO.

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

NOTATIONS AND TERMS/TERMINOLOGY

Absolute dating: Absolute dating provides specific dates or range of dates expressed in years.

Archaeological record: The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact: Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the Southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage: A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

Context: An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

Cultural Heritage Resource: The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape: A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM): A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Feature: Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Lithic: Stone tools or waste from stone tool manufacturing found on archaeological sites.

Matrix: The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Midden: Refuse that accumulates in a concentrated heap.

Microlith: A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith: A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Phase 1 CRM Assessment: An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study: In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure: A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Provenience: Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling: A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Scoping Assessment: The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Site (Archaeological): A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

Stratigraphy: This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Systematic Sampling: A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

Trigger: A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 BACKGROUND

1.1 Scope and Motivation

Exigo Sustainability (Pty) Ltd (Exigo) was commissioned by CES to conduct a Heritage Impact Assessment (HIA) study in support of an Environmental Impact Assessment (EIA) process for the proposed Borwa Vent Shaft & Bulk Power Supply Project in the Limpopo Province. The rationale of this AIA is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance in previously unstudied areas; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

1.2 Project Direction

Exigo's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

1.3 Project Brief

CES was appointed by Anglo American Platinum to undertake the environmental impact assessment process (EIA) for the proposed construction of three ventilation shafts and associated infrastructure as well as up and down cast bulk power supply at Mototolo Mine's Borwa Shaft (hereafter referred to as the "Borwa Vent Shaft & Bulk Power Supply Project). The project is located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, Sekhukhune District Municipality in the Limpopo Province").

VENTILATION AND EMULSION SHAFTS

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion shaft. The following details are currently available for the proposed ventilation and emulsion shafts.

BORROW PITS

Construction materials will be sourced from two borrow pits, namely:

- **Borrow pit 01**, located near the entrance to the project area, immediately to the south of the main Borwa Shaft mining area, which will encompass an area of 1 950 m²; and
- **Borrow pit 02**, located near the Northern Upcast Vent Shaft, which will encompass an area of 2 138 m².

ACCESS ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole and will be included in the applications. Access will be required

to enable construction of the ventilation shaft and for future inspections. Road will need to be designed to accommodate environmental and physical vehicle requirements to lessen effect on the environment and enable safe use of the road by vehicles.

POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including:

- The Ventilation Line South (Borwa-South), 2 600 m in length;
- The Ventilation Line North (Borwa-North), 2 000 m in length; and
- The Downcast Line, 1200 m in length (Figure 1.1).

CONSTRUCTION SITE CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination.

:

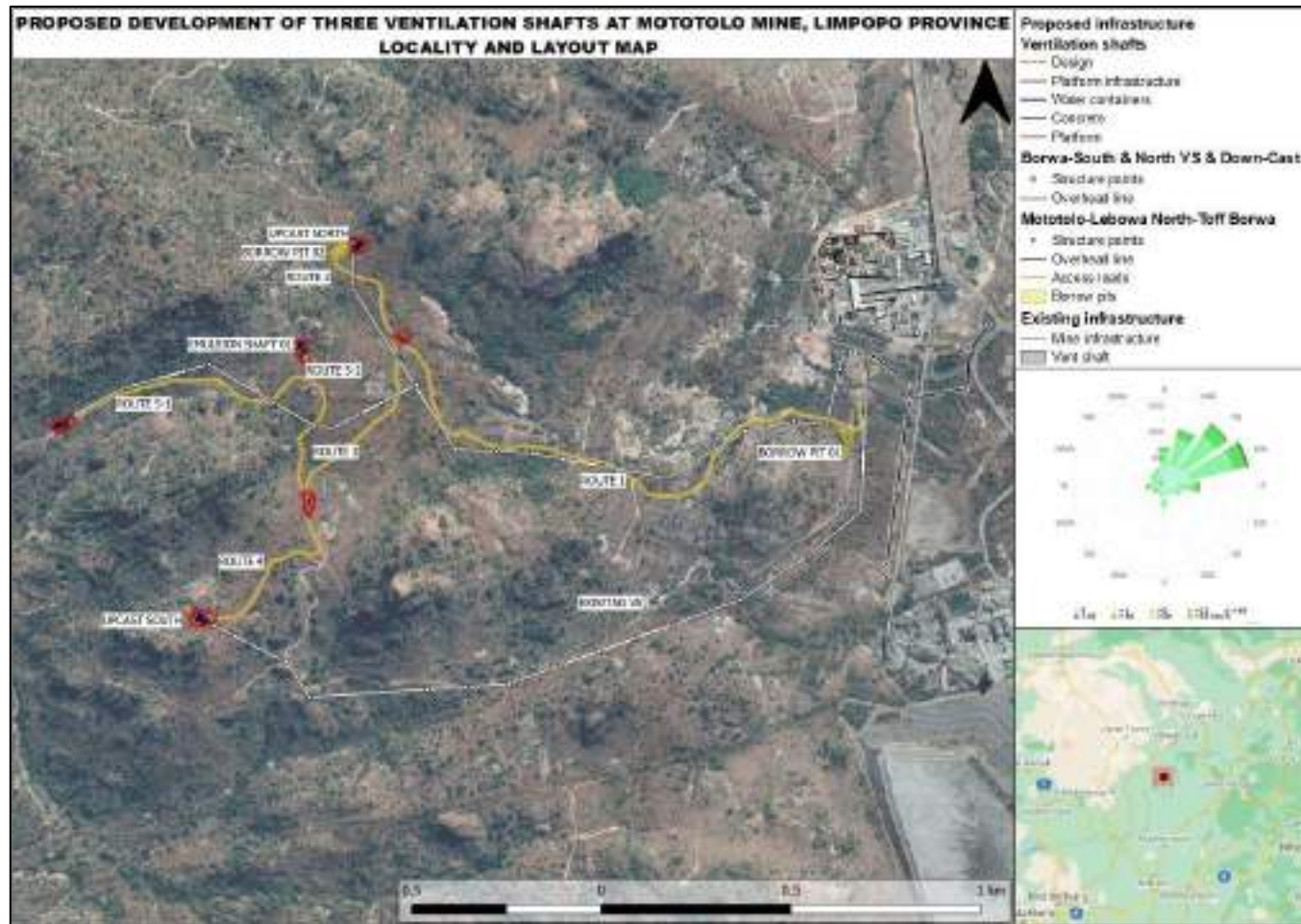


Figure 1-1: Map indicating the project aspects subject to the proposed Borwa Vent Shaft & Bulk Power Supply Project.

1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs should always include an assessment of heritage resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources.

Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess and rate any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA). A Notification of Intent to Develop (NID) will be submitted to SAHRA at the soonest opportunity.*

1.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and its provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are protected as cultural heritage resources:

- a. Archaeological artefacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts

- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

In addition, the national estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological sites
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

and

“No person may, without a permit issued by the responsible heritage resources authority-

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”*

and

“No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*

- (b) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves and burial grounds are commonly divided into the following subsets:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments.

c. National Heritage Resources Act No 25 of 1999, section 35

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

1.5.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

A detailed guideline of statutory terms and requirements is supplied in Addendum 1.

2 REGIONAL CONTEXT

2.1 Area Location

The Borwa Vent Shaft & Bulk Power Supply Project area is located on portions of the farm Thorncliffe 374 KT in the Steelpoort area of the Sekhukhune District Municipality, Limpopo Province. It is located approximately 30km south of Steelpoort and 110km south-east of Polokwane, east of the R555 regional road connecting Burgersfort and Stoffberg. The area falls under the Sekhukhune District Municipality in the Limpopo Province. The study areas appear on 1:50000 map sheet 2530AA (see Figure 2-1) and a key location point for the project is:

- **General Midpoint: S25.00549° E30.10118°**

2.2 Area Description: Receiving Environment

The regional topographical setting of the Steelpoort area can be largely classified as low mountainous terrain throughout most parts of the central, eastern and western sections of the study area often forming deep valleys and a gorge to the west where the Olifants River cuts through the mountainous area. This eastern area is dominated by rugged hills with well-defined ridges and joint pattern valleys and troughs. The landscape straddles the westerly flowing Olifants River which appears to have exploited the natural joint pattern and created a deeply incised valley. Vegetation in the areas is generally classified as Bushveld and grassland cover. An ecological assessment will be conducted and included in the EIA Report.

2.3 Site Description

The Borwa Vent Shaft & Bulk Power Supply Project area is situated along rugged hills south of the town of Steelpoort. The terrain consists predominantly of mountainous areas with flatter parcels of developable land on the plateaus, terraces and areas adjacent to the rivers. The proposed project development footprints are situated in areas that have been altered in places as a result of human settlement, earlier mining, prospecting and the establishment of mine roads and other infrastructure. Original vegetation remains intact on high slopes of mountains in the area as well as along water courses and pioneer plant species are prevalent in transformed zones. A number of perennial and non-perennial streams and drainage lines originating in the surrounding hills, bisect the region. Generally, human impact has resulted to the degradation of the environment as a result of over-exploitation and overgrazing. This manifests in large-scale surface soil loss both as donga and sheet erosion which is prevalent throughout the region.



Figure 2-1: 1:50 00 Map representation of the location of the proposed Borwa Vent Shaft & Bulk Power Supply Project (sheet 2530AA).



Figure 2-2: Aerial map providing a regional context for the proposed Borwa Vent Shaft & Bulk Power Supply Project.

3 ARCHAEO-HISTORICAL CONTEXT

3.1 The Archaeological Landscape

Archaeology in Southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

Table 1 Chronological Periods across Southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD (commonly restricted to the interior and north-east coastal areas of Southern Africa)	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD (commonly restricted to the interior and north-east coastal areas of Southern Africa)	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD (commonly restricted to the interior and north-east coastal areas of Southern Africa)	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

3.2 Discussion: The Steelpoort Heritage Landscape

The history of the Steelpoort is reflected in a rich archaeological landscape, mostly dominated by Stone Age and Iron Age Farmer occurrences. Numerous sites, documenting Earlier, Middle and Later Stone Age habitation occur across the province, mostly in open air locales or in sediments alongside rivers or pans. In addition, a wealth of Iron Age sites is to be found in the larger landscape. These sites occur on hilltops, slopes,

rock outcrops and occasionally in river beds. Moving into recent times, the archaeological record reflects the development of a rich colonial frontier, characterised by, amongst others, a complex industrial archaeological landscape such as mining developments, which herald the modern era in South African history.

3.2.1 Early History and the Stone Ages

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and *Homo habilis* have been found in dolomite caves and underground dwellings in the Bankeveld at places such as Sterkfontein and Swartkrans near Krugersdorp. *Homo habilis*, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles. The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with *Homo erectus*, who manufactured hand axes and cleavers from as early as one and a half million years ago. Oldowan and Acheulian artefacts were also found four to five decades ago in some of the older gravels (ancient river beds and terraces) of the Vaal River and the Klip River in Vereeniging. The earliest ancestors of modern man may therefore have roamed the Vaal valley at the same time that their contemporaries occupied some of the dolomite caves near Krugersdorp. Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears. The Late Stone Age commenced twenty thousand years ago or somewhat earlier. The various types of Stone Age industries scattered across the country are associated with the historical San and Khoi-Khoi people. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi herded cattle and small stock during the last two thousand years. Late Stone Age people manufactured tools that were small but highly effective, such as arrow heads and knives. The Late Iron Age people were also known for their rock art skills.

Human habitation of the Steelpoort area dates back as far as the earlier Stone Age. One of the more important sites, known as Bushman Rock Shelter, is located at Echo Caves north of Ohrigstad. Early humans lived here for thousands of years from the Early Stone Age, through what is known as the Middle Stone Age and well into the Late Stone Age. The majority of Stone Age finds are classified as isolated surface occurrences, and mostly date to the Middle Stone Age. The location of Stone Age scatters in the area corresponds with a general Stone Age site distribution pattern where Stone Age archaeological sites in the landscape occur near water sources close to local sources of rare raw materials in lithic manufacture. From the deposition pattern and stratigraphy as observed in erosion gullies in this area, it is clear that the lithic scatters occur mainly as multiple horizons within a calcrete formation. In addition, an ephemeral surface overlay of Later Stone Age (LSA) artefacts produced on a variety of raw materials occurs in places. These materials are mostly of igneous origin, and predominantly fine-grained Cryptocrystalline Silicas (CCS) including quartzes, chalcedony, agates and mudstones, but also fine-grained dolerite and banded ironstone. Distinct production technologies were used to manufacture a range of specific tool types, resulting in characteristic features and attributes. Typical MSA tool types comprise blades, convergent flakes and backed formal tools. The latter tool types are mostly unifacial and bifacial points, knives, a variety of scrapers and also perforating tools (Thackeray 1992; Wadley 2005; Soriano et al 2007). The evidence for stages of lithic reduction, as observed in the dongas at Lesego points to some primary deposition and site integrity. However, only an in-depth technological study will identify a chain(s) of knapping operations, which can inform on such aspects, and also whether there are differences in knapping operations that may indicate chronological periods, e.g. early or final MSA depositions (Wadley 2001:216).

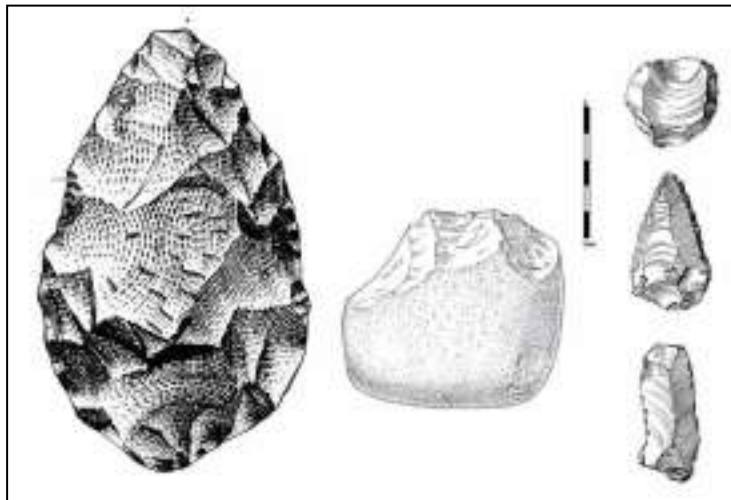


Figure 3-1: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

3.2.2 Iron Age / Farmer Period

The beginnings of the Iron Age (Farmer Period) in Southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture of pottery. Iron Age people moved into Southern Africa by c. AD 200, entering the area either by moving down the coastal plains, or by using a more central route. From the coast they followed the various rivers inland. Being cultivators, they preferred rich alluvial soils. The Iron Age can be divided into three phases. The Early Iron Age includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The Middle Iron Age spans the 10th to the 13th Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The Late Iron Age is taken to stretch from the 14th Century up to the colonial period and includes traditions such as Icon and Letaba. One of the earliest dated Iron Age sites is located near Tzaneen (Silver Leaves). Iron Age occupation of the larger Steelpoort area seems to have taken place on a significant scale and of note is the Doornkop phase of the Early Iron Age. A thousand years ago this large and sophisticated community existed for hundreds of years in the Steelpoort area. Known to archaeologists as the “Doornkop phase” (named after the type site) of the Earlier Iron Age, these people are well-known for the extraordinary clay masks they produced, some of which was found on a site near Lydenburg. These settlements seem to have been followed at a slightly later date by settlements linked to the “Eiland Phase” of the EIA (c. AD 1000) which lasted well into the second millennium AD. Early Iron Age sites are generally our only source of evidence for the occupation of the area by early farming communities. As such these sites are important and they are viewed to have medium to high significance. The last period of pre-colonial occupation consisted of Pedi-, Swazi- and Ndebele-speaking people that settled on terraced sites at the foot on the mountains. A single decorated potsherd from Site IA5 displays motives similar to that of the Maloko ceramic tradition, which can be broadly associated with some of these groups. The last 500 years in the area were characterised by population movements, conflict, contact and change which largely resulted in the current population and demographic distribution in the area today. The resonance of these sites in contemporary history generally deems them of medium significance.

3.2.3 Later History: Reorganization, Colonial Contact and living heritage.

The Historical / Colonial Period in the Steelpoort area commenced roughly in the early 19th century with the arrival of the first white settlers. After negotiations between the Voortrekkers and the Pedi, the Steelpoort

River was set as border between the groups. However, tension soon followed which rapidly resulted to armed conflict, notably the so-called Sekhukhune Wars (1876, 1879) of which remnants are still to be found in the larger geographical region. Later, during the so-called Mapoch Wars (1863, 1883) resulting land-ownership conflicts were contested. In later years, farms were proclaimed, most of which were used only for winter grazing. This was followed by a period when farmsteads and road infrastructure developed. In recent years, the substantial mineral wealth of the area was realised, primarily resulting from seminal work by geologist Hans Merensky. The farm Thorncliffe and other farms in the area were proclaimed in 1890.

4 METHOD OF ENQUIRY

4.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

4.1.1 Desktop Study

A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies, archaeological and archival sources, aerial photographs, historical maps and local histories, all pertaining to the Steelpoort area and the larger landscape of this section of the Limpopo Province. The desktop study examined a number of archaeological and historical impact assessments conducted in the Steelpoort Valley and surrounds.

4.1.2 Aerial Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. The site assessment of the project area relied on this method to assist the foot and automotive site survey. Here, depressions, variation in vegetation, soil marks and landmarks were examined and specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. In addition, historical aerial photos obtained during the archival search were scrutinized and features that were regarded as important in terms of heritage value were identified and if they were located within the boundaries of the project area they were physically visited in an effort to determine whether they still exist and in order to assess their current condition and significance. By superimposing high frequency aerial photographs with images generated with Google Earth as well as historical aerial imagery, potential sensitive areas were subsequently identified, geo-referenced and transferred to a handheld GPS device. These areas served as reference points from where further vehicular and pedestrian surveys were carried out.

4.1.3 Mapping of sites

Similar to the aerial survey, the site assessment of the project area relied on archive and more recent map renderings of Malokela and Thorncliffe to assist the foot survey where historical and current maps of the project area were examined. By merging data obtained from the desktop study and the aerial survey, sites and areas of possible heritage potential were plotted on these maps of the larger Steelpoort region using GIS software. These maps were then superimposed on high-definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes.

4.1.4 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. Archaeological surveys of the Borwa Vent Shaft & Bulk Power Supply Project area were conducted in January and February 2022. The process encompassed a random field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. Particular focus was placed on GPS reference points identified during the aerial and mapping survey. Where possible, random spot checks were made and potentially sensitive heritage areas were investigated. Using a Garmin GPS, the survey was tracked and general surroundings were photographed with a Samsung Digital camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey.

4.1.5 General Public Liaison

Consultation with officials from Anglo who are familiar with the area in question assisted with the identification of heritage receptors in the project area.

4.2 Limitations

The site survey for the Borwa Vent Shaft & Bulk Power Supply Project AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the mapping and aerial survey) as well as areas of potential high human settlement catchment. In terms of on-site limitations during the survey, the following should be noted:

- The project area is accessed via a mine service roads and access control was arranged for the site assessment and no access restrictions onto the site were encountered during the site visit.
- The surrounding vegetation in the project area mostly comprised out of dense tree cover and mountain vegetation with pioneering species occurring in places and the general visibility at the time of the site inspection (January and February 2022) proved to be a constraint in the project area.

Cognisant of the constraints noted above, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.



Figure 4-1: View of the project area along an access road on a high mountain slope.



Figure 4-2: View of an eroded access road and general surroundings in the project area.



Figure 4-3: View of an burnt vegetation and an exposed rock face in the project area.



Figure 4-4: View of general surroundings in the project area.



Figure 4-5: View of existing access roads in the project area.



Figure 4-6: View of an exposed rock face and vegetation cover in the project area.



Figure 4-7: View of dense mountain slope vegetation in the project area.



Figure 4-8: View of surfaces cleared for prospecting in the project area.



Figure 4-9: View of dense vegetation in the project area.



Figure 4-10: View of erosion gullies and dongas in the project area.

4.3 Impact Assessment

For consistency among specialists, impacts were rated and assessed using an Impact and Risk Assessment Methodology provided by CES¹, for the Scoping Phase of the EIA process in accordance with the requirement of EIA Regulations. **Please refer to Section 6 and Addendum 2.**

5 RESULTS: HERITAGE SURVEY

5.1 The Off-Site Desktop Survey

In terms of heritage resources, the general landscape around the project area is primarily well known for its Iron Age Farmer and Colonial / Historical Period archaeology related to farming, rural expansion and warfare of the past century. No particular reference to archaeological sites or features of heritage potential were recorded during an examination of published literature thematically or geographically related to the Malokela and Thorncliffe property.

An analysis of historical aerial imagery and archive maps reveals the following (see Figure 5-1 to Figure 5-6):

- The farm St. George, which was later subdivided to form the Farms Malokela and Thorncliffe, was established towards the end of the 19th century.
- The farm Thorncliffe is indicated on an early map of the Transvaal region (Jeppe, 1899).
- No man-made structures are indicated within the project area on a topographic map of the area dating to 1969 but crop fields are noted on the map.
- Aerial imagery dating to 1954, 1964 and 1970 indicate small and isolated settlements and agricultural fields on portions of Malokela and Thorncliffe - and particularly areas subject to this assessment. Possible buildings and potential man-made structures appear to exist within the project area on these images.
- It is evident from later aerial imagery that the landscape has been altered by more recent mining activities.
- Van Warmelo (1935) indicates a large number of Sotho and Swazi (Ndzunza) groups residing in and around the Steelpoort and the project area in 1935.

¹ CES Risk Assessment Methodologies Internal guideline document, 2019

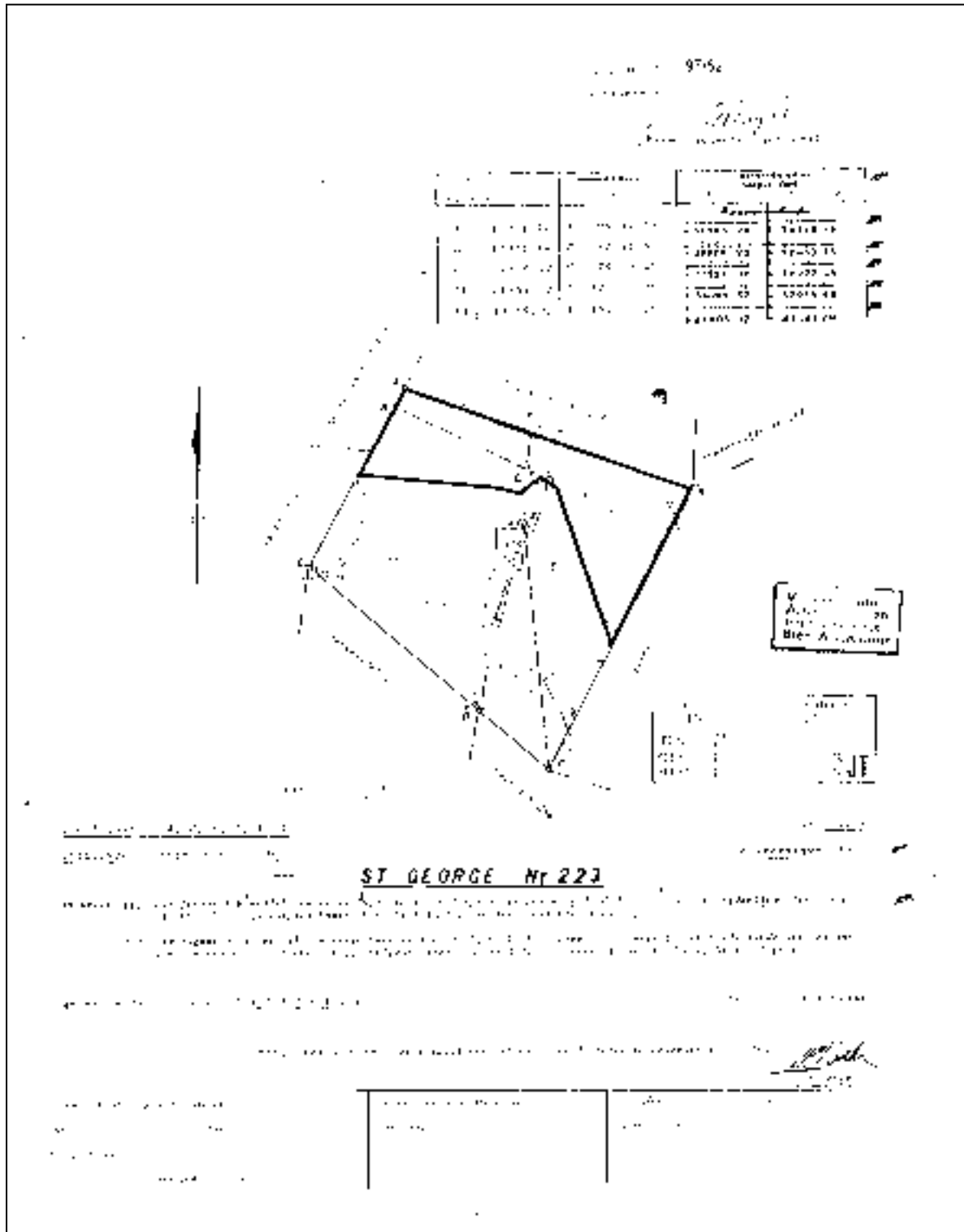


Figure 5-1: A title deed for the farm St. George dating to 1951.



Figure 5-2: Historical map of the old Transvaal region dating to 1899 (Jeppe) indicating the presence of the farm Thorncliffe (yellow outline) at the time.

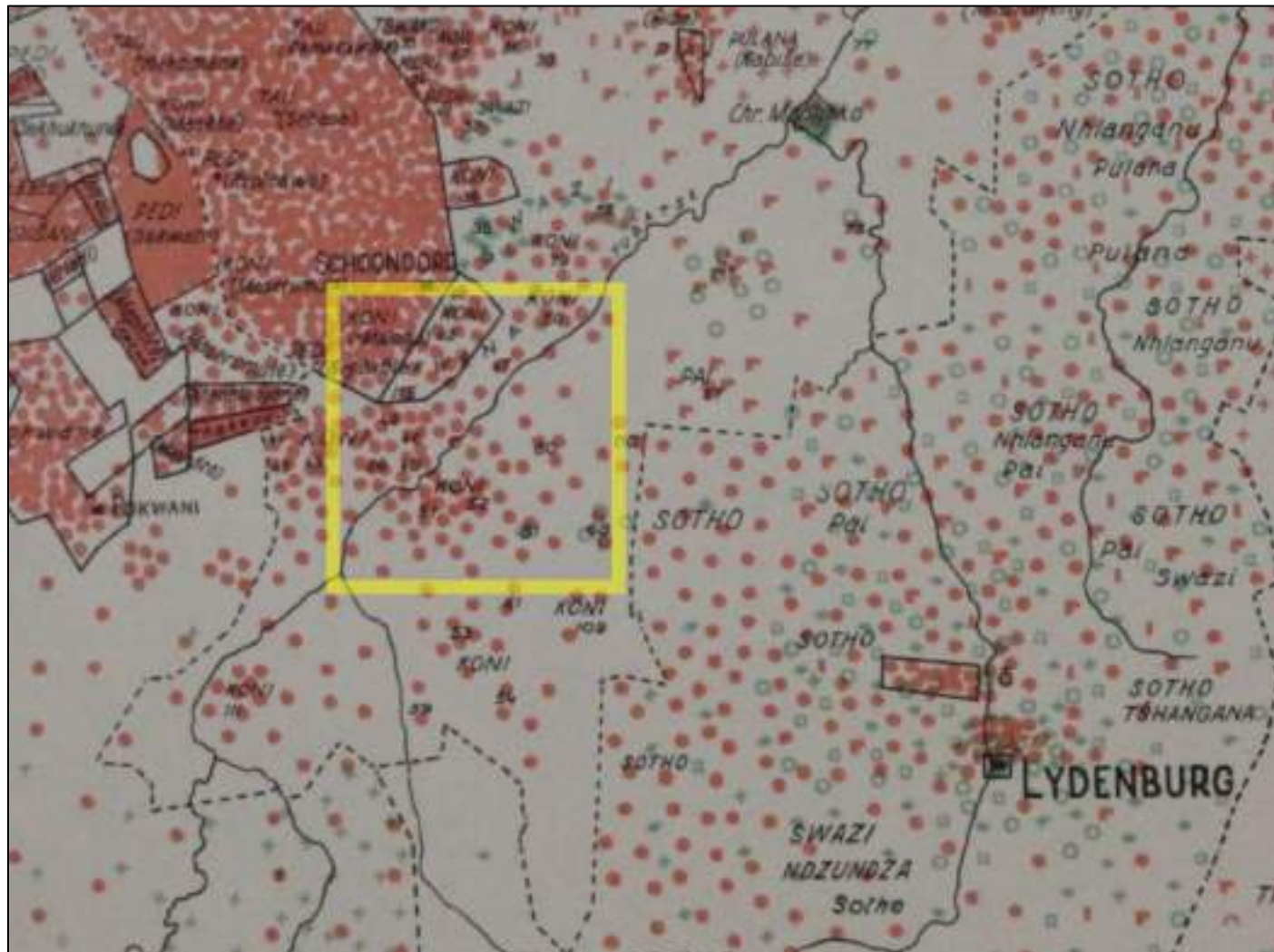
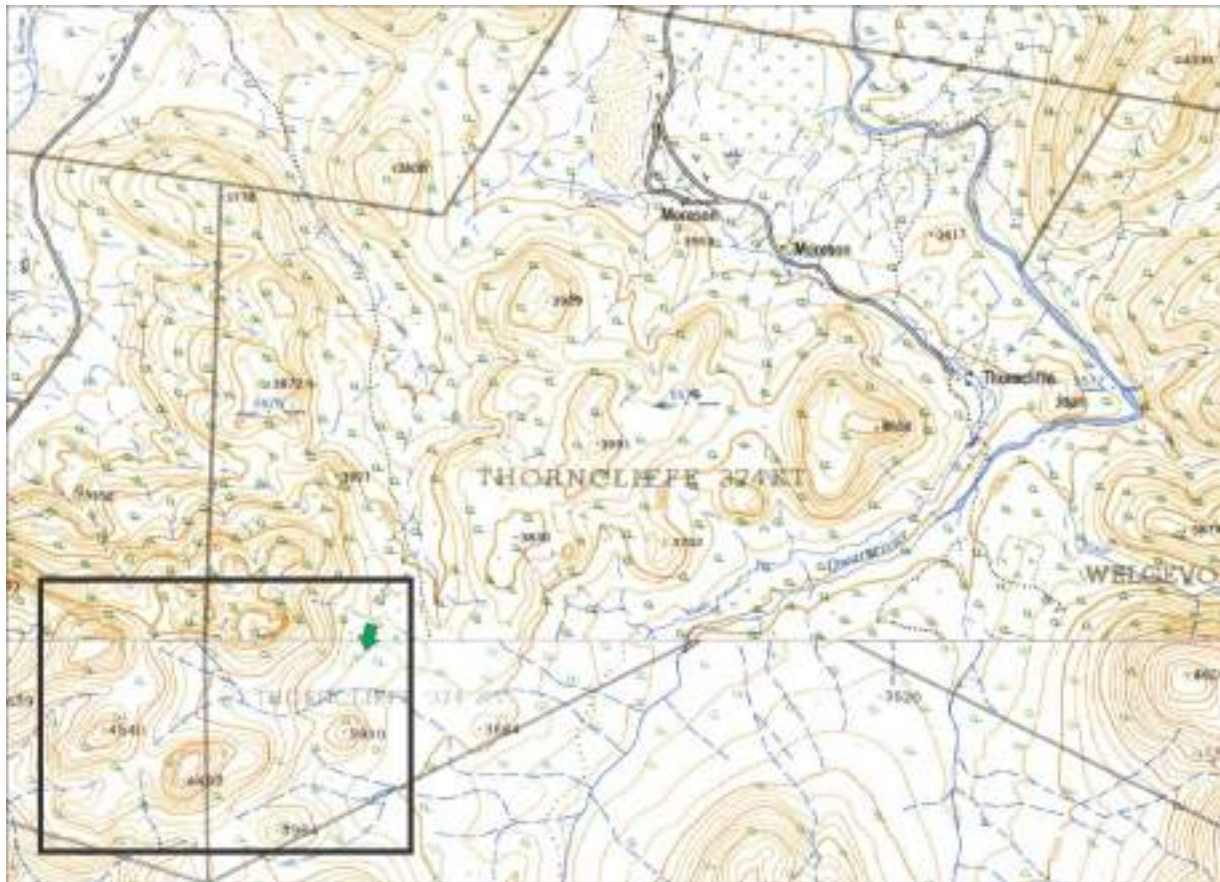


Figure 5-3: An excerpt of Van Warmelo’s Map of the project landscape (the project area is indicated by the yellow block) dating to 1935. Each red dot represents “10 taxpayers”. Note that the larger landscape was relatively densely populated by Sotho and Swazi (Ndzunza) groups groups at the time.



VERKLARING		REFERENCE	
Magnetiese Stasies en Grootstasies	.....	Magnetiese Stasies en Grootstasies	.....
Stasies	.....	Stasies	.....
Moonstasies	.....	Moonstasies	.....
Spoorlyn	.....	Spoorlyn	.....
Wagwag	.....	Wagwag	.....
Mura	.....	Mura	.....
Grondwateringspys	.....	Grondwateringspys	.....
Ulyswatrig	.....	Ulyswatrig	.....
Stadswaterende Water	.....	Stadswaterende Water	.....
Wêreldwaterende Water	.....	Wêreldwaterende Water	.....
Stoel Pannas	.....	Stoel Pannas	.....
Fontein, Watergate en Pulp	.....	Fontein, Watergate en Pulp	.....
Stasies en Yers	.....	Stasies en Yers	.....
Pyplyn	.....	Pyplyn	.....
Kontakstasies	.....	Kontakstasies	.....
Uitvalende Ryspaaie	.....	Uitvalende Ryspaaie	.....
Telwasse	.....	Telwasse	.....
Bewassings Lande	.....	Bewassings Lande	.....
Boske en Vingerke	.....	Boske en Vingerke	.....
Bome en Bos	.....	Bome en Bos	.....
Internasionale Grense	.....	Internasionale Grense	.....
Provinciale Grense	.....	Provinciale Grense	.....
Verkeerslyn Spoorlyn	.....	Verkeerslyn Spoorlyn	.....
Ekspresspoorlyn	.....	Ekspresspoorlyn	.....
Keelwagwag Spoorlyn	.....	Keelwagwag Spoorlyn	.....
Stasiespoorlyn	.....	Stasiespoorlyn	.....
Distrikspoorlyn	.....	Distrikspoorlyn	.....
Nasionale Paaie	.....	Nasionale Paaie	.....
Hofpaaie	.....	Hofpaaie	.....
Sekondêre Paaie	.....	Sekondêre Paaie	.....
Andere Paaie	.....	Andere Paaie	.....
Dorpe Paaie en Voetspaaie	.....	Dorpe Paaie en Voetspaaie	.....
Kraglyn	.....	Kraglyn	.....
Telefoon- en Telegraflyn	.....	Telefoon- en Telegraflyn	.....
Plaas- en Telegraflyn, Huis- stasies en -stasies, Winkels, Hotelle, Skole en Plaas van Aankomsing	.....	Plaas- en Telegraflyn, Huis- stasies en -stasies, Winkels, Hotelle, Skole en Plaas van Aankomsing	.....
Verligting en Sieningslig	.....	Verligting en Sieningslig	.....
Bewassingspys	.....	Bewassingspys	.....
Dinamiese Stasies (Stasies met 1000 volt)	.....	Dinamiese Stasies (Stasies met 1000 volt)	.....

Figure 5-4: A historical topographic map of Malokela and Thorncliffe dating to 1968 indicating the location of the project area (black outlines) in the past decades. The green arrow indicates agricultural lands. Note the general absence of man-made structures indicated within the project area at the time.

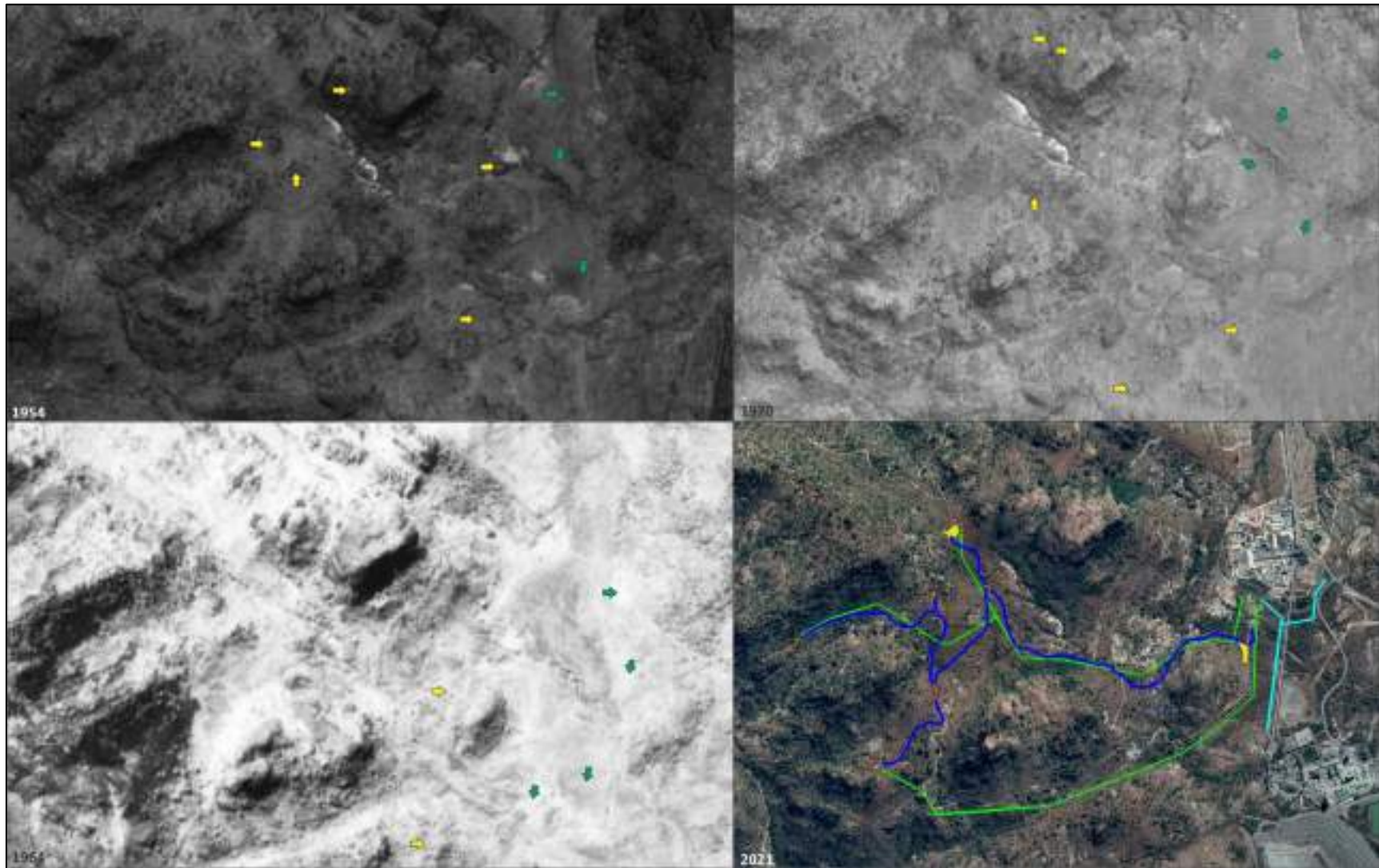


Figure 5-5: A series of historical aerial images of the project site on Malokela and Thorncliffe. Yellow arrows indicating potential man-made structures or features and green arrows indicate crop fields.

5.2 The Archaeological Site Survey

An analysis of historical aerial imagery and archive maps of areas subject to this assessment suggests a landscape that has been subjected to more recent mining activities possibly sterilising the area of heritage remains. This inference was confirmed during an archaeological site assessment but a single heritage site was nonetheless encountered. The following observations were made during the site survey:

- The Stone Age

Stone Age material generally occurs along drainage lines and exposed surfaces in the landscape. During the site survey no Stone Age occurrences were documented in the proposed project development areas.

- The Iron Age Farmer Period

A frontier zone between the east and the west, the Northern Limpopo landscape holds vast amounts of Iron Age (Farmer period) remnants but no Farmer Period occurrences were noted in the proposed project development areas.

- Historical / Colonial Period and recent times

Steelpoort and its surroundings have a long and extensive Colonial Period settlement and mining history. From around the first half of the 19th century, the area was frequented by explorers, missionaries and farmers who all contributed to a recent history of contact and conflict. The remnants of recent occupation and mining are scattered across the landscape and probable Historical / Colonial Period occurrences were observed in the proposed project development areas.

- Historical Period Settlement (S25.00477° E30.10840°)

Site EXIGO-TC374-HP01

A Historical Period settlement area was documented in the project area along a site access road to be upgraded and within an area demarcated for the construction of the power line ("Structure Point 4" in particular). Here, a number of round and square stone wall enclosures, stonewall foundations and terraces as well as a lower grindstone and ash middens were noted. Material culture such as glass and metal fragments were noted on the surface. An absolute temporal context, function or provenience for the site is not known but, considering the presence of glass and metal the site probably date to the later Historical Period. The general preservation of the feature and its structural integrity is poor due to site disturbances as well as deterioration due to natural processes. The site, which is of medium-low heritage significance due to its poor preservation and the general absence of site context, occurs in proposed project development areas and direct impact on the site is expected.



Figure 5-6: View of stone wall enclosures at Site EXIGO-TC374-HP01.



Figure 5-7: Stone foundations features at Site EXIGO-TC374-HP01.



Figure 5-8: A lower grind stone (left) and ash midden (right) at Site EXIGO-TC374-HP01.

- **Historical Period settlement (S25.00567° E30.10458°)**
Site EXIGO-TC374-HP02

A possible Historical Period settlement area was documented in the project area along an area demarcated for the construction of the power line (“Structure Point 6” in particular). At the site, a large stone cairn, a lower grindstone and an ash midden containing material culture such as glass and metal fragments were noted. An absolute temporal context, function or provenience for the site is not known but, considering the presence of glass and metal the site probably date to the later Historical Period. The general preservation of the feature and its structural integrity is poor due to site disturbances as well as deterioration due to natural processes. The site, which is of medium-low heritage significance due to its poor preservation and the general absence of site context, occurs in proposed project development areas and direct impact on the site is expected.



Figure 5-9: View of stone features on the surface at Site EXIGO-TC374-HP02.



Figure 5-10: View of a broken lower grindstone and a large stone cairn at Site EXIGO-TC374-HP02.

- **Other sites / features (S24.99988° E30.09666°)**
Site EXIGO-TC374-FT01

During the survey, a large stone cairn occurring under a tree within a proposed vent shaft platform was pointed out by a mine employee. It was noted that the site indicates a site of ritual importance to local communities. No other features or material culture were noted in association with the structure. The site, which is of possibly of medium heritage significance due to its implied local social and ritual value, occurs in proposed project development areas and direct impact on the site is expected.



Figure 5-11: View of the stone cairn under a tree at a presumed ritual site (Site EXIGO-TC374-FT01).



Figure 5-12: Aerial map indicating the location of the heritage site discussed in the text.

6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

6.1 Potential Impacts and Significance Ratings²

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of Addendum 3.

6.2 General assessment of impacts on heritage resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, of any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

6.2.1 Issues Identification Matrix

As noted previously, impacts were rated and assessed using an Impact and Risk Assessment Methodology provided by CES, for the Scoping Phase of the EIA process in accordance with the requirement of EIA Regulations. **Please refer to Addendum 2.**

The following tables summarize impacts to heritage receptors for the proposed Borwa Vent Shaft & Bulk Power Supply Project.

² Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

Impact Assessment: Archaeology

Criteria	Nature	Temporal Scale	Spatial Scale	Severity	Probability	Overall Significance before mitigation	Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance after mitigation
Impact 1: Loss of Heritage Resources										
Without Mitigation	Negative	Short term	Study area	Slight	Definite	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE
With Mitigation	Negative	Short term	Study area	Slight	Definite	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE

Impact Assessment: Built Environment

Criteria	Nature	Temporal Scale	Spatial Scale	Severity	Probability	Overall Significance before mitigation	Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance after mitigation
Impact 1: Loss of Heritage Resources										
Without Mitigation	Negative	Short term	Study area	Slight	Definite	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE
With Mitigation	Negative	Short term	Study area	Slight	Definite	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE

Impact Assessment: Cultural Landscape

Criteria	Nature	Temporal Scale	Spatial Scale	Severity	Probability	Overall Significance before mitigation	Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance after mitigation
Impact 1: Loss of Heritage Resources										
Without Mitigation	Negative	Permanent	Regional	Severe/ Beneficial	Definite	HIGH NEGATIVE	Irreversible	Resource will be lost	Achievable	HIGH NEGATIVE
With Mitigation	Negative	Short term	Study area	Slight/ Slightly Beneficial	Unlikely	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE

Impact Assessment: Human Burial Sites

Criteria	Nature	Temporal Scale	Spatial Scale	Severity	Probability	Overall Significance before mitigation	Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance after mitigation
Impact 1: Loss of Heritage Resources										
Without Mitigation	Negative	Short term	Study area	Slight	Definite	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE
With Mitigation	Negative	Short term	Study area	Slight	Definite	LOW NEGATIVE	Irreversible	Resource will not be lost	Achievable	LOW NEGATIVE

6.3 Evaluation of Impacts

Previous studies conducted in the Limpopo Province and the Steelpoort suggest a rich and diverse archaeological landscape. Generally, the area is highly suitable for pre-colonial habitation and, even though the project area contains no visible tangible heritage remains, the probability of exposing archaeological remains that might be present in surface and sub-surface deposits along drainage lines and in pristine areas during development should not be excluded.

Heritage resources ranging in significance from medium-low to medium occur inside and in the vicinity of the proposed Borwa Vent Shaft & Bulk Power Supply Project footprints. However, it is the opinion of the author of this Archaeological Impact Assessment Report that the proposed Borwa Vent Shaft & Bulk Power Supply Project on portions of the farm Thorncliffe 374 KT may proceed from a culture resources management perspective, provided that mitigation measures are implemented and no previously undetected heritage remains are found at any point in construction and operational phases

6.3.1 Archaeology

The project area is situated in a rich archaeological landscape with Stone Age and Iron Age remnants occurring throughout. The study identified single Historical Period archaeological features which will be directly impacted by the proposed project but these occurrences are of low significance. As such, the impact on the resources is considered to be LOW, provided that no previously undetected archaeological remains are found in the area.

6.3.2 Built Environment

The study did not identify any buildings or structures which will be impacted by the proposed project. This is confirmed by an examination of aerial photographs of the area. No impact on built environment sites is therefore anticipated.

6.3.3 Cultural Landscape

The larger Steelpoort area comprises a rich cultural landscape and tangible and intangible heritage aspects associated with local communities are abundant. A site of apparent ritual importance to local communities occurs in the project area. The stone feature is of medium heritage significance due to its implied local social and ritual value and direct impact on the site is expected to be HIGH but the impact can be mitigated to a LOW impact. Generally, the general landscape surrounding the proposed project areas have been transformed by mining, human settlement and agriculture. Further away from the project area, the landscape is typical of Sekhukhune, with large areas of undulating hills, large mountains to the south and north and flatter plains in-between. This landscape stretches over many kilometres and the proposed project is unlikely to result in a significant impact on the landscape.

6.3.4 Graves / Human Burials Sites

No graves of human burial places were noted during the site investigation but it is likely that graves might occur in association with the Historical Period settlement areas and there is a possibility that burials might be encountered. In the rural areas of the Limpopo Province graves and cemeteries sometimes occur within settlements or around homesteads but they are also randomly scattered around archaeological and historical settlements. The probability of additional and informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result

of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface.

Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

6.4 Management actions

Recommendations for relevant heritage resource management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of Addendum 3.

OBJECTIVE: ensure conservation of heritage resources of significance, prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

The following recommendations are made for the Historical Period Features of medium-low significance (Site EXIGO-TC374-HP01, Site EXIGO-TC374-HP02) and located within project development areas.

PROJECT COMPONENT/S	All phases of construction and operation.		
POTENTIAL IMPACT	Damage/disturbance to sites and subsurface features and deposits.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
MITIGATION: TARGET/OBJECTIVE	To the historical fabric and conserve existing, and locate undetected heritage remains as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME	
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)			
Destruction Permitting: Apply for destruction permit if impacted on.	QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.	
Fixed Mitigation Procedure (required)			
Site Monitoring: Regular examination of trenches and excavations.	ECO	Monitor as frequently as practically possible.	
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		

The following recommendations are made for the potentially significant ritual site occurring in the project area (Site EXIGO-TC374-FT01) in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction and operation.		
POTENTIAL IMPACT	Damage/disturbance to subsurface burials and surface burial features.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
MITIGATION: TARGET/OBJECTIVE	To locate human burials as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME	
Preferred Mitigation Procedure			
Avoidance & Redesign: Implement a strict heritage conservation buffer of at least 50m around the feature, redesign the footprint area (ventilation shaft platform, borrow pit, access road, power line) to avoid the heritage resource and the proposed conservation buffer. Fence the site and apply access control.	DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving, monitoring during construction.	
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)			
Destruction Permitting: If impacted on, conduct full social consultation process with affected parties regarding significance of site, possible conservation management and protection measures. Apply for destruction permit from heritage authorities and affected parties if/when required.	QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.	
Fixed Mitigation Procedure (required)			
Site Monitoring: Regular examination of trenches and excavations in this area in order to avoid the destruction of previously undetected burials or heritage remains. If burials were to be retained a strict site management and monitoring protocol will be required (planning, construction phases).	ECO	Monitor as frequently as practically possible.	
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		



Figure 6-8: Aerial map indicating recommended mitigation measures and possible alternative positions for infrastructure around Site EXIGO-TC374-FT01 and the required conservation buffer.

7 RECOMMENDATIONS

Previous studies conducted in the Steelpoort region suggest a rich and diverse archaeological landscape but the surroundings of some of the areas in the proposed Borwa Vent Shaft & Bulk Power Supply Project have been transformed by mining, prospecting and other developments. Cognisance should nonetheless be taken of archaeological material that might be present in surface and sub-surface deposits along drainage lines and in pristine areas. Heritage resources occur within the proposed project areas and the following recommendations are made based on general observations.

- The remains of two Historical Period settlement areas consisting out of stone wall enclosures, lower grind stones, middens and material culture such as glass and metal (as **Site EXIGO-TC374-HP01** and **Site EXIGO-TC374-HP02**) are of medium-low significance due to the more recent provenience and poor preservation of the sites. The sites occur within proposed project development areas and it is recommended that the general area be closely monitored in order to avoid the destruction of previously undetected heritage remains – particularly potential burials associated with the settlements. In addition, application should be made for a destruction permit from the relevant heritage authorities should the possible Historical Period site be impacted on, altered or destroyed.
- The larger Steelpoort area comprises a rich cultural landscape and tangible and intangible heritage aspects associated with local communities are abundant. A site of apparent ritual importance to local communities occurs in the project area (**Site EXIGO-TC374-FT01**). The site, which consists of a stone cairn under a tree is potentially of medium heritage significance due to its implied local social and ritual value . It is located within proposed project development areas and it is primarily recommended that a strict heritage conservation buffer of at least 50m be implemented around the feature. Here, the redesign the footprint areas of the ventilation shaft platform, borrow pit, access road and power lines would be necessary to avoid the heritage resource and the proposed conservation buffer. It is advisable that the site be fenced and that access control be applied. Generally, careful monitoring should be conducted by a heritage specialist or an informed Environmental Control Officer (ECO) in order to detect any potential impact on the site at the earliest opportunity. However, should impact on the site prove inevitable a full social consultation process with affected parties / communities regarding significance of site, possible conservation management and protection measures will be required. Application should be made for a destruction permit from heritage authorities and affected parties if/when required.
- It is essential that cognisance be taken of the larger heritage landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period. As such, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.

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9 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

9.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

9.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

d. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority-

- (d) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (e) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

- (f) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (g) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (h) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- (i) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (j) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

e. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

9.1.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a

development categorised as:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site:
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.”

And:

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (k) The identification and mapping of all heritage resources in the area affected;
- (l) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
- (m) an assessment of the impact of the development on such heritage resources;
- (n) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- (o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64).”

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60

years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation.

9.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

- Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

- *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

- *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

- *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

- *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

Formally protected sites:

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 60 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

10 ADDENDUM 2: IMPACT ASSESSMENT METHODOLOGY

10.1.1 Issues Identification Matrix

impacts were rated and assessed using an Impact and Risk Assessment Methodology provided by CES, for the Scoping Phase of the EIA process in accordance with the requirement of EIA Regulations. Here, two parameters and five factors are considered when assessing the significance of the identified issues, and each is scored. **Significance** is achieved by ranking the five criteria presented in Table 1 below, to determine the overall significance of an issue. The ranking for the “effect” (which includes scores for duration; extent; consequence and probability) and reversibility / mitigation are then read off the matrix presented in Table 2 below, to determine the overall significance of the issue. The overall significance is either negative or positive.

- **Duration** - The temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.

- **Extent** - The spatial scale defines the physical extent of the impact.

- **Consequence** - The consequence scale is used in order to, as far as possible, objectively evaluate how severe a number of negative impacts associated with the issue under consideration might be, or how beneficial a number of positive impacts associated with the issue under consideration might be.

- The **probability** of the impact occurring - The likelihood of impacts taking place as a result of project actions arising from the various alternatives. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development and alternatives. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.

- **Reversibility / Mitigation** – The degree of difficulty of reversing and/or mitigating the various impacts ranges from easily achievable to very difficult. The four categories used are listed and explained in Table 1 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

10.1.2 Assessing Impacts

The CES rating scale used in this assessment takes into consideration the following criteria, and includes the new criteria for assessing post mitigation significance (residual impacts), by incorporating the principles of reversibility and irreplaceability:

- **Nature of impact** (Negative or positive impact on the environment).
- **Type of impact** (Direct, indirect and/or cumulative effect of impact on the environment).
- **Duration, Extent, Probability** (see Table below)

Duration (Temporal Scale)		Score
Short term	Less than 5 years	1
Medium term	Between 5-20 years	2
Long term	Between 20 and 40 years (a generation) and from a human perspective also permanent	3
Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there	4
Extent (Spatial Scale)		
Localised	At localised scale and a few hectares in extent	1
Study Area	The proposed site and its immediate environs	2
Regional	District and Provincial level	3
National	Country	3
International	Internationally	4
Probability (Likelihood)		
Unlikely	The likelihood of these impacts occurring is slight	1
May Occur	The likelihood of these impacts occurring is possible	2
Probable	The likelihood of these impacts occurring is probable	3
Definite	The likelihood is that this impact will definitely occur	4

- Severity or benefits

Impact Severity		Score
<i>(The severity of negative impacts, or how beneficial positive impacts would be on a particular affected system or affected party)</i>		
Very severe	Very beneficial	4
An irreversible and permanent change to the affected system(s) or party(ies) which cannot be mitigated. For example the permanent loss of land.	A permanent and very substantial benefit to the affected system(s) or party(ies), with no real alternative to achieving this benefit. For example the vast improvement of sewage effluent quality.	
Severe	Beneficial	3
Long term impacts on the affected system(s) or party(ies) that could be mitigated. However, this mitigation would be difficult, expensive or time consuming, or some combination of these. For example, the clearing of forest vegetation.	A long term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit would be difficult, expensive or time consuming, or some combination of these. For example an increase in the local economy.	
Moderately severe	Moderately beneficial	2
Medium to long term impacts on the affected system(s) or party (ies), which could be mitigated. For example constructing the sewage treatment facility where there was vegetation with a low conservation value.	A medium to long term impact of real benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are equally difficult, expensive and time consuming (or some combination of these), as achieving them in this way. For example a 'slight' improvement in sewage effluent quality.	
Slight	Slightly beneficial	1
Medium or short term impacts on the affected system(s) or party(ies). Mitigation is very easy, cheap, less time consuming or not necessary. For example a temporary fluctuation in the water table due to water abstraction.	A short to medium term impact and negligible benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are easier, cheaper and quicker, or some combination of these.	
No effect	Don't know/Can't know	
The system(s) or party(ies) is not affected by the proposed development.	In certain cases it may not be possible to determine the severity of an impact.	

* In certain cases it may not be possible to determine the severity of an impact thus it may be determined: Don't know/Can't know

The scores for the three criteria in the Tables above are added to obtain a composite score. They must then be considered against the severity rating to determine the overall significance of an activity. This is because the severity of the impact is far more important than the other three criteria. The overall significance is then obtained by reading off the matrix presented in the table below. The overall significance is either negative or positive (Criterion 1) and direct, indirect or cumulative (Criterion 2).

		COMPOSITE DURATION, EXTENT & PROBABILITY SCORE									
		3	4	5	6	7	8	9	10	11	12
SEVERITY	Slight	3	4	5	6	7	8	9	10	11	12
	Mod severe	3	4	5	6	7	8	9	10	11	12
	Severe	3	4	5	6	7	8	9	10	11	12
	Very severe	3	4	5	6	7	8	9	10	11	12

The **environmental significance** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

OVERALL SIGNIFICANCE (The combination of all the above criteria as an overall significance) ...	
VERY HIGH NEGATIVE	VERY BENEFICIAL
<p>These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.</p> <p>Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.</p> <p>Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.</p>	
HIGH NEGATIVE	BENEFICIAL
<p>These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.</p> <p>Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.</p> <p>Example: The change to soil conditions will impact the natural system, and the impact on affected parties (such as people growing crops in the soil) would be HIGH.</p>	
MODERATE NEGATIVE	SOME BENEFITS
<p>These impacts will usually result in medium to long term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are real but not substantial.</p> <p>Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.</p>	
LOW NEGATIVE	FEW BENEFITS
<p>These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.</p> <p>Example: The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.</p> <p>Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people who live some distance away.</p>	
NO SIGNIFICANCE	
<p>There are no primary or secondary effects at all that are important to scientists or the public.</p> <p>Example: A change to the geology of a particular formation may be regarded as severe from a geological perspective, but is of NO significance in the overall context.</p>	
DON'T KNOW	
<p>In certain cases it may not be possible to determine the significance of an impact. For example, the primary or secondary impacts on the social or natural environment given the available information.</p> <p>Example: The effect of a particular development on people's psychological perspective of the environment.</p>	

10.1.3 Post Mitigation Significance

Once mitigation measure are proposed, the following criteria are then used to determine the overall post mitigation significance of the impact:

- Reversibility: The degree to which an environment can be returned to its original/partially original state.
- Irreplaceable loss: The degree of loss which an impact may cause.
- Mitigation potential: The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in Table 5 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

Reversibility	
<i>Reversible</i>	<i>The activity will lead to an impact that can be reversed provided appropriate mitigation measures are implemented.</i>
<i>Irreversible</i>	<i>The activity will lead to an impact that is permanent regardless of the implementation of mitigation measures.</i>
Irreplaceable loss	
<i>Resource will not be lost</i>	<i>The resource will not be lost/destroyed provided mitigation measures are implemented.</i>
<i>Resource will be partly lost</i>	<i>The resource will be partially destroyed even though mitigation measures are implemented.</i>
<i>Resource will be lost</i>	<i>The resource will be lost despite the implementation of mitigation measures.</i>
Mitigation potential	
<i>Easily achievable</i>	<i>The impact can be easily, effectively and cost effectively mitigated/reversed.</i>
<i>Achievable</i>	<i>The impact can be effectively mitigated/reversed without much difficulty or cost.</i>
<i>Difficult</i>	<i>The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs.</i>
<i>Very Difficult</i>	<i>The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly.</i>

11 ADDENDUM 3: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE

11.1 Site Significance Matrix

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa’s history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa’s natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa’s natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

11.2 Impact Assessment Criteria

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective, it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. site-specific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Impact Significance

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

11.3 Direct Impact Assessment Criteria

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
CONTEXT 1 High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
CONTEXT 2 Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
CONTEXT 3 Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
CONTEXT 4 Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected
NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.				
HERITAGE CONTEXTS		CATEGORIES OF DEVELOPMENT		
<p>Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p>Context 2: Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p>Context 3:</p>		<p>Category A: Minimal intensity development</p> <ul style="list-style-type: none"> - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m². <p>Category B: Low-key intensity development</p> <ul style="list-style-type: none"> - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m 		

<p>Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p>Context 4: Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<ul style="list-style-type: none"> - Building footprints between 1000m²-2000m² - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). <p>Category C: Moderate intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site between 5000m²-10 000m². - Linear development between 100m and 300m. - Building footprints between 2000m² and 5000m² - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) <p>Category D: High intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site in excess of 10 000m² - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m² or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)
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11.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p>No further action / Monitoring</p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p>Avoidance</p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p>Mitigation</p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p>Compensation</p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p>Rehabilitation</p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation. - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric. - Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource. <p>Enhancement</p>
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APPENDIX 9 – PUBLIC PARTICIPATION DOCUMENTATION

APPENDIX 9.1 - SITE NOTICES

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT

FOR THE PROPOSED DEVELOPMENT OF ANGLO VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations published in Government Notice R.982 in Government Gazette No 39282 of 04 December 2014, under Section 24(5) of the National Environmental Management Act 1998 (Act No 107 of 1998), as amended, of the intent to submit applications for the authorisation of the proposed development and associated water uses to the Department of Mineral Resources and Energy (DMRE), and the Department of Water and Sanitation (DHSWS), respectively.

Project Activity: Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga), in the Greater Tubatse Local Municipality, within the Sekhukune District Municipality, Limpopo Province. The proposed project requires a Basic Assessment to be conducted. Anglo American Platinum have appointed Coastal and Environmental Services (t/a CES) as the project Environmental Assessment Practitioner (EAP).

In terms of the EIA regulations, the proposed development will require a Basic Assessment. A Water Use Authorisation (WUA) will also be applied for under the National Water Act, Section 21 (Act No 36 of 1998). Anglo American Platinum (Pty) Ltd has appointed Coastal and Environmental Services (CES) to undertake the authorisation processes and submit the applications to the abovementioned authorities.

You are hereby invited to register as an interested and affected party (I&AP).
If you have any comments or queries, or if you require further information, please contact:



Mr. Alex Ndlovu
Tel: (010) 045 1375 | Email: a.ndlovu@cesnet.co.za
PO Box 934, Grahamstown, 6140

APPENDIX D9.2 - INTERESTED AND AFFECTED PARTIES

LANDOWNER

	Affiliation		CONTACT DETAILS						
			Email address	Phone number (Home)	Phone number (Work)	Cell	Fax	Postal address	Physical address
CES									
Aidan Gouws	CES		a.gouws@cesnet.co.za		010 045 1372				
Corrie Retief	CES		corrie.retief@cesnet.co.za		087 549 1642				
Alex Ndlovu	CES		a.ndlovu@cesnet.co.za		010 045 1375				
Applicant									
Derick Horn	Anglo American Platinum		georg.horn@angloamerican.com						
Mahlogonolo Mengwai	Anglo American Platinum		mahlogonolo.mengwai@angloamerican.com						
Karabo Motene	Anglo American Platinum		karabo.motene@angloamerican.com						
Land Owner									
TAG_VALUE (Portion/Farm)	Name	Affiliation	Email	Phone number (Home)	Phone number (Work)	Cell	Fax	Postal	Physical
0/370	Rustenburg Platinum Mines	Media	emma.chapman@angloamerican.com / mpumi.sithole@angloamerican.com						
0/374	Glencore Operations SA	Environmental Officer	david.paila@glencore.co.za / thea.botha@glencore.co.za						
7/374	Glencore Operations SA	Environmental Officer	david.paila@glencore.co.za / thea.botha@glencore.co.za						

SMMEs

No	Business Name	CIPC Reg. no	Contact Person	Contact no.	email address	Vendor no. if any	Community/Village	Business Forum	BEE Status %	Business interest 1	Business interest 2
	<i>Mighty Mmutla Enterprise</i>	<i>2020/12345</i>	<i>Peter Mmutla</i>	<i>.0767771122</i>	<i>123@abc.com</i>	<i>v1234</i>	<i>Kutullo</i>	<i>Ngwaabe bus forum</i>	<i>Black Owned, Youth Owned, Women Owned %</i>	<i>Civil</i>	<i>Stationery</i>
1	Moshupjadi Mogale Pty Ltd	2017/041943/07	Deborah	079 596 5130	nthabimaimela@gmail.com	None	St George	Ga Mawela	100% Black Owned,	Civil works	General Cleaning
2	Mapogo Projects	2019/81753/07	Ernest Manamela	082 817 7220	maernie72@gmail.com	None	Steelpoort-Longtill	Steelpoort Bus Forum	100% Black Owned,	Mining Supplies	Supplies
3	Phetolo Construction	2018/057569/07	Mapule Maphaka	076 557 2621	phetolocon@gmail.com	None	Tukakgomo	Longtill Forum	100% Black Women Owned	HDPE Pipes	Scaffolding
4	Sebiting	2018/5282/07	Johannes Makogare	072 221 5736	sebitingpty@gmail.com	None	Ga-Phasha	Ga-Phasha	100% Youth Owned	Engineering	Civil
5	Green Horizon Consulting	2015/059113/07	Lerato Boshigo	071 396 6270	lerabosh@gmail.com	None	Longtill	None	135% Black Women Owned,	IT Services	Business Consulting Services (Finance & HR)
6	Motsekule Trading & Projects (Pty) Ltd	2019/319466/07	Phillimon Phetla	071 859 5826	motsekule@gmail.com	None	Moletsi	Bakokin ba Dithabeng tsa Moletsi Business Forum	100% Black Owned,	Garden Services	Transport Services
7	Ntoese Kgomo Trading and Projects	2015/444853/07	Hamilton Theledi	078 131 2863	ntoesekgomotrading@outlook.com	None	Mapodile	None	100% Black Owned,	Civil	Electrical
8	Lerakong Trading	2009/146226/23	Jungle Mabelane	072 668 3525	pjmabelane@gmail.com	Y28849	Ga-Phasha	None	100% Black Owned,	Civil	Electrical
9	3rd Alternative Solution	2013/123071/07	Elvis Ntsoane	082 632 6299	elvism.ntsoane@gmail.com	Y99978	Pakaneng	None	100% Black Owned,	Civil works	Engineering
10	Moetlo Makgagudi	2019/333225/07	Daniel Mokota	072 837 5687	mabokolc@gmail.com	None	Ga-Masha	Baroka Ba Masha Nkotwane	100% Black Owned,	Maintenance services	Construction services
11	Tshepamotheo 211 Trading	2009/145761/23	Tshepo Makuwa	061 407 8346	tshepo.makuwa1@gmail.com	None	Pakaneng	None	100% Black Owned,	General supply	Maintanace
12	Tiisa Manufacturing	2012/209735/07	Dumetse Masha	082 685 6233	dumetse@tiisa.co.za	None	Nokaneng	Nokaneng Business Forum	100% Black Owned,	Steel works and piping	Civil construction
13	Taute Engineering PTY Ltd	2019/009636/07	Patrick Tau	072 568 6955	admin@tauteeng.co.za	None	Kutullo	None	100% Black Owned,	Facricatio, Welding	Rolls
14	JJ and TS Pty Ltd	2019/578929/07	Tiego Maphanga	066 393 6101	jitsptyltd@gmail.com	None	Ga-Phasha	None	100% Black Owned,	Logistics	Renovation
15	Triple Best Holding	2015/314948/07	Thapelo Mmushi	081 871 2778	triplebestholdings@gmail.com	None	Ga-Maphopha	Ngwaabe bus forum	100% Black Owned,	Building construction	Electrical and Mechanical maintainance
16	Legwere Projects	2016/402273/07	Fenya Maabane	082 442 0146	-	None	Kutullo	None	100% Black Owned,	Reclamation	Laundry Services
17	Lehludi le Lehubedu	2016/487109/07	Mpho Malekane	076 071 2164	malekanems1@gmail.com	None	Kutullo	None	135% Black Owned,	Plant cleaning and maitanance	Mining and Engineering

18	Molopo Marobe Nkapiane Construction	2020/1646 08/07	Lucky Moshia	072 143 1225	moshialucky@gmail.com	None	Ngwaabe	Ngwaabe community development forum	100% Black Owned,	Cleaning	Supply
19	Letlapeng Mining and Projects	2019/3565 15/07	Seage Shadrack Sekele	076 286 6948	sekelesekele65@gmail.com	None	Tshufi (Booyesendal)	Tshufi	100% Black Owned,	Consumables supply and maintainance	Poultry and crop farming
20	Mmatlanke construction	2019/4078 70/07	Solly Tshehla	071 4635796	mmatlankeconstruction@gmail.com	None	Masha Phatane	Masha Phatane Community Forum	135% Black Owned,	Engineering construction	Logistics and mining equipment supply
21	Taba Engineering and Mining	2015/0866 22/07	German Taba	079 390 0335	info.tabaeic@gmail.com	None	Kutullo	Kutullo Core Community business Forum	135% Black Owned,	General construction	Supply of Mining consumables
22	Jaymes Architects and Associates	2013/1496 92/07	James Nkosi	083 306 3324	jaymes.nkosi@gmail.com	None	Stocking	None	135% Black Owned,	Building and Civil	Mining Supplier
23	Leraphale PTY Ltd	2017/4043 34/07	Lerato Motaung	065 839 0725	info.leraphale@gmail.com	None	Steelpoort	None	100% Black Owned,	Civil Engineering	Site maintainance and repairs
24	Isaanah construction	2018/0401 485/07	Prince Komane	076 158 5408	prince.marweshe.komane@gmail.com	None	Mapodile	Steelpoort cluster	135% Black Owned,	Construction	Maintanace
25	Ivanmalate Engineering Project Management	2007/1397 84/23	Ivana Ntladi	079 646 8110	ivanntladi@gmail.com	Y95680	Lydenburg/Shaga	None	100% Black Owned,	Construction,Electrical	Trasportation/Gardening
26	Manamane Holdings PTY Ltd	2018/0130 44/07	Lebogang Mogashoa	079 912 7608	manamaneholdings@gmail.com	None	Mampuru Diploteng	None	100% Black Owned,	General Supply	General cleaning services
27	Molokotsane Services PTY Ltd	2019/5302 68/07	Tebogo Leshaba	082 260 9651	tebogo.leshaba0@gmail.com	None	Moletsi village	Moletsi Business Forum	100% Black Owned,	Underground construction	Mining supply
28	Pro Malope Projects	2020/0257 76/07	Mosa Mokwana	076 315 4888	mokwana230@gmail.com	None	Ga-Rantho	None	100% Black Owned,		
29	Ngwanamogwashe Trading and Projects	2018/0052 67/07	Mahlodi Mahlare	071 436 7544	mahlodi20@gmail.com	None	Mohlakwena	None	135% Black Owned,	Mobile toilets VIP	General supply and Plumbing
30	E2 Trading and Project PTY Ltd	2016/3744 60/07	Evans Mabowa	060 873 0290	evansmaboa@gmail.com	None	Kutullo	Eastern Limp business forum	100% Black Owned,	Grass cutting	Oil,Gas,Fuel and Grease supply
31	Penesana Construction company	2007/2313 33/23	Lazarus Magakwe	079 170 5866	penesana@gmail.com	None	Kutullo	None	100% Black Owned,	Underground construction	Mining construction
32	Neo Giften Trading	2014/1969 26/07	Tebogo Nkwana	072 475 5964	tebogonkwana12@gmail.com	None	Moletsi	Mashishing United Business	100% Black Owned,	Engineering	Maintanance
33	Maleks Palace PTY Ltd	2018/5947 64/07	Thabiso Malekana	067 907 3794	moebaebethabiso@icloud.com	None	Ga-Malekana	None	135% Black Owned,	Civil and Building construction	Plumbing and Roofing
34	Langwaabe PTY Ltd	2019/4578 86/07	Steve Mabuza	072 049 9216	langwaabeprojects@gmail.com	None	Ga-Malekana	None	100% Black Owned,	Plant hire	Fuel supply
35	Bredten Multi-Purpose Primary Co-operative Limited	2020/0007 79/24	Nelson Tshehla, Brian Magapa, Eric Masha	082 053 3699, 076 023 2610, 071 590 6084	bredtenmp@gmail.com	None	Ga-Malekana	Bahlakwane Ba Malekane Community Structure	100% Black Owned,	Autorock and Rockdrills Repair	Engineering and Maintanance
36	Normag Mining and Logistics	2019/5761 17/07	Norman Marweshe	072 492 7361	normagminingandlogistics@gmail.com	None	Ga-Phasha	Bana Ba Mobu Business Forum	100% Black Owned,	Building construction	Underground work
37	Medsac Enterprise PTY Ltd	2017/3848 75/07	Brilliant Shoba	079 080 3064	bshoba@medsac.co.za	A01600	Mapodile	Bana Ba Mobu Business Forum	135% Black Owned,	Manufacturing	Supply
38	Kgelethu Costruction and Projects	2019/4072 71/07	Tumpu Bethuel Makgoga	076 724 6560	tb.makgoga@gmail.com	None	Ga-Phasha	Roka Phasha Phokwane	100% Black Owned,	Civil construction	Cleaning
39	Mamoshagela Projects PTY Ltd	2020/2256 26/07	Tshehla HP	082 789 6689	tshehlamatjane@gmail.com	None	Ga-Masha	Steel Bridge Business Chamber	100% Black Owned,	Engineering construction	Transport Services

40	WA diale trading and projects PTY Ltd	2015/3602 43/07	Colben Moukangwe	082 529 4824	tshetlo.cm@gmail.com	None	Mampuru	None	100% Black Owned,	Conveyor maintainance	Steel fabrication and maintanace
41	Jimumo PTY Ltd	2019/3326 17/07	Maboko Johanna	076 249 0377	mabokobusi@gmail.com	None	Ga-Rantho	None	100% Black Owned,	Cleaning	Transport Services
42	Ngwato a Mohlogopela Trading and Projects	2016/0597 49/07	Ngwato Mankge	071 278 9380	mankgem6@gmail.com	None	St George Farm	None	100% Black Owned,	Civil Engineering	General construction
43	Profecient Holding Company PTY Ltd	2017/1930 50/07	Given Mnisi	076 769 0880	profecientholdings@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	Engineering and mining services	Civil and building construction
44	Ngwanaphala Trading and Project	2016/3465 06/07	Peter Mathunyane	079 670 2328	ptmathunyane@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	General cleaning	Civil construction
45	Ditlhakaneng	2017/2131 12/07	Senyeki Mankge	072 822 1662	senyeki.jim@gmail.com	None	Ga-Mawela	St George CPA	135% Black Owned,	Building construction	Recycling
46	Sekgogo Projects PTY Ltd	2016/4729 07/07	Phatlane Mahlaela	071 179 9127	mahlaelamps@gmail.com	None	Kutullo	None	100% Black Owned,	Civil construction	General supply and maintanace
47	Always Trading 60 CC	2006/0047 93/23	Precious Sekgobela	083 967 4645	precious@alwaystrading.co.za	12462 1	Ga-Masha	Tubatse Business Forum	125% Black Owned,	Surface and underground mining	HDPE Pipes and Fireice fire suppression
48	Dipopoti Trading and Projects	2014/1517 74/o7	Tsietsi Morewane	076 978 2414	tsietsi.morewane@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	Plant hire	Engineering and Underground services
49	Marumo Green Projects	2012/0931 34/07	Thembi Maesela	072 526 6308	marumoprojects@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned,	Civil construction	Mining equipment supply
50	Namrubi PTY Ltd	2014/1646 85/07	Lindiwe Masinga	079 010 3892	lindimasinga7@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned,	Belt Cleaning	Plant cleaning
51	Morwa Dilepe Trading and Projects PTY Ltd	2016/2645 39/07	Titus Fenyane	073 236 0856	kgorof@gmail.com	None	Ga-Malekana	Kutullo business Forum	135% Black Owned,	Plant hire	Construction projects
52	Mpabane Constraction PTY Ltd	2019/1536 19/07	Dilaleng/Lovingt on	082 714 4172, 060 606 6521	mpabaneconstruction@gmail.com	None	Ga-Malekana	Bahlakwane Ba Malekane Community Structure	100% Black Owned,	Scaffolding	Shuttle services
53	Sheltons Holdings and Solutions PTY Ltd	2020/1993 90/07	Sharon Dikotope	061 541 4228	sldikotope@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	Structural Steel Fabrications	Mining and Logistics
54	Napogadi Le Pebetse Trading and Holdings	2020/5196 09/07	Irene Makola	064 741 8343	napogadipebetse@gmail.com	None	Ga-Phasha	Bana Ba Mobu Business Forum	100% Black Owned,	Laundry	Maintanance and Splicing
55	Difokeng Property Group	2018/5537 04/07	Ignetious Kgalema	076 501 2287	ignetiousfono@gmail.com	None	Mampuru	None	100% Black Owned,	Degreaser and Wheelie Bin Spill Kits Supplier	Plant Maintanance
56	Pula Civils and Plant Hire	2012/0900 38/07	Tebogo Makabate	079 667 4883	tebogo.m@pulacivilsandplanthire.co.za	Y9867 4	Ga-Maphopha	Ngwaabe Moletsi Business Forum	100% Black Owned,	Civil construction	Building construction and maintanance
57	Modubanyane Trading Enterprise	2006/0896 93/23	Locia Ntsodi	076 836 8125	modubanyane@gmail.com	None	Kutullo	None	135% Black Owned,	Laundry	Security services
58	Bakoni Morithi Holdings PTY Ltd	2019/3568 73/07	Emmanuel Kgopane	071 321 2972	kgopanemmushi@gmail.com	None	Nokaneng	Nokaneng Business Forum	100% Black Owned,	Civil Engineering	Cleaning Industrial
59	Kgomolemo Enterprise	2018/5750 99/07	Clifford Maboko	082 632 6299	mabokolc@hotmail.com	None	Ga-Masha	Baroka Ba Masha Nkotwane	100% Black Owned,	General supply	General cleaning services
60	Masame Project and Investment PTY Ltd	2015/3462 72/07	Leonard Masha	076 025 7350	lmabjang@gmail.com	None	Ga-Masha	Bokoni Themba	100% Black Owned,	Civil and Mechanical	Mining supplier
61	Reshumaruri Projects and Construction	2011/0421 86/23	Thapelo Mmushi	081 871 2778	reshumaruri@gmail.com	None	Ga-Maphopha	Ngwaabe bus forum	100% Black Owned,	General building construction	General mining supply
62	Tswaledi A Dimu Transport and Project Cc	2010/0873 26/23	Tswaledi Moganedi	079 169 7618	rethasupplies2020@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	General supply	General mining supply
63	Natok PTY Ltd	2018/4443 70/07	Ngwato Mashabela	060 691 3000	hello@natok.co.za	None	Tukakgomo	Tubatse Business Forum	100% Black Owned,	Mining Supplies	Logistics and Truck hire

64	Mahlako Le Modipadi PTY Ltd	2016/3373 32/07	Salmina Maphaka	079 531 8078	modipadicotour@gmail.com	None	Ga-Phasha	Bana Ba Mobu Business Forum	100% Black Owned,	General cleaning	Sweeping and Vamping
65	Sekhukhune Security Services PTY Ltd	2019/4770 32/07	Godfrey Magane	079 390 0335	info.tabaeic@gmail.com	None	Kutullo	Kutullo Core Community business Forum	135% Black Owned,	Security fencing	Security services
66	Setlogolo Sa Ba Bina Tau Trading and Projects	2018/6175 29/07	Nelious Matlala	072 249 8793	neliousmatlala@gmail.com	None	Ga-Mawela	Mohlareng community forum	100% Black Owned,	Laundry	Canteen services
67	Rockcon PTY Ltd	2016/4487 35/07	Tiisetso Mankge	076 595 7663	tiisetsorocky@gmail.com	None	Ga-Mawela	St George CPA	100% Black Owned,	General construction	Transport and Logistics
68	Smile K Trading PTY Ltd	2017/3182 05/07	Pule Mankge	082 768 7321	mankgep77@gmail.com	None	Ga-Mawela	St George CPA	100% Black Owned,	Engineering supply	Mining construction
69	MOR Investments	2019/3049 05/07	Edwin Ntobeng	082 330 8724	morinvestments19@gmail.com	None	Mampuru	None	100% Black Owned,	Plant hire	Mining supply
70	Aupets Construction PTY Ltd	2018/2754 07/07	Aubrey Mokgwadi	072 342 5068	aupetsconstruction@gmail.com	None	Mampuru	Moletsi Business Forum	100% Black Owned,	Civil construction	HDPE Pipes
71	Maletswetswe Tshwene Mining Project and Services	2019/3728 00/07	Moses Sithole	079 224 7678	mosesksithole@gmail.com	None	Tukakgomo	Steelpoort business bridge chamber	100% Black Owned,	Engineering	Construction
72	Bana Ba Mobu Engineering Projects PTY Ltd	2019/2466 06/07	Jim Maphanga/Papikie Thobejane	072 410 8305/071 287 3213	banabamobu.engprojects@gmail.com	None	Ga-Masha	Ngwaabe bus forum	100% Black Owned,	Plant hire and Logistics	Mining supply
73	Pinane Holdings PTY Ltd	2016/4626 71/07	Isaac Malekana	061 490 7927	isaac.malekana@gmail.com	None	Kutullo	Best Unite Consortium	100% Black Owned,	Engineering	Building and Civil construction
74	Lethiba Holdings	2019/3857 28/07	Marlina Msiza	072 822 5775	lethibamarlina09@gmail.com	None	Ga-Maphopha	None	100% Black Owned,	Mining Supplies	Building and Civil construction
75	Tondopix PTY Ltd	2018/2035 38/07	Thabang Lerutla	081 462 9751	tondopix@gmail.com	None	Mampuru	None	100% Black Owned,	Hydraulics maintainance	Sweeping and Vamping
76	Nogwane Trading	2009/1972 51/23	Mavis Machipa	072 986 5228	nogwanetrading@gmail.com	None	Kutullo	None	100% Black Owned,	Civil Engineering	Labour Broker
77	Dihlabakela Trading and Projects	2013/0991 20/07	Colphen Mohlala	083 551 6408	dihlabakelatrading@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	135% Black Owned,	Plant cleaning	General maintainance
78	Movave Projects and Engineering	2019/5286 46/07	Thabo Leshaba	082 952 2942	movaveprojects@gmail.com	None	Ga-Malekana	Bahlakwane Ba Malekane Community Structure	100% Black Owned,	General supply	Civil and Mechanical construction
79	Ambience Apparel and Accessories PTY Ltd	2015/3430 27/07	Pal Mabelane	079 903 2481	appambience978@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	135% Black Owned,	Civil works	Plant Maintainance
80	Letjema Holdings PTY Ltd	2020/4659 24/07	Maditsi David/Morewane Tsietsi	076 9782414	malekatemaditsi@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	Civil construction	Plant Maintainance
81	PL Construction PTY Ltd	2017/2794 33/07	Thabo Sekachupe	079 296 5433	plconstruction177@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	100% Black Owned,	Belt Splicing	Cyclone fabrication and Sheet metal fabrications
82	Amogelang Thato Construction and Projects	2011/0202 44/23	James Mabelane/Eliab Makobe	082 931 8601/071 186 9822	amogelangthato715@gmail.com	None	Mapodile	None	100% Black Owned,	Laundry	General plant cleaning
83	MLC Holdings PTY Ltd	2019/3858 13/07	Lehlogonolo Micamilla	071 591 6620	mlcholdingsbusiness@gmail.com	None	Ga-Malekana	None	135% Black Owned,	General supply	Transport Services
84	Rebonia Batau PTY Ltd	2014/1828 50/07	Jeremia Letageng/Makgalemele Mapulane	082 587 4683/082 421 9851	rebonia.batau@gmail.com	None	Ba-Choma	None	100% Black Owned,	Mechanical and Electrical	Plant services and supply

85	Botho Bo Atile	2012/1600 77/07	Molatelo Makofane	067 228 1746	sebopemakofane@gmail.com	None	Steelpoort	None	100% Black Owned,	Engineering construction	Maitanance and supply
86	Rakolota Suppliers and Distributors PTY Ltd	2014/1110 97/07	Refilwe Rakolota	079 181 1592	refilwe.rakolota@gmail.com	None	Ga-Rantho	Ngwaabe traditional leaders and community forum	135% Black Owned,	Supply of capital goods	Supply of Mining consumer goods
87	Re Kaofela Consortium PTY Ltd	2018/3014 18/07	Sarah Kgopane	060 622 8161	saratshwabidi@gmail.com	None	Ga-Phasha	Bana Ba Mobu Business Forum	135% Black Owned,	Supply of mining equipments	Mining and blasting
88	K2017477559(SOUTH AFRICA) (PTY) LTD	2017/4775 59/07	Daphney Kgopotso	072 266 7414	dmadinoge@gmail.com	None	Ga-Malekana	Business advice and creative COW forum	135% Black Owned,	Cleaning supply	Operation and Management Consultant
89	Smilleng PTY Ltd	K20184674 73	Thabo Mothupi	082 640 1791	kent.mothupi@gmail.com	None	Ga-Mawela	Ga-Mawela CPA	100% Black Owned,	Waste management	Plant and machinery hire
90	Marakwana Mining and construction	2019/2811 20/07	Abednigo Malebana	076 595 7387	marakwanaminingandconstruction@gmail.com	None	Ga-Malekana	Bahlakwane Ba Malekane Community Structure	100% Black Owned,	Cleaning services	Construction
91	M.D. Trading PTY Ltd	2017/4638 81/07	Tshegofatso Nkwana/Sherol Magapa	076 823 1960/072 7968323	magapa.shaz93@gmail.com	None	Ga-Malekana	Bahlakwane Ba Malekane Community Structure	100% Black Owned,	General supply	Genrerel services
92	Manfana Farming ang Projects (pty)Ltd	2014/0495 91/07	Martha Monareng	071 646 7485	manfanaprojects@gmail.com	None	Rooikrans farm 37 JT	BBR Community forum	100% Black Owned,	Civil works	Ventilation seal
93	Dichaba Construction Consortium PTY Ltd	2013/2253 70/07	Hunadi Rakolota	067 161 5001	rakolotahunadi@gmail.com	None	Ga-Rantho	Ngwaabe traditional leaders and community forum	135% Black Owned,	Civil works	General construction
94	Phenyo Ya Katlego Mining and construction solution	2018/0542 62/07	Marisane	083 551 6408	phenyoyakatlego2018@gmail.com	None	Mampuru	Bana Ba Mobu Business Forum	135% Black Owned,	General supply	Gardening services
95	Kwena NT PTY Ltd	2020/0532 15/07	Teddy Moela	072 262 3937	napogadi.moela@gmail.com	None	Kutullo	Kutullo business Forum	135% Black Owned,	Cleaning and Sanitation	Logistics
96	Ke Hlabirwa Mining and Projects PTY Ltd	2012/1597 27/07	Lethiba Maboko	072 516 2321	lethibam@webmail.co.za	None	Ga-Rantho	None	100% Black Owned,	Mining construction	Civil and Mechanical construction
97	SM Resources	2015/0802 99/07	Rousseau Mankge	072 186 4205	rossmanpower@yahoo.com	None	Ga-Mawela	Ngwaabe Bokone Business Chamber	100% Black Owned,	Plant and machinery	Transport Services
98	KS Security JV	2006/1521 76/23	Rousseau Mankge	072 015 6605	rossmanpower@yahoo.com	None	Ga-Mawela	Ngwaabe Bokone Business Chamber	51% Black Women Owned,	Seurity services	Risk assessment
99	Sekgetamoeng Projects	2016/1073 26/07	Daniel Makuwa	076 575 9920	danielmakuwa343@gmail.com	None	Tshehlwaneng	Tshehlwaneng business and industrial forum	100% Black Owned,	Cleaning services	Supply of Mining consumables
10 0	Zamani Engineering Services cc	1997/0642 71/23	David Nkosi	082 461 2238	admin@zamaniengineering.co.za	None	Ga-Phasha	None	100% Black Owned,	Building construction	Plant hire
10 1	Black Sky Investment and Holdings	2017/1600 59/07	Dikgole Herman Ntjana	082 291 1091	dikgolemalesolo2@gmail.com	None	Ga-Mawela	Ga Mawela Community	135% Black Owned	Construction	Delivery
10 2	Nokaneng EngineeringPTY Ltd	2015/1030 38/07	Fakude Frikkie	083 378 9881	nokaneng6engineering@gmail.com	None	Nokaneng	Nokaneng Business Forum	100% Black Owned,	Mining Supplies	Mining repairs
10 3	Mabeeletsa Construction and Projects	2015/3646 21/07	Allen Magane	079 021 1923	allenmagane@gmail.com	None	Ga-Mawela	Ga-Mawela CPA	100% Black Owned,	Cleaning services	Engineering services
10 4	Manglo Industrial and Mining Supplier PTY Ltd	2014/0549 06/07	Malema Chris Tau	076 235 9031	manglomining@gmail.com	None	Buffleshoek farm	Bakoni Tau CPA	100% Black Owned,	General supply	Supply of Mining consumables
10 5	Kholugin Safety Consultants and Projects	2016/1057 76/07	Euginia Seroka	076 664 5122	kholuginsafetyconsultants@gmail.com	None	Kutullo	None	100% Black Owned,	Supply of PPEs	Building construction and

											maintanance/renovations
106	Tlapa Leshu Trading (pty)ltd	2016/489405/07	Petrus Tshesane	072 315 7829	petrustshesane@gmail.com	None	Molawetsi	None	100% Black Owned,	Engineering	Civil construction
107	Mac Derick Projects	2020/063543/07	Khomotso Makuwa	072 737 1711	macderick@gmail.com	None	Tukakgomo	None	135% Black Owned,	Construction	Steel structure and fabrications
108	Thaba tsa gae enterprise (pty)ltd	2020/512550/07	Petrus Tshesane	07 2315 7829	petrustshesane@gmail.com	None	Molawetsi	None	100% Black Owned,	Engineering	Civil construction
109	Mpasheshi Enterprise	2020/172701/07	Mpasheng Mokone	083 546 6881	mrmokonepl@gmail.com	None	Stocking	None	100% Black Owned,	Plant hire	General construction
110	Mphabala Trading and Construction	2020/120457/07	Obed Mokone	079 487 9686	vandalgrey@gmail.com	None	Stocking	None	100% Black Owned,	Construction	Engineering
111	Siduduzile Trading and construction	2017/314405/07	Sizwe Magagula	072 017 1864	siduduziletrading@gmail.com	None	Ga-Phasha	None	100% Black Owned,	General cleaning	Supply of office equipments and stationery
112	The Mokone Trio Trading	2020/493610/07	Mogishi Mokone	072 209 4909	j.mbombi@gmail.com	None	Stocking	None	100% Black Owned,	Corporate gifting and printing services	Construction
113	W and H Depended (pty)ltd	2019/001598/07	Winnie Mabelane	071 648 3347	Winniemisho931012@gmail.com	None	Stocking	None	100% Black Owned,	General Cleaning	Laundry Services
114	Skofol Tsatsi	2018/320186/07	Pantlane Makola	078 205 2711	skofoltsatsi@gmail.com	None	Stocking	None	100% Black Owned,	Construction	Engineering
115	Mowolo wa Phaahle		Samuel Kgaria	072 352 7120	samuel.kgaria@gmail.com	None	Tukakgomo	None	100% Black Owned,	Welding works	Labour hire
116	BKK Global PTY Ltd	2019/462214/07	Klaas Mnisi	066 009 4115	klaasmnisi34@gmail.com	None	Ga-Phasha	None	100% Black Owned,	HDPE Pipes	General supply
117	JNR Group PTY Ltd	2018/265481/07	Refiloe Shai	065 847 7564	jandrgroup1@gmail.com	None	Burgersfort	None	100% Black Owned,	Refurbishing	Hydraulics and Motors
118	360 Theledi Investments PTY Ltd		Shanel Theledi	072 176 8592	theledih@gmail.com	None	Mapodile	None	100% Black Owned,	Electric and building supply	Office supply
119	Mahlako Le Modipadi PTY Ltd		Rebone Fenyane	082 697 1918	modipadi003@gmail.com	None	Ga-Phasha	None	100% Black Owned,	Chemical Engineering	Civil Engineering
120	Mmanare Projects Pty Ltd		Tempest Sekhukhune	067 871 8009	info.mmanare@gmail.com	None	Burgersfort	None	100% Black Owned,	HDPE Pipes	Plant hire
121	Mawete Diverse Cooperations	2019/505129/07	Chris Masinga	079 117 7942	chris.masinga@gmail.com	None	Mapodile	None	100% Black Owned,	Diamond Drill & Roofbolt Supply	Belt Splicing & Ventilation
122	Gabolekane PTY Ltd	2012/023746/07	Tiny Mankge	082 782 7693	gabolekane.services@gmail.com	Y85271	Ga-Mawela	None	100% Black Owned,	Earth moving and construction	Logistics management
123	Mahupebo Trading and Projects	2014/104194/07	Mabell Madihlaba	079 032 0233	madihlabamabell@gmail.com	None	Ga-Malekana	Bana Ba Mobu Business Forum	100% Black Owned,	Construction	Mining equipment supply
124	Danny Na Mamcane Trading and Projects	2016/366377/07	Dannis Mahlakwana	066 156 5044	dennis.mahlakwana85@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned,	Construction	Mining equipment supply
125	Letwala Construction and Mining Projects	2016/025534/07	Salton Moshidi	084 887 5849	saltonmoshidi@gmail.com	None	Ga-Rantho	None	100% Black Owned,	Civil works	Construction
126	Madipeng Transport	2019/048699/07	Mamodishe Morithanyane	082 837 1569	morithanyane@gmail.com	None	Tshehlwaneng	Tshehlwaneng business and industrial forum	100% Black Owned,	Plant hire	Transport Services
127	Saresanta Trading PTY Ltd	2020/548656/07	Petrus Mankge	076 973 0572	saresantatrading@gmail.com	None	Welgevonden farm	None	100% Black Owned,	Land scaping	Mining supply
128	PMJ Consulting Services PTY Ltd	2017/308724/07	Pule Masha	073 772 9039	pulem@pmjconsulting.co.za	None	Nokaneng	Kalkfontein Nokaneng business forum	135% Black Owned,	Taxation,Auditing and Training services	General supply
129	Bellwell PTY Ltd			071 272 3365	bellwell678@gmail.com	None	Phashaskraal	None	100% Black Owned,	Engineering works	General construction

130	Welgevonden Mining and Projects PTY Ltd	2020/148098/07	VincentMokebisa	071 149 0293	mokebisa@webmail.co.za	None	Ga-Leshaba	None	100% Black Owned,	General mining	Civil construction
131	Lefa Mining Services	2017/396320/07	Phurutsi David	060 973 1982	lefamining@gmail.com	None	Ga-Phasha	None	100% Black Owned,	Conveyor maintainance	Vamping
132	Mantong Trading and Projects	2015/055579/07	Lucasta Choma	079 852 4555	mantongtrading@gmail.com	None	Mampuru	None	100% Black Owned,	General construction	Mining supplier consumables
133	Makomane Enterprises PTY Ltd	2020/014975/07	Joshua Malapane	064 618 4017	joshuamalapane2020@gmail.com	None	Mampuru	None	100% Black Owned,	Conveyor maintainance	Welding services
134	LLM Consortium & Projects	2016/065919/07	Linda Mabuza	076 316 1548	linda@llmprojects.africa	None	Tukakgomo	None	100% Black Owned,	Civil/concrete works	Concrete supply
135	Sepadi Sa Mangena Supply & Projects	2018/519349/07	Sepadi Kgoroba	076 277 9959	sepadi.kgoroba@gmail.com	None	Mampuru	None	100% Black Owned,	Environmental services	General mining supply
136	Kgoshi Masha Phatane		Kgoshi Masha	073 493 2523	phatanemc@gmail.com	None	Ga-Masha	None	100% Black Owned,		
137	Kgoro Ya Makete Construction & Projects	2015/370505/07	Patrick Moganedi	072 037 8527	kgapanelebetha@gmail.com	None	Tsakane	None	100% Black Owned,	Pressure welding	General maintainance
138	Morakanyane Trading Projects	2015/144382/07	Dennis Mohlala	071 140 4972	denisemohlala@yahoo.com	None	Mampuru	None	100% Black Owned,	Engineering services	Transportation
139	Mogomatse Investment Holding PTY Ltd	2018/489623/07	Lloyd Mankge	076 708 1727	mogomatse@gmail.com	None	Jane Furse	None	100% Black Owned,	Engineering	Construction
140	Diesel Powertrain Technologies PTY Ltd	2019/284284/07	Mpumelelo Mhlabane	079 705 8254	d.p.tech38@gmail.com	None	Lydenburg	None	100% Black Owned,	Diesel works	Steelworks
141	Mmakwena Dikwena	2016/49253/07	Lorraine Kgalake	082 790 4543	itshesane@gmail.com	None	Mapodile	Kopano business forum	100% Black Owned,	Electrical	Instrument sales
142	Kalusha Construction & Project	2019/513549/07	Solly Malatji	0796331364	skmalatji26@gmail.com	None	Nokaneng	Nokaneng Business Forum	100% Black Owned,	Construction	Plant hire
143	Ngwanaboreadi trading and project (PTY)LTD	2014/244755/07	Segopotje Salina Mankge	0723351222	mankge791ss@gmail.com	None	Ga-Mawela	None	100% Black Owned,	Transportation	Catering services
144	TMTS Solutions	2020/584327/07	John Masha	0767251628	kabimasha@gmail.com	None	Ga-Masha	Masha Nkotwane tribal authority	100% Black Owned,	Conveyor maintainance	Supply and fitting fo Hydraulic Pipes
145	Laps Plumbers and Projects	2013/084522/07	Thabiso Malapane	0793259136	lapsplumbers@gmail.com	None	Mapodile	None	100% Black Owned,	Plumbing	Civil works
146	Kgogodi interrprise pty Ltd		Lucky mashegoana	0793074757	nkalanemashegoana@gmail.com	None	Mampuru	Mapurupurung community development forum	100% Black Owned,	Civil and building	Waste management
147	Royalgane Investments Pty Ltd	2018/067696/07	Solas Machipa	0665028727	machipasolas101@gmail.com	None	Moletsi	Moletsi Business Forum	100% Black Owned,	Underground mining	Plant supplies
148	Nokaneng Kalkfontein Business Forum		Ntagane Masha	0761967083/0727014994	kwenamasha@vodamail.co.za	None	Nokaneng	Nokaneng Business Forum	100% Black Owned,		
149	General Giants	2020/012607/07	Gabriel Makola	0768169051	gmakola23@gmail.com	None	Ga-Malekana	Jik	100% Black Owned,	Rubber products	General maintainance
150	Ditshaba Dikopane PTY Ltd	2017/136324/07	Mankge Kukie	0790467162	info@ditshabadikopane.co.za	None	Moletsi	Moletsi Business Forum	100% Black Owned,	Rubber products	Waste management
151	Senong South Trading	2016/374106/07	Leonard Senong	0824071181	lsgole91@gmail.com	None	Ga-Masha	Luthuli business forum	100% Black Owned,	Plant hire	General mining supply
152	Noko Ya Phaahle Trading And Projects	2018/048822/07	Neo Gareth Segokodi	0636428219	nokoyaphaahle@gmail.com	None	Mampuru	None	100% Black Owned,	Logistics	Construction
153	Sophi Cleaning and Projects	2020/600799/07	Partick Ngele	0712073592	patrickngele6594@gmail.com	None	Steelpoort	None	100% Black Owned,	Civil construction	Building construction
154	Kutwadi Projects PTY Ltd	2020/100324/07	Tebogo Phetla	0738267946	kutwadi2020@gmail.com	None	Ga-Malekana	None	100% Black Owned,		

15 5	J & BE Platinum PTY Ltd	2018/0460 67/07	Jacob Rantho	0799934440	platinumservices.224@gmail.com	None	Ga-Rantho	Rantho CPA	100% Black Owned,	Mining construction	Labour broker
15 6	Banabatlala PTY Ltd	2020/4868 80/07	Thabang Rantho	0714324875	banabatlala@gmail.com	None	Ga-Rantho	Rantho CPA	100% Black Owned,	Civil and Building construction	Recycling and Maitanace
15 7	Baraphogole PTY Ltd		Emmanuel Moshidi	0826370013	baraphogoleservice@gmail.com	None	Ga-Rantho	Rantho CPA	100% Black Owned,	Cleaning	Salvage
15 8	Onedi Vanshama PTY Ltd		Dineo Masha	0764614494	onedivanshama@gmail.com	None	Ga-Rantho	Rantho CPA	100% Black Owned,	Civil construction	Waste management
15 9	Msapa Fuel Supply PTY Ltd	2020/6281 54/07	Surprise Ranala	0769467467	msapafuelsupply@gmail.com	None	Ga-Rantho	Rantho CPA	100% Black Owned,	Fuel supply	
16 0	Sekotome Mogale Wa Dimo PTY Ltd	2020/0740 33/07	Sekotome Rantho	0659516489	sekotomemogalewadimo@gmail.com	None	Ga-Rantho	Rantho CPA	100% Black Owned,	Civil and construction	Cleaning and Gardening services
16 1	Toveykarabo General Construction Cleaning Garden Services and Transport PTY Ltd	2018/0160 37/07	Granny Baloyi	0647078285	toveykarabo@gmail.com	None	Ga-Rantho	Ngwaabe traditional leaders and community forum	100% Black Owned,	Cleaning services	Gardening services
16 2	GPWG Matuku Engineering	2020/4375 80/07	Nurse Kgoete	0607154463	shingwana@gmail.com	None	Ga-Mahloakoena	None	100% Black Owned,	Civil and Electrical construction	Solar and Mechanical
16 3	Red Mining Kalkfontein	2014/2442 16/07	Thobane Masha	0820672961	prince@pbmaroga.co.za	None	Ga-Masha	Ngwaabe traditional leaders and community forum	100% Black Owned,	Sweeping	Vending
16 4	Rakolota Engineering	2013/2122 32/07	Bonginkosi Marobanyane Rakolota	0792721802	bongir432@gmail.com	None	Ga-Rantho	Ngwaabe traditional leaders and community forum	100% Black Owned,	Engineering services	Engineering components
16 5	Sehlatji Projects PTY Ltd	2020/0803 32/07	Fridah Tsoka	0721499630	fridahpebetsi@gmail.com	None	Ga-Mawela	None	100% Black Owned,	Building construction	Project management
16 6	Tlongwane Trading and Projects	2020/0959 09/07	Kgolane Visto Sekwaleng	0820561498	tlongwanetradepro@gmail.com	None	Mampuru	None	100% Black Owned,	Cleaning services	General construction
16 7	Mapudi Investments PTY Ltd	2018/4649 88/07	Noah Phasha	0822209364	phashamn@gmail.com	A0095 2	Ga-Phasha	None	100% Black Owned,	Roofbolts Supply	Underground mining services
16 8	Fanatic Energy and Resources PTY Ltd	2019/6339 24/07	Aaron Mashegoane	0765166071	fanaticenergy@gmail.com	None	Steelpoort	None	100% Black Owned,	Stone Crusher and supply	Mining PVA Reflect Supply
16 9	Nokaneng Projects PTY Ltd	2019/0184 27/07	Pitso Tau	0727227337	pitsotau45@gmail.com	None	Kalkfontein	None	100% Black Owned,	Belt Splicing	Security services
17 0	Koboro and Ngwaketsi Construction PTY Ltd	2020/6881 23/07	Koboro Magoa			None	Ga-Rantho	None	100% Black Owned,	General construction	
17 1	Magaille Enterprise (Pty) Ltd	2018/2410 45/07	Modecia Phasha	0606250495	modeciaphasha@gmail.com	None	Ga-Phasha	None	100% Black Owned,	Sweeping and Vemping	Cleaning/Hygiene Services
17 2	Remeldason Holdings PTY Ltd	2018/3774 30/07	Mokgadi Remelda Molele	0760429933	moleelemr@gmail.com	None	Centurion	None	100% Black Owned,	General construction	Cleaning services
17 3	Empowered4ms Pty (Ltd)	2020/6733 36/07	Mosotho Refiloe	0729211258	mosothorefiloe20@gmail.com	None	Maseven	None	100% Black Owned,	General construction	Logistics and Environmental projects
17 4	Phakgamang Trading and Projects PTY Ltd	2016/4266 /07	Jan Malapane	0765447682	phakgamangtrading@gmail.com	None	Mampuru	None	100% Black Owned,	General construction	Logistics
17 5	Phuthi Moroka Mining PTY Ltd	2012/1043 77/07	Makola BE	0715851768	phuthi.moroka@gmail.com	None	Mapodile	None	100% Black Owned,	Civil and Building construction	Cleaning services
17 6	SelemaTshepo Safety Consultants PTY Ltd	2020/6158 51/07	Mmatshupo Sekhukhune	0824309130	selematsheposafetyconsultant@gmail.com	None	Stocking	Bana ba Mobu Business Forum	100% Black Owned,	Tool Calibration and Maintenance	Health and Safety consulting
17 7	Victory Dynamic Hope Construction and Trading	2004/0626 41/23	Elias Tladiamotse Mohlala	079 385 1504	victorydh@webmail.co.za	None	Bochfontein	None	100% Black Owned,	Civil Construction	Building construction

178	Selemadimo PTY Ltd	2020/205685/07	Katlego radingwana	0790559916	katlegoradingwana@gmail.com	None	Mampuru	None	100% Black Owned,	Waste management	Cleaning and sweeping
179	Tau Tsa Leshoka Construction and Engineering	2020/520690/07	Thato Seleledi	0676793849	tautsaleshoka06@gmail.com	None	Mampuru	None	100% Black Owned,	Steel works and piping	Waste management
180	SPF Engineering PTY Ltd	2015/257580/07	Donald Kgoroba	0765421710	Kgorobad@gmail.com	None	Ga-Maphopha	None	100% Black Owned,	Electrical Engineering	Plant hire
181	Kgetsi Ya Dimo Trading cc	2008/004259/23	Kgetsi Aaron Tshehla	0761030784	info@kydt.co.za	None	Ngwaabe	None	100% Black Owned,	Building construction	Plant hire
182	Mothukwa Construction and Projects cc	2008/087463/23	Thabo Mohlala	0607698244	mothukwa.construction@gmail.com	Y19146	Mapodile	None	100% Black Owned,	General Civil Works	Engineering and Steel Fabrication
183	Leseilane consulting	2019/135847/07	Mankileng Charmaine Kgabe	0768308991	charmainemkgabe@gmail.com	None	Ga-Rantho	None	100% Black Owned,	General construction	IT Services
184	Tees Events & Construction	2014/007159/07	Thato Mantsho	0834948438	teesevent@gmail.com	None	Tukakgomo	None	100% Black Owned	General Supply	Construction supply
185	Itukisheng Trading and projects	2012/173167/07	Itukisheng Matheba	0820665464	itukishengpty@gmail.com	None	Maseven	None	100% Black Owned	General supply	cleaning services
186	Letsepe Projects	2020/592958/07	Calvin Mankge	0826832727	thamagamahlatse@gmail.com	None	Ngwaabe	None	100% Black Owned	Mining Supplies	Construction
187	MAR Holdings PTY Ltd	2015/250326/07	Malema Nichol	0607441913	maredinicol88@gmail.com	None	Mampuru	None	100% Black Owned	Civil works	Plant Maintanance
188	Nokaneng projects	2019/018427/07	Tau pitso	0727227337	pitsotau45@gmail.com	None	Kalkfontein	Nokaneng forum	100% Black Owned	Belt Splicing	Hydraulic and Transmission
189	Mosehla Family		Reuben Mosehla		reubenthoks@gmail.com				100% Black Owned		
190	Matwaleng Platinum Forum		Adam Mahubedu	0767823439	matwalengplatinumforum@gmail.com	None			100% Black Owned		
191	Masha Makopole Community Forum		Pertunia Masha	0827324024	mashamakopole@gmail.com	None			100% Black Owned		
192	Mohlami Trading Enterprise	2019/248290/07	Elias Mohlala	0839264128	mohlamite@webmail.co.za	None	Bochfontein	None	100% Black Owned	Civil and Building construction	Waste management
193			Salome Mtsweni	0724688108	salome.mtsweni1@gmail.com				100% Black Owned		
194	Moletsi Brothers Engineering	20/732741/07	Leshaba Solly	0768009816	moletsibrothers@gmail.com	None	Steelpoort	None	100% Black Owned	Engineering works	Steelworks
195	Badiri der brochen holdings	2020/05560/07	makalakatane phineas leshaba	0790775877	phineas.leshaba@gmail.com	None	Moletsi	Bakoni ba dithabeng txa Moletsi	100% Black Owned	Earth moving rentals	Cement material supply
196	Morwakolo Trackless Engineering Consortium	2020/759692/07	Alfred Tukunyuku	0793025461	alfredtuku0@gmail.com	None	Ga-Rantho	Ngwaabe traditional leaders and community forum	100% Black Owned	Trackless Engineering	
197	Gosebjang	2020/766814/07	Mokota Daniel	0728375687	danielmokota9@gmail.com	None	Ga-Maphopha	None	100% Black Owned	Rebuilding	Wash bolts and painting
198	Amogelang Thato Construction and projects 7	2011/020244/23	James Mabelane	0711869822	amogelangthato715@gmail.com	None	Mapodile	None	100% Black Owned	Laundry	Plant cleaning
199	Salitono Mekgwes Projects	2020/693785/07	Eliab Makobe	0716224563	salitono.mekgwes@gmail.com	None	Mapodile	None	100% Black Owned	Laundry	Plant cleaning
200	Kgolane Construction And Projects	2014/03330/07	Danny Kgalake	0726563460	makabetengdanny77@gmail.com	None	Mapodile	Bana Ba Mobu Business Forum	100% Black Owned	Fabrication of idler	Re-Building of TMM
201	Thobson Projects PTY Ltd	2016/337416/07	Thoba	0636588200	thobas47@gmail.com	None	Ga-Masha	Baroka Re Kopane	100% Black Owned	Mining Supplier	Electrical and Mechanical Engineering supplier

20 2	Morakanyane Trading & Projects	2015/1443 82/07	Dennis Mohlala	0711404972	denisemohlala@yahoo.com	None	Mampuru	None	100% Black Owned	Engineering related services	Transportation
20 3	Lesuka Projects	2020/2476 41/07	Moshe	0660764804	lesukaprojects@gmail.com	None	Mashishing	None	100% Black Owned		
20 4	New Frontiers Engineering PTY Ltd	<u>K2019248</u> <u>636</u>	<u>Tshepo Nkosi</u>	<u>'0792392115</u>	churchillnkosi93@gmail.com	None	Ga-Phasha	None	100% Black Owned	Engineering Services	Plant Hire
20 5	Mcongo Mining and Enterprise PTY Ltd	2018/6378 64/07	H.J Nkosi	0767021090	nkosidlaminim1090@gmail.com	None	Bengwenyama	None	100% Black Owned	Mining supply	Construction
20 6	Setheo Engineering	2010/0109 96/01	Moshoeu Makofane	0792855649	moshoeu@letech.co.za	None	Bengwenyama	None	100% Black Owned	Engineering	I.C.T
20 7	Nkosi Maphangele PTY Ltd	2019/1983 62/07	Ngele Dina	0711782367	Dinapheladi4250@gmail.com	None	Bengwenyama	None	100% Black Owned	Plant/Cleaning	Oil Spillages
20 8	Trash 2 Treasure Recycling and Waste Management	2018/5833 38/07	Nokuthula Tshabalala	0837866840	MSHENGUNOKS@GMAIL.COM	None	Bengwenyama	None	100% Black Owned	Plant cleaning and maitanance	Plant hire
20 9	JJC Environmental Services	2017/2721 60/07	Jan Ntshwane	0829326387	jicenvironmental@gmail.com	None	Mampuru	None	100% Black Owned	Garden Service	Engineering related services
21 0	Kgotsolele Trading		Makola Sylvia	0711873807	kgotsoleletrading79@gmail.com	None	Ga-Phasha	None	100% Black Owned	Construction and maitanance	General supply
21 1	Bankwana Ramabu	2019/1546 38/07	Lebo Makuwa	0720913904	bankwanarambawu@gmail.com	None	Mampuru	None	100% Black Owned	Industrial cleaning	Gardening services
21 2	kalkfontein holdings	2019/2658 77/0	Thabiso Matjomane		kalkfontein.holdings.3301@gmail.com	None	Kalkfontein	None	100% Black Owned		
21 3	Ngaka Magatsela Trading	2020/7269 73/07	Thabang Makakane	0608421816	yungsmarty@gmail.com	None	Mampuru	None	100% Black Owned	Construction	Engineering
21 4	Makgaoganye suppliers & maintenance	2018/3700 06/07	Duncan Madire	0736336291	pd.madire@gmail.com	None	Ga- Mashamothane	None	100% Black Owned	Rigging equipment inspection	Labour hire and Maintenance
21 5	Eastern Limpopo Mining Supply	2020/1807 35/07	Matthews Tau	0797950775	taumathews@gmail.com	None	Buffleshoek farm	None	100% Black Owned	General Supply	Cleaning
21 6	Tau A Morei Construction & Enterprise	2020/6283 96/07	Adam Tau	0765223713	tausegataneadam@gmail.com	None	Ga-maphopha	None	100% Black Owned	Construction work	Transportation
21 7	Kgoloane Construction And Projects	2014/0333 0/07	Danny Kgalake	0726563460	makabetengdanny@gmail.com	None	Eerstegeluk Mapodile	Bana Ba Mobu Business Forum	100% Black Owned	Radiator Services & Supply	Earth Moving Machinery
21 8	Konka Mining		Nicky Mokgwadi	0767903511	konkaminig@gmail.com	None	Ga Phasha	None	100% Black Owned	Construction	Supply
21 9	Manatsu Engineering and Projects	2014/0266 83/07	David Mokwena	0728829248	mokwenamr@gmail.com	Y7442 8	ST George 2JT Farm	None	100% Black Owned		
22 0	Legase la bosego holdings	2019/4984 32/07	Schoeman Serage	0810480529	schoeman.serage@yahoo.com	None	Gaphasha	Steelpoort cluster	100% Black Owned	Transportation	mining supply
22 1	Ngwananwato Holdings	2018/5346 30/07	Rantho Precider	0792626734	ranthopelepele@gmail.com	None	Ga-Rantho	None	100% Black Owned	Supply	Cleaning
22 2	Salitono Mekgwes Projects	2020/6937 85/07	Eliab Makobe	0716224563	salitono.mekgwes@gmail.com	None	Mapodile	Bana Ba Mobu Business Forum	100% Black Owned	Cleaning	Engineering
22 3	Bana ba Mobu Sustainable Enterprise Development Forum		Tumelo Mampuru	0797431209	banabamobu21@gmail.com		Steelpoort Valley		100% Black Owned		
22 4	Bushveldt Logistics	2015/1071 34/07	KA Segokodi	0730483810	kasegokodi@gmail.com	None	Mampuru	None	100% Black Owned	Mintanance and Repairs	Transport and Logistics
22 5	Busai Building Construction	2018/5617 49/07	Busisiwe Nkosi	0639716780	bnkosi073@gmail.com	None	Stocking	Steelpoort cluster	100% Black Owned	Transportation	Cleaning and civil works
22 6	Bana Ba Mobu Sustainable Enterprise Development Business Forum		Chris Masinga	0660157092	chris.masinga@gmail.com	None	Ngwaabe	Bana ba Mobu Business Forum	100% Black Owned		
22 7			Nicol Letlaka		nicolletlaka772@gmail.com	None			100% Black Owned		

228	BANA BA SETSO TRADING CC	2009/091885/25	Makgoga Aaron	0828698550	kgetsas84@gmail.com	Y25914	MAKGATANE	BELVEDER (MAKGATHANE)	100% Black Owned	DROP RAISING & COREDRILLING	CONSTRUCTION UNDERGROUND AND SURFACE
229	Mohlomeledi Brothers Pty Ltd	2019/159672/07	Donald Magolego	0796097880	donaldmphelamphela@gmail.com	None	Nokaneng	None	100% Black Owned	Construction	Transportation
230	KKK Brothers PTY Ltd	2016/350498/07	Khomotso Kgole	0762889381	kgdimpe123@gmail.com	None	Ga-Masha	Luthuli business forum	100% Black Owned	Fabrication Engineering	Construction
231	Mmerekhi Projects And Construction PTY Ltd	2015/028613/07	Evans Malapane	0792417478	emalapane571@gmail.com	None	Mampuru	None	100% Black Owned	Plant hire	Engineering
232	Ga-Ragopola Comm Dev Forum				tukakgomo.garagopola@gmail.com	None	Tukakgomo	None	100% Black Owned		
233	Coromandel and Vermont		DN Mokoena		ngokwena@gmail.com	None			100% Black Owned		
234	Reatlegile Social Services	2020/659320/07	Khakha Chidi	0725394292	reasocial20@gmail.com	None	Mapodile	None	100% Black Owned	Social Consultants and Community Development	Stakeholder Management
235	Maitji Corp	2020/627845/07	Nelson Masha	0835777718	maitjicorp@gmail.com	None	Ga-Rantho	Rantho Business Forum	100% Black Owned	Canteen Services	Cleaning Services
236	Ward 28 Forum Ngwaabe Community		Mr Phasha	0791449144	ward28forum@gmail.com	None	Ngwaabe	Ward 28 Forum Ngwaabe Community	100% Black Owned		
237	Cumo Holdings	2020/142340/07	M Maripane	27718902863	maripane.moitheri@gmail.com	none	Mapodile	Steelpoort Woman Business Forum	100% Black Owned	Engineering and mining services	Enviromental and Cleaning Services
238	Koruwang Suppliers and Engineering	2017/104272/07	Germinah Moraba	27820498864	germinahmoraba902@gmail.com	None	Ga-Malekane	Steelpoort Woman Business Forum	100% Black Owned	Engineering and mining services	General Supply
239	Maleledu Cooperate	2017/169312/07	Tetelo Makola	27825459550	maleledumakola@gmail.com	None	Ga-Mampuru	Bana ba Mobu Business Forum	100% Black Owned	Plant Supply	General maintainance
240	Mminakwena Global Service	2020/484887/07	Raymond Mokwena	0727004023	raymond.mokwena52@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Earth Moving Machinery	Plant Hire
241	Madoma Business Solutions	2017/0202810/07	Emily Sewela	0727918863	madoma@outlook.com	None	Tukakgomo	Tukakgomo Business Forum	100% Black Owned	Sweeping and Vamping	Plant Hire
242	TNG Projects	2017/021677/07	Thomas Maphanga	0615035655	thomastng318@gmail.com	None	Tukakgomo	Tukakgomo Business Forum	100% Black Owned	Construction Engineering	Plant Hire
243	Bokome Legakala	2018/356657/07	Brammy Machipa	0790716382	machipabrammy@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Security	Transformer Services
244	Gatsheni Property & Project	2018/517258/07	Themba Ndlovu	0824549895	thembakuffete@gmail.com	None	Mapodile Longtill	Bana Ba Mobu Business Forum	100% Black Owned	Civil Engineering	Life Coaching
245	Kgopamathe Services	2020/677047/07	Timothy Mathebula	0761603052	khutsweng@gmail.com	None	Eerstegeluk Longtill	Bana Ba Mobu Business Forum	100% Black Owned	Lamroom Management	Lamroom Audits
246	The Best Suppliers & Projects	2018/476765/07	Kabelo Moetanalalo	0838249554	moetanalokatlego@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Plant Cleaning	Ventilation Construction
247	Tshegofatso Fatso Trading	2013/004828/07	Stephan Mokobane	0796293861	tshegofatsofatsostrading@gmail.com	None	Ga Phasha	Bana Ba Mobu Business Forum	100% Black Owned	Engineering Services	Civil Engineering
248	Ap Supply & Projects	2020/028583/07	Patrina Makua	0721804404	patrinamakua3@gmail.com	None	Steelpoort	Bana Ba Mobu Business Forum	100% Black Owned	Plant Cleaning	Supply Services
249	Sakilana Holdings & Investment	2020/085695/07	Saki Mashilo	0769394914	sakilanaholdings1053@gmail.com	None	Ga Mampuru	Bana Ba Mobu Business Forum	100% Black Owned	Crushing & Screening	Plant Hire
250	Makgatsa Business Solution	2021/398606/07	Leonard Sebulela	0791924765	learn.leornadsebulela@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Mining Supply	Earth Moving Machinery

25 1	Tlhare Pty Ltd	2015/3830 94/07	Jan Mkhondo	0820583795	tlhare121@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Steel Fabrication	Maintenance Engineering
25 2	Fenya Seroko	2020/5796 59/07	Milton Choma	0727134370	miltonchoma@gmail.com	None	Mapodile Township	Bana Ba Mobu Business Forum	100% Black Owned	Environmental services	Waste Management Servic es
25 3	Mankgahlentibi Construction	2015/4331 79/07	Maweto Mokobane	0767983283	mokobanem@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Supply of PPEs	Laundry & Garden Services
25 4	Mohlalese Projects	2020/6439 90/07	Cathrine Lesese	0729954500	mohlaleseprojects@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Laundry & Canteen	Plant cleaning
25 5	Gedi Boa Shakeng Enterprise	2021/3986 74/07	Nthabiseng Mashiloagoako	0795575101	nthabisengportia26@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Laundry	Plant cleaning
25 6	Mabothe Business Tradings CC	2005/1441 25/23	George Nkune	0799421181	mabothebusiness trading@gmail.com	None	Longtill	Bana Ba Mobu Business Forum	100% Black Owned	Laundry	Plant cleaning
25 7	Zerm Holdings	2020/8406 16/07	Elvis Kgoete	0763127281	zermholdings@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Belt Splicing	Civil Engineering
25 8	Star Corner	2016/2545 4/07	Martin Mokwena	0796428257	martinmokwena@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Civil Construction	Engineering services
25 9	Moshito Trading & Project	2016/4887 83/07	Wellington Segwadi	0797049217	wsegwedi@gmail.com	None	Tukakgomo	Bana Ba Mobu Business Forum	100% Black Owned	Civil Engineering	Ventilation Construction
26 0	Badisaba Modisa Supply & Project	2019/6001 70/07	Kagiso Mabuza	0728247109	info.badisa@gmail.com	None	Longtill Mapodile	Bana Ba Mobu Business Forum	100% Black Owned	Engineering Facilities	Waste Management
26 1	Bana ba Mpobane	2020/8313 73/07	Kaizer Mosehla	0768735985	manchagathelm@gmail.com	None	Ga Phasha	Bana Ba Mobu Business Forum	100% Black Owned	Sweeping & Vamping	Enviromental and Hygiene
26 2	Cosplay	2016/0863 80/07	Moses Mqhayi	0713962670	lerabosh@gmail.com	None	Eerstegeluk Mapodile	Bana Ba Mobu Business Forum	100% Black Owned	Bucket Repairs	Plant Hire
26 3	Keneza Holdings 13 (Pty) Ltd	2017/0761 54/07	Archi Maimela	0765515542	ngwatoza@gmail.com	None		Bakone ba Maimela CPA	100% Black Owned	Mining and Construction	Plant Hire and Maintenance
26 4	Mpelehane Mashego Trading and Projects	2020/5669 91/07	Albert Xhola Mawela	0793978316	xholaalbert@gmail.com	None	Kutullo	Kutullo business Forum	135% Black Owned	Construction	General Services
26 5	Khutwane Waste Management	2020/0064 16/24	Morgan Peta	0762816733	kalkfontein1cdf@gmail.com	None	Kalkfontein	Nokaneng Business Forum	B-BEE Exempt Micro Enterprise	Waste	Recycling
26 6	Greater Batau Trading Enterprise	2021/4207 46/07	Tau Jacob	0793095587	mongattau5@gmail.com/greaterbatau@gmail.com	None	Ga Malekana	Baba ba Mobu Enterprise Development Forum	100% Black Owned	Construction	General supply
26 7	Monaisa KKK Pty Ltd	2018/3619 91/07	Nthabiseng Monaisi		nthamonaisa@gmail.com	None	Ga-Ntake	Ntake Business Forum	100% Black Owned	ENGINEERING REPAIR AND CIVIL	Genareal Supply
26 8	ERIPROS & DISUN (PTY)	2020/2708 84/07	DINEO MOLOPO	0764522392	Dineomolapo318@gmail.com	None	Mahlakwena	Bana Ba Mobu Enterprise Development Forum	100% Black Owned	CIVIL WORKS	PLANT CLEANING
26 9	Orliforce PTY Ltd	2017/3652 91/07	Phillipos Mosehla	0826222828	tebogo.leshaba0@gmail.com	None	Steelpoort	None	100% Black Owned	Consumables supply	Underground reclamation
27 0	MARELELES MINING SUPPLIES (PTY) LTD	2016/3816 48/07	DANNY MABELANE	0768523680	marelelesminingsupplies@gmail.com	None	GA-PHASHA	STEELPOORT PARK	100% Black Owned	MINING CONSUMABLES	HDPE AND CLEANING SERVICES
27 1	NGWANANOKA TRADING AND PROJECTS (PTY)LTD	2014/2504 00/07	MATHUME STEPHEN MOELA	0646868938	mathume209@gmail.com	None	KALKFONTEIN	NOKANENG BUSINESS FORUM	100% Black Owned	CIVIL ENGINEERING	MINING SUPPLY

27 2	Steelpoort Business Bridge Chamber		Timothy Marobane	0823326620	enquiries.sbbf@gmail.com	None			100% Black Owned		
27 3	Sekhukhune Truck Drivers		Motubatse	0760233874	baubamotubatse256@gmail.com	None			100% Black Owned		
27 4	Seberekela Pty Ltd	2015/2124 74/07	Jafta Ngele	0767699970	Jaffa.nkngela@gmail.com	None	Mahlakwena	Bana Ba Mobu Enterprise Development Forum	100% Black Owned	Plant hire	Plant Crusher
27 5	TIMPHIRIGROUP	2017/4267 04/07	Tim Phiri	0763436215	Kwadiba@gmail.com	None	Eerstegeluk	Bana Ba Mobu Enterprise Development Forum	100% Black Owned	Transportation	Consulting
27 6	Mothogoane Construction & Projects	2017/3839 72/07	Direto Mokgwadi	0822209383	mokgwadidireto93@gmail.com	None	Ga-Phasha	None	100% Black Owned	Construction work	Plant Hire
27 7	JPD Projects Pty Ltd	2020/0297 96/07	Jupitor Dibakoane	0768929446	jdibakoane495@gmail.com	None	Mampuru	None	100% Black Owned	Electrical	Plant cleaning
27 8	Klavin Projects	2018/5387 12/07	Vincent Poisana	07690879940	professional.pigsconstruc@gmail.com	None	Ga Phasha	Steelpoort Business Forum	100% Black Owned	Construction and Maintenance	Heavy Mobile Equipment
27 9	Gosebowabauba Trading Enterprise cc	2010/1768 11/23	Mathume Lawrence Mohlala	076 820 8966 / 071 879 2202	mathumelawrence@gmail.com	None	Ga-Mampuru	Mampuru Community	100% Black Owned	Construction	Plant and labour hire
28 0	Mach Suppliers (Pty) Ltd	2020/1146 86/07	Brian Selokane	076 605 2516	machsuppliers@gmail.com	None	Mmapodile		135% Black Owned	Distribution and logistics	Construction
28 1	Kokobela Trading and Projects (Pty) Ltd	2014/1141 31/07	Joseph Ngwenya	0716856959/ 0739903419	sales@kokobela.co.za / joseph@kokobela.co.za	None	Leswaneng Village Driekop 1129	None	100% Black Owned	LHD Spare Parts Supply	General Mining Supply
28 2	Mankootana Trading & Projects PTY Ltd	2014/0533 57/07	Isaac Letageng	0793943594	kubjaneisaac@gmail.com	None	Ga-Rantho	None	100% Black Owned		
28 3	Moletsi Community Members		Kukie Mankge	0790467162	moletsidevcom@gmail.com	None	Moletsi		100% Black Owned		
28 4	Tshehla Development Forum/ Tshehla Trust		Hlaodi Tshehla	0827896689	tshehlamalatlane@gmail.com	None	Ngwaabe	None	100% Black Owned		
28 5	ZABMOS Joint Venture	2013/1852 30/07	Johannes Mosotho	0725028008	zabmos@zabm.co.za	12397 2	Skaapkraal, Lydenburg	Protea Community Forum	100% Black Owned	Repairs	Supply
28 6	Badidi Gaba Hlokwe (pty) Ltd	2019 /573507 /07	Nnona Mokwana	0823311310	badidigabahlokwe@gmail.com	None	Ngwaabe	None	100% Black Owned	Air Conditioning	General Supply
28 7	Lehlakeng Business Projects	2021/4924 45/07	Lucky mashegoana	0793074757	lehlakengprojects.ptyltd@gmail.com	None	Mapurupurung	None	100% Black Owned	Waste management	Civil and building construction
28 8	Klavin Projects	2018/5387 12/07	Vincent Poisana	07690879940	professional.pigsconstruc@gmail.com	None	Ga Phasha	Steelpoort Business Forum	100% Black Owned	Construction and Maintenance	Heavy Mobile Equipment
28 9	Gosebowabauba Trading Enterprise cc	2010/1768 11/23	Mathume Lawrence Mohlala	076 820 8966 / 071 879 2202	mathumelawrence@gmail.com	None	Ga-Mampuru	Mampuru Community	100% Black Owned	Construction	Plant and labour hire
29 0	Scarvengers Enterprise	2020/8472 92/07	kgakishi L.L	0799608823	kgakishilebo@gmail.com	None	Ga-Mampuru	None	100% Black Owned	Engineering & manufacturing	supply & logistics
29 1	Lehloho Enterprise (Pty)Ltd	2019/3166 68/07	Emmanuel Phorutshe.	0765092786	lehlohoenterprise@gmail.com	None	Ga-Phasha Village	Kopano business forum	100% Black Owned	Cleaning services and laundry	Engineering services and logistics
29 2	St givens trading enterprise	2016/4928 0/07	George Sello	0767098368	Maletemalete2nd@gmail.com	None	Mashishing	Mashishing unemployment forum	100% Black Owned	Building construction and electrical maintainance.	Transportation
29 3	Tubatse Da Ark	2020/6128 08/07	Jonas Mohlahlo	0839486329	tubatsedaark@gmail.com	None	Moletsi/De Bronchen	Steelbridge	135% Black Owned,	Safety Standards, Procedures, Requirements and Compliance Training	Opencast Mining Equipments

29 4	Ladies In Power And Action	2019/0110 34/24	Bella Mokgoadi	0761708513	mbalanibb@gmail.com	None	Nokaneng	None	100% Black Owned	Cleaning , transport	Building and Maitanance,
29 5	MAMONYANE CONSTRUCTION CC	2000/0109 70/23	JAN MAMUNYANI	0834908554	jan@mamonyaneconstruction.co.za	None	Tshufi (Booyse dal)	None	100% Black Owned	CIVIL	GENERAL BUILDING CONSTRUCTION
29 6	Letsepe project Enterprise	2020/5929 58/07	Calvin Mohlogane Mankge	0826832727	thamagamahlatse@gmail.com	None	Ga-Mphana	Mankge community forum.	100% Black Owned		
29 7	Phakama Sumbeam Services CC	2007/0698 77/23	Nerille Masinga	0785179615	admin@phakamaservices.com	None	Bengwenyama	None	100% Black Owned	Cleaning services	Security services
29 8	Economic Youth Consortium	2016/5377 29/07	Lennox Zama Qampi	0829771370	sollywoodsouthafrica@gmail.com	None	Bengwenyama	None	100% Black Owned	Plant hire	Ventilators
29 9	Mmasegotsi Phaahle Holdings	2015/1433 65/07	Maxwell Mashabela	0796591631	mmasegotsi.ph@gmail.com	None	Moreson Farm Community	Moreson Farm Business forum	100% Black Owned	Transport and plant hire/ underground vehicle	Quary Aggrigates and General supply
30 0	Makgone General Dealer	2006/0764 87/23	Welly	0722262161	makgone2014@gmail.com	12154 8	Tukakgomo	Steelpoort	100% Black Owned	Construction	Civil works
30 1	Sefenya Tlala Construction and Projects.	2016/3220 98/07	T k Makanyane	064 809 1235	thapelokoma7@gmail.com	None	Ga-Masha	Masha phathane	100% Black Owned	Primary and secondary support (permanent support)	Sweeping and vamping
30 2	TUBATSE A MOHLOGOPELA ENTERPRISE	2021/ 602615/ 07	LEKOTA MANKGE	0767498053	Mahlatsefortunate611@gmail.com	None	Leshaba/Molet si	None	100% Black Owned	GENERAL BUILDING	Steel work
30 3	TLOU TLOU HOLDINGS (PTY)LTD	2021/6974 72/02	TLOU Shadrack Ramodisha	076 6861818	zoeramodisha@gmail.com	None	Ga-Rantho	Rancho community business forum	100% Black Owned	Health and safety consultants	None
30 4	ROCHESTER CONSTRUCTION	2014/2806 46/7	Mampuru mojalefa	0715369758	mampurumojalefa@gmail.com	None	Tukakgomo	None	100% Black Owned	Both Construction and Engineering and supply	Fabrication at plant
30 5	batubatse engineering and projects	2017/3427 64/07	cisco mohloki	0824760571	batubatseengproj@gmail.com	None	Longtill	None	100% Black Owned	steel fabrication/construction	bucket repair
30 6	Legong La moketla	2017/2945 20/07	cisco mohloki	0824760571	mohlokity@gmail.com	None	Longtill	None	100% Black Owned	supply of mining consumables	steel fabrication
30 7	Lebili PTY(LTD)	2020/7388 59/07	Lebogang Mokomane	0799483076	lebogang@lebili.co.za	None	Masha Makopole Community ,Nokaneng	Kalkfontein Nokaneng Business Forum	125% Black Owned	Tier 1 Mining Tyres Supply and Service	Ventilation Seals Supply
30 8	Lethabo and Fizzy trading enterprise cc	2007/0468 33/23	Juliah	0824845480	Mike@lftrading.co.za	None	Mampuru	None	100% Black Owned	Logistics/Trucks	Maintanance of earth moving equipment

DOORSTEP SMMEs

N o	Business name	CIPC Reg.no	Contact Person	Contact No	Email Address	Vendor No(if any)	Community/Village	Business Forum	BEE Status %	Business Interest 1	Business Interest 2
1	3rd Alternative Solutions	2013/123071/07	Elvis Ntsoane	082 632 6299	elvism.ntsoane@gmail.com	Y99978	Pakaneng	None	100% Black Owned	Civil works	Engineering
2	Tshepamotheo 211 Trading	2009/145761/23	Tshepo Makuwa	061 407 8346	tshepo.makuwa@yahoo.com	None	Pakaneng	None	100% Black Owned	General supply	Maintanace
3	Rebonia Batau PTY Ltd	2014/182850/07	Jeremia Letageng/Makgalemele Mapulane	082 587 4683/082 421 9851	rebonia.batau@gmail.com	None	Pakaneng	None	100% Black Owned	Mechanical and Electrical	Plant services and supply
4	SM Resources	2015/080299/07	Rousseau Mankge	072 186 4205	rossmanpower@yahoo.com	None	Ga-Mawela	Ngwaabe Bokone Business Chamber	100% Black Owned	Plant and machinery	Transport Services
5	KS Security JV	2006/152176/23	Rousseau Mankge	072 015 6605	rossmanpower@yahoo.com	None	Ga-Mawela	Ngwaabe Bokone Business Chamber	51% Black Women Owned	Security services	Risk assessment
6	Gabolekane PTY Ltd	2012/023746/07	Tiny Mankge	082 782 7693	gabolekane.services@gmail.com	Y85271	Ga-Mawela	None	100% Black Owned	Earth moving and construction	Logistics management
7	Dihlabakela batho (pty)ltd	2021/646151/07	Kholofelo Mohlala/Winnie Rampedi	0730301915/0793582273	dihlabakelabatho@gmail.com	None	Dithabeng tsa moletsi	Dithabeng tsa moletsi	135% Black Owned	Training provider (induction, lifting courses, mechanical and auto electrical training), Laboratory,	Fuel and oil supply, Mechanical maintainace and spares supply
8	Bakone Ba Moletsi Pty LTD	2021/646486/07	Jameson Mohlala / Mangakane Rampedi	0723531626/0793582273	bakonebaM@gmail.com	None	Dithabeng tsa moletsi	Dithabeng tsa moletsi	135% Black Owned	Canteen/Laundry	Cleaning ,landscaping,gardening,repainting
9	Bohwa Bja Rena Group	2020/565950/07	Johanna	0723729163	selepephetla01@gmail.com	None	Tshufi	Tshufi Forum	135% Black Owned	Swiping and Vamping, Structural steel	Transport and Plant Hire, Crushing and Screeing Agrigate Supply
10	Letoka investments	2018/440167/07	Mogau Mankge	076 909 6777 / 064 016 3802	mlp.mankge@gmail.com	None	Ga-Mawela	Tubatse steelbridge business forum	135% Black Owned	Engineering (Mechanical and steel works)	plant hire, mining spares, industrial manual and power tools)
11	Sebuki A Mmathakgudi	2015/080299/07	Sebuki Mankge	072 186 4205/ 071 887 3790	sebukithabang@gmail.com	None	Ga-Mawela	Tubatse steel bridge business forum	135% Black Owned	Earth work services, Tractor loader backhoes, Front end loaders	General construction & removal rubbles
12	Sefateng Construction	2018/381514/07	Miccah Mankge	0724788740	mankgemiccah705@gmail.com	None	Ga-Mawela	None	135% Black	Waste Management	Transportation

									Owned		
13	SMILLENG PTY(LTD)	2018/467473/07	Thabo Mothupi	0826401791	kent.mothupi@gmail.com	None	Dithabeng(Ga Mawela)	Ga Mawela CPA	135% Black Owned	Mechanical maintenance and supply (Labour, Equipment and plant hire)	Crushing and Screening, Mineral Processing and Environmental rehabilitation and Chemical disposal
14	Tubatse Da Ark	2020/612808/07	Jonas Mohlahlo	0839486329	tubatsedaark@gmail.com	None	Moletsi/De Bronchen	Steelbridge	135% Black Owned	Safety Standards, Procedures, Requirements and Compliance Training	Opencast Mining Equipments
15	Smart Mining Technology Pty Ltd	2020/602013/07	Solas Machipa	0665028727	solas@smartminingtechnology.co.za	None	Moletsi, Welgevonden Farm	None	135% Black Owned	Bulk Earthworks and Civil Works	General Mining Services
16	Rebonia Batau PTY Ltd	2014/182850/07	Jeremia Letageng/Makgalemelle Mapulane	082 587 4683/082 421 9851	rebonia.batau@gmail.com	None	Ba-Choma	None	100% Black Owned	Mechanical and Electrical	Plant services and supply
17	Molokotsane Services PTY Ltd	2019/530268/07	Tebogo Leshaba	082 260 9651	tebogo.leshaba0@gmail.com	None	Moletsi village	Moletsi Business Forum	100% Black Owned	Underground construction	Mining supply
18	Ditlhakaneng	2017/213112/07	Senyeki Mankge	072 822 1662	senyeki.jim@gmail.com	None	Ga-Mawela	St George CPA	135% Black Owned	Building construction	Recycling
19	Moletsi Brothers Engineering	20/732741/07	Leshaba Solly	0768009816	moletsibrothers@gmail.com	None	Steelpoort	None	100% Black Owned	Engineering works	Steelworks
20	Badiri der brochen holdings	2020/05560/07	makalakatane phineas leshaba	0790775877	phineas.leshaba@gmail.com	None	Moletsi	Bakoni ba dithabeng txa Moletsi	100% Black Owned	Earth moving rentals	Cement material supply
21	Moletsi Community Members		Kukie Mankge	0790467162	moletsidevcom@gmail.com	None	Moletsi	None	100% Black Owned	TRANSPORT, CONVEYOR BELT MAINTENANCE AND PLANT AND UNDERGROUND MAINTENANCE	
22	BRIGHT TALK TRADING	2015/132968/07	MAGAHLE LP	0716253161	brighttalktrading07@gmail.com	None	PAKANENG	None	100% Black Owned	UNDERGROUND SWEEPING AND VENTING, PLANT HIRE, LUBRICANTS AND FUEL	
23	PAKANENG INVESTMENT GROUP	2018/411347/07	GM LETAGENG	0637260220	mathamisela@gmail.com	None	PAKANENG	None	100% Black Owned	ELECTRICAL INSTALLATION AND PLANT MAINTANANCE	
24	REBONIA BATAU (PTY) LTD	2014/182850/07	JEREMIA LETAGENG	0825874683	rebonia.batau@gmail.com	None	PAKANENG	None	100% Black Owned	FARMING, CLEANING SERVICES AND DRILLING AND BOLTS AND NUTS SUPPLY	
25	TSOSHANANG INVESTMENT	2017/010742/07	SALOME	0767505932	salomee0283@gmail.com	None	PAKANENG	None	100% Black Owned	TRANSPORT, CONVEYOR BELT MAINTENANCE AND PLANT AND	

										UNDERGROUND MAINTENANCE	
26	MOELA PROJECTS & TRADING	2016/540507/07	THABO MOELA	0608630721	moelaprojects.trading94@gmail.com	None	PAKANENG	None	100% Black Owned	SWEEPING, VENTILATION AND LONG ACHORS INSTALLATION	
27	MANFANA FARMING PTY LTD	2014/049591/07	MARTHA MONARENG	0716467485	monarengmartha17@gmail.com	None	PAKANENG	None	100% Black Owned	SUPPLY OF CIVIL ENGINEERING EQUIPMENT, PERISHABLE AND NON-PERISHABLE EQUIPMENT, INSTALLATION OF SECURITY CAMERAS	
28	MAMOSHI 2 PTY LTD	2018/353722/07	THUPI MJ	0713869209	m.jackthupi@gmail.com	None	PAKANENG	None	100% Black Owned	MINING SUPPLY, RECLAMATION AND TRANSPORT	
29	KAKATLI TRADING ENTERPRISE	2018/486578/08	MAHLABA KGARI	07225600352	velynder1@gmail.com	None	PAKANENG	None	100% Black Owned	CONSTRUCTION, WASTE REMOVAL, UNDERGROUND SUPPORT, AND MAINTENANCE HYDRAULICS PIPES AND MAINTENANCE	
30	Letsepe project Enterprise	2020/592958/07	Calvin Mohlogane Mankge	0826832727	thamagamahlatse@gmail.com	None	Ga-Mphana	Mankge community forum.	100% Black Owned		

BUSINESS FORUMS

No.	Business Structure Name	Contact Person	Contact no.	Email address	Community/Village
1	Steelpoort Business Forum	Ernest Manamela	082 817 7220	maernie72@gmail.com	Steelpoort-Longtill
2	Longtill Business Forum	Mapule Maphaka	076 557 2621	phetolocon@gmail.com	Tukagomo
3	Bakoki ba Dithabeng tsa Moletsi Business Forum	Phillimon Phetla	071 859 5826	motsekule@gmail.com	Moletsi
4	Baroka Ba Masha Nkotwane	Daniel Mokota	072 837 5687	mabokolc@gmail.com	Ga-Masha
5	Nokaneng Business Forum	Dumetse Masha	082 685 6233	dumetse@tiisa.co.za	Nokaneng
6	Ngwaabe Business forum	Thapelo Mmushi	081 871 2778	triplebestholdings@gmail.com	Ga-Maphopha
7	Ngwaabe community development forum	Lucky Moshia	072 143 1225	moshialucky@gmail.com	Ngwaabe
8	Masha Phatane Community Forum	Solly Tshehla	071 4635796	mmatlankeconstruction@gmail.com	Masha Phatane
9	Kutullo Core Community business Forum	German Taba	079 390 0335	info.tabaeic@gmail.com	Kutullo
10	Steelpoort cluster Business Forum	Prince Komane	076 158 5408	prince.marweshe.komane@gmail.com	Mapodile
11	Moletsi Business Forum	Tebogo Leshaba	082 260 9651	tebogo.leshaba0@gmail.com	Moletsi village
12	Eastern Limp business forum	Evans Mabowa	060 873 0290	evansmaboa@gmail.com	Kutullo
13	Mashishing United Business	Tebogo Nkwana	072 475 5964	tebogonkwana12@gmail.com	Moletsi
14	Bahlakwane Ba Malekane Community Structure	Nelson Tshehla, Brian Magapa, Eric Masha	082 053 3699, 076 023 2610, 071 590 6084	bredtenmp@gmail.com	Ga-Malekana
15	Bana Ba Mobu Business Forum	Maphanka Jim	072 410 8305	bbmsedf@yahoo.com	Ga-Phasha
16	Roka Phasha Phokwane	Tumpu Bethuel Makgoga	076 724 6560	tb.makgoga@gmail.com	Ga-Phasha
17	Steel Bridge Business Chamber	Tshehla HP	082 789 6689	tshehlamatjane@gmail.com	Ga-Masha
18	St George CPA	Senyeki Mankge	072 822 1662	senyeki.jim@gmail.com	Ga-Mawela
19	Tubatse Business Forum	Precious Sekgobela	083 967 4645	precious@alwaystrading.co.za	Ga-Masha
20	Kutullo business Forum	Titus Fenyane	073 236 0856	kgorof@gmail.com	Ga-Malekana
21	Bahlakwane Ba Malekane Community Structure	Dilaleng/Lovington	082 714 4172, 060 606 6521	mpabaneconstruction@gmail.com	Ga-Malekana
22	Ngwaabe Moletsi Business Forum	Tebogo Makabate	079 667 4883	tebogo.m@pulacivilsandplanthire.co.za	Ga-Maphopha
23	Nokaneng Business Forum	Emmanuel Kgopane	071 321 2972	kgopanemmushi@gmail.com	Nokaneng
24	Baroka Ba Masha Nkotwane	Clifford Maboko	082 632 6299	mabokolc@hotmail.com	Ga-Masha
25	Bokoni Themba	Leonard Masha	076 025 7350	lmabjang@gmail.com	Ga-Masha
26	Tubatse Business Forum	Ngwato Mashabela	060 691 3000	hello@natok.co.za	Tukagomo
27	Mohlareng Community Forum	Nelious Matlala	072 249 8793	neliousmatlala@gmail.com	Ga-Mawela
28	Steelpoort Business Bridge Chamber	Moses Sithole	079 224 7678	mosesksithole@gmail.com	Tukagomo
29	Steelpoort Business Bridge Chamber	Timothy Marobane	082 332 6620	enquiries.sbbf@gmail.com	-
30	Best Unite Consortium	Isaac Malekana	061 490 7927	isaac.malekana@gmail.com	Kutullo
31	Ngwaabe traditional leaders and community forum	Refilwe Rakolota	079 181 1592	refilwe.rakolota@gmail.com	Ga-Rantho
32	Business advice and creative COW forum	Daphney Kgoputso	072 266 7414	dmadinoge@gmail.com	Ga-Malekana
33	BBR Community forum	Martha Monareng	071 646 7485	manfanaprojects@gmail.com	Rooikrans farm 37 JT
34	Kutullo Business Forum	Teddy Moela	072 262 3937	napogadi.moela@gmail.com	Kutullo
35	Ngwaabe Bokone Business Chamber	Rousseau Mankge	072 186 4205	rossmanpower@yahoo.com	Ga-Mawela
36	Tshehlwaneng Business and Industrial forum	Daniel Makuwa	076 575 9920	danielmakuwa343@gmail.com	Tshehlwaneng
37	Ngwaabe Moletsi Business Forum	Ntjana Dikgole Herman	082 291 1091	dikgolemalesolo2@gmail.com	Jane Furse
38	Nokaneng Business Forum	Fakude Frikkie	083 378 9881	nokaneng6engineering@gmail.com	Nokaneng
39	Bakoni Tau CPA	Malema Chris Tau	076 235 9031	manglomining@gmail.com	Buffleshoek farm
40	Kalkfontein Nokaneng business forum	Pule Masha	073 772 9039	pulem@pmjconsulting.co.za	Nokaneng
41	Kopano Business forum	Lorraine Kgalake	082 790 4543	itshesane@gmail.com	Mapodile
42	Masha Nkotwane tribal authority	John Masha	0767251628	kabimasha@gmail.com	Ga-Masha
43	Mapurupurung community development forum	Lucky mashegoana	0793074757	nkalanemashegoana@gmail.com	Mampuru
44	Luthuli Business forum	Leonard Senong	0824071181	lskgole91@gmail.com	Ga-Masha
45	Rantho CPA	Thabang Rantho	0714324875	banabatlala@gmail.com	Ga-Rantho

46	Nkosimaphangele	Ngele Dina	0711782367	Dinapheladi4250@gmail.com	Bangwenyama
47			0711782367	nkosidlamini1090@gmail.com	Bangwenyama
48	Sekhukhune Truck Drivers	Motubatse	0760233874	baubamotubatse256@gmail.com	
49	Der Brochen Business Forum	Kholofelo Mohlala	0658482209	derbrochenbusinessforum@gmail.com	All Communities

RECRUITMENT STRUCTURES

No.	Community/Village	Recruitment Structure	Contact Person	Contact no.	Email Address
1	Ga-Masha	Masha Platinum Community Forum	Formation Masha	0727313762	mashaplatinum24@gmail.com
2	Kalkfontein Nokaneng	Masha Makopole Recruitment and Procurement	Emmanuel Mbuyane	0660223676	lasmanuel8@gmail.com
3	Mashishing	Mashishing Forums	Jeremia Mathelele	0724169664	ext2unemploymentforum@gmail.com
4	Ga-Masha	Masha Phatane Recruitment Forum	Itumeleng Kgole	0711882603	mashaphatanerecruitmentforum@gmail.com
5	Matubeng	Matubeng Kiwi community forum	Mr Maredi	.0796017438	matubeng555@gmail.com
6	Bengwenyama	Bengwenyama Community Development	Sibongile	0820940752	bengwenyama.d.a@gmail.com
7	Mampuru	Mampuru Community structure	Timothy Mabogoane	.0792220313	mampuru00skillsandrecruitment@gmail.com
8	Mapodile Longtil	Mapodile Longtil Structure	Khakha Chidi	.0725394292	mapodileward2@gmail.com
9	Moletsi	Moletsi community forum	Phineas Leshaba	.0790775877	moletsidevcom@gmail.com
10	Ga Leshaba	Ga Leshaba community	Tebogo Leshaba	.0713064016	tebogo.leshaba0@gmail.com
11	Ga Mawela	Mawela CPA	Senyeki Mankge	.0728221662	senyeki.jim@gmail.com
12	Ga Malekane	Malekane community forum	Gabriel Makola	.0768169051	malekanecommunity@gmail.com
13	Ngwaabe	Ngwaabe community development forum	Olive Magabane	.0792483882	ngwaabecommunitydevelopment@gmail.com
14	Kutullo	Kutullo Community Structure	Florence Molapo	0713739963	kutullocommunitykutullo@gmail.com
15	Ga Rantho	Ga Rantho community structures	Lucky Mokwana	.072 229 7353	ranthocommunity@gmail.com
16	Mooimeisfontein	Mooimeisfontein firum	Donald Maimela	.0826852340	moonewstance@gmail.com
17	Ga Malekane	Matwaleng Platinum Forum	Adam Mahubedu	0767823439	matwalengplatinumforum@gmail.com
18	Pakaneng	Pakaneng CPA	Mr.Letageng	.0615297352	gabrielmathamiselaletageng@gmail.com
19	Ngwaabe	Ngwaabe Joint Forum	Chaka Masha	.0792971506	ngwaabejointforum@gmail.com
20	Ga Maphopha	Ga Maphopha community forum	Lucas Tladi	.0765223713	maphophaydf@gmail.com
21	Ngwaabe/Steelpoort	Sekhukhune Truck Drivers Forum	Winter Maepa/Romeo Choma	0826382685/0795888561	asktdsekhukhune@gmail.com
22	Mampuru	Mapurupurung community development forum	Lucky mashegoana	0793074757	nkalanemashegoana@gmail.com
23	Ngwaabe	NPCF	Vicky Kgagara		ngwaabeplatinumcf@gmail.com

24	Ga Ntake	Ntake community forum			ntakebm@gmail.com
25	Molawetsi	Molawetsi communtiy forum			molawetsi.com@gmail.com
26	Ga Rantho	Bahlakwana ba Rantho CPA	Thabang Rantho	.071 432 4875	bahlakwanabarantho.366kt@gmail.com
27	Steelpoort Communities	Steelpoort Cluster Communities Forum	Khakha Chidi	.072 539 4292	steelpoortcommunityforum@yahoo.com
28	Ngwaabe Communities	Ngwaabe Cluster Communties Forum	Mpho Malekane	.081 897 0595	-
50	Ga Phasha	Ga Phasha community forum	Joseph Tshehla	.066 3936101	Mafateroka@gmail.com
51	Mpelegane	Mpelegane community forum	Andrew Makunyane	.072 2349052	mpeleganeforum@webmail.co.za
52	Tsakane	Tsakane Community Structure	Africa Manyaka	.076 030 1573	tsakanecommunityst@gmail.com
53	Tsakane	Tsakane Community youth forum	Surprise Mohlahlo	.079 922 2262	tsakanecommunity@gmail.com
54	Protea farms	Protea Community Forum	Jim Mosotho	.071 033 0109	proteafarms.community@gmail.com
55	Ga Malekane	Bahlakwana ba Malekane Structure	Nelson Tshehla	.082 053 3699	malekanecommunity@gmail.com
56	Ga Mampuru	Mampuru community members	Thabang Makakne	.060 842 1816	Yungsmarty@gmail.com
57	Molawetsi	Molawetsi communtiy forum	Petrus Tshesane	.064 678 1090	molawetsi.com@gmail.com
58	Makuwa/Tshehlwaneng	Makua/Tshehlwanrng forum	Thabo Makua	.079 038 3398	petrusmakuwapm555@gmail.com
59	Ga Malekane		Jacob Tau	.079 309 5587	matwalengplatinumforum@gmail.com
60	Ga Maepa	Tswako Maepa forum	Nelly Maepa	.071 304 0449	maepauc@gmail.com
61	Moomiesiesfontein	Moomiesiesfontein Newstance community	Katlego Mashilangoako	.072 058 2829	moonewstace94@gmail.com
62	Mashishing	Mashishing community forum	Mahlatse Junior Mkanse	.0784982290	muf.tclm@gmail.com
63	Ga mahlakwena village	Mahlakwena df Community forum	Eric Makola	.0824066506	mahlakwenadf@gmail.com
64	Ga-Ratau Ngwaabe	Ba roka ba Ratau CPA	Mokabane Mahjtlane Jet	.079 120 6145	barokabaratau@gmail.com
65	Kutullo Madibeng	Kutullo community forum	Nico Mmosadi	.0826073387	kutullotsatsapane@gmail.com
66	Ga Makuwa	Mukua community forum	Phomelelo Mokgaidi	.079 462 7890	makua.forum@yahoo.com
67	Nokaneng	Mashamakopole	Pertunia Masha	.082 732 4024	mashamakopolecommunity@gmail.com
68	Tsakane	Independent	July Tebele	.072 708 8298	Julymannyoboko@gmail.com
69	Mapurupurung	Mapuruprung	Tau Mashegoane	.0793074757	nkalanemashegoana@gmail.com
70	Skaapskraal farm	Protea community structure	Abram Makuwa	.073 437 7495	proteafarmscommunity42jt@gmail.com
71	Ngwaabe	Ikageng Community development	Khutso Makabate	.0713369053	ikagengcdc@gmail.com
72					elvis.ntsoane@gmail.com
73					tshepo.makuwa1@gmail.com
74					thamagamahlatse@gmail.com
75					mankgecharlotte69@gmail.com

76					kgoshimampuru2@gmail.com
77					mampururoyalcouncil17@gmail.com
78	Ba Leshaba	Leshaba Moletsi Dwars	Sipho Leshaba	.0798627853	moletsidwars@gmail.com
79	Moletsi Dwars	Moletsi Dwars forum	Gift Mmadi	.0663987612	giftmmadi03@gmail.com
80	Ga Ratau	Baroka ba Ratau	Emily Rampedi	.072 122 5961	barokabaratau@gmail.com
81					steelbridge.community1@gmail.com
82	Richmond Ga-Mawela	Richmond Community Structure	Fridah Tsoka	.0607836787	fridahpebetsi@gmail.com
83		Bakoni Bantlhana Community Structure	Thandy Mmadi	0793491733	bakonibantlhana@gmail.com
84	Ga Leshaba	Individual	Tlholo Matshipa	079 394 1250	tlholomatshipa@gmail.com
85	Ngwaabe	Maphuthaditshuana Forum	Mose Maripane	661093658	ngwaabemaphuthaditshuana@gmail.com
86	Ga Rantho	Pitsaneng Community Forum			pitsanengcommunityforum@gmail.com
87					batlokwabadithamaga@gmail.com
88					lempoporecruitment@gmail.com
89					lettieboreadi@gmail.com
90					jimytshubamo@gmail.com
91					dithabengtsashaga@gmail.com
92	Shaga	Thabamokolobe community Forum	Edwin Mamaile	068 091 4417	thabamokolobe@gmail.com

ECDs

NO	NAME OF ORGANIZATION	NPO/NGO REG NUMBER	CONTACT PERSON	CONTACT DETAILS	COMMUNITY
1	MANKOPODI CRECHE	171-572	SHIRLEY DIKOTOPE	793376650	GA-MAMPURU
2	BOHLALE DAY CARE	184-628	REBECCA TSHEHLA	711944851	GA-PHASHA
3	KGALADI CRECHE	108-178	ENOCK MAREDI	820663840	GA-MAMPURU
4	BOGWASHA CRECHE	077-764	MARGARET PHOHU	796863734	GA-PHASHA
7	REKA KGONA DAY-CARE	207-988	SETHOKGOLE MOSEHLA	794539482	GA-MAMPURU
8	HLABIRWA HUNADI	191-361	DIKELEDI POOKGOADI	713376650	GA-MAMPURU
9	MATHAKANE CRECHE	139-418	MARIPANE MONICCA	818005606	LONGTILL
10	SOMQUBA CRECHE	106-783	NKOSI REFILOE	797533443	TUKAKGOMO
11	SHOPEANECRECHE	101-306	MANKGABA CONNY	825004231	LONGTILL
12	KATLEGONG PRE-SCHOOL	131-214	TSHATSHI PORTIA	729073939	MAGANAGOBUSHWA
13	WILKHATHY CRECHE	091-424	MOLAPO ANNSI	0769857416/0762426763	LONGTILL
14	NALEDI CRECHE	114-843	MOJALEFA SELINA	646117132	STOCKING
15	MAELEBE CRECHE	106-753	MOLOBELA ANNAH	798175206	TUKAKGOMO
16	BOHLALE DAY CARE	168-738	REBECCA TSHEHLA	711944851	GA-PHASHA
17	RETOLOGANG PRE-SCHOOL	194-184	MAKGOGA ROSE	790359621	DITHAMAGA
18	CARING ARMS CRECHE	142-514	MALEKA RENEILWE	762217694	LONGTILL
19	NGWANAMAKGOGA DAY CARE	201-389	MAPHANGA MARIA	795756629	MAHLAKWENA
20	AMAZING KIDS CRECHE	218-121	MAHLASE WINNIE	761917482	MAHLAKWENA
21	ROOTS OF EDUCATION DAY CARE	168-738	MAKUA JULIET	714470580	MAHLAKWENA
22	MADIGOKE PRE-SCHOOL		MAEPA MG	769860992	GA-RANTHO
23	MATLADI PRE-SCHOOL		MAPHOPHA ML	723580058	GA-MAPHOPHA
24	NTHULE PRE-SCHOOL		MABELANE MD	733124885	GA-MAPHOPHA
25	MAUBANE PRE-SCHOOL		SEPUDUMO M	712440214	GA-MAPHOPHA
26	MASELATOLE PRE-SCHOOL		TSHEHLA MM	799589195	GA-MAEPA
27	MOTSETLADI PRE-SCHOOL		DIAKO ES	715374886	GA-MAEPA
28	SEGOPOTSE PRE-SCHOOL		MOKABANE MS	794606613	GA-RATAU
29	MOGAUWANE PRE-SCHOOL		MAGOLEGO S	827343001	GA-NTAKE
30	SETHOGOLE CRECHE		MAKUNYANE MJ	839401832	GA-MAKUA
31	NALEDI CRECHE				GA-MAGOLEGO
32	MAMATIME PRE-SCHOOL		PALEDI BV	838945320	GA-RANTHO
33	NGWANATHEKO CRECHE		MALEKANE H	725415984	GA-MALEKANE
34	MPEPU PRE-SCHOOL			822660944	GA-MALEKANE
35	DINALANE PRE-SCHOOL			720886747	KUTULLO
36	MMABANA PRE-SCHOOL				KUTULLO
37	MOHLAKUDISHE PRE-SCHOOL		MATENTJE ME	765341076	GA-MALEKANE
38	MOGOSHADI DAY CARE		MALEKANE G	769371117	GA-MALEKANE
39	IPUDULE PRE-SCHOOL		MABOA TD	768942422	GA-MALEKANE
40	BOREADI CRECHE			763075068	GA-MASHA
41	SUNSHINE PRE-SCHOOL		THOKWANE	768595882	GA-MASHA
42	HLABIRWA PRE-SCHOOL		MASHA P	763881234	GA-MASHA
43	THUSANANG CRECHE		RADINGWANE	762302656	GA-MASHA
44	NGWANAMAPEA PRE-SCHOOL		MAGOLEGO MP	721960381	GA-MASHA
45	LESEDI CRECHE			720730791	GA-MASHA
46	MAREMO DAY CARE		MEHLAPE SG	761451648	GA-MASHA
47	NTEBALENG CRECHE		MALOMA LJ	730087233	MASHAGOSEBO

48	NTSWANENG CRECHE			
49	NTEBALENG CRECHE		MALOMA LJ	730087233
				MASHAGOSEBO

NOKS

No.	Name and Surname	Contact details	Email address
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2	Lazarus Mankge	.073 638 9178	jobrataublackstone@gmail.com
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4	Johannes Magahle	.060 785 1589	magahlej@gmail.com
5	Mahlako Makoa	.079 398 4240	siphotebele47@gmail.com
6	Johanna Mankge	.072 468 7747	mankgecharlotte69@gmail.com

NGOs AND SPECIAL GROUPS

No.	Name of Organization	NPO/NGO Reg Number	Contact Person	Contact Details	Community	Municipality
1	Dithamaga Home Based Carers			Email: Cell: 082 591 2338		
2	Ngwaabe Home Based carers		James Masha	Email: Cell: 072 569 0991		
3	Rehoboth Substance Abuse			Email Cell: 072 110 1052		
4	Tubatse Pensioners Association			Email: Cell: 082 588 1731		
5	Itumeleng Youth Project	155-105	Tshepo Sibiya	Email: Cell: 079 587 0491	Ga-Mampuru	
6	Mampuru Victim Support Centre	092-856	Fanie Mathunyane	Email: mampuruvep2012@gmail.com Cell: 076 130 5545 / 072 020 2385	Ga-Mampuru	
7	THP Traditional Healers		Mr Matau	Email: Cell: 076 897 5714		
8	Ngwaabe Youth Disability Forum			Email: Cell: 079 585 8409		
9	Kokwaneng Disability Centre		Martha Masha	Email: Cell: 082 815 5364		
10	Christelike Maatskaplike Raad (CMR)		Sebenzile Van Rooi	Email: cmrlydsw1@cmroos.co.za Cell: 076 508 3481 / 013 235 2137 Website: www.cmr-mpumalanga.co.za	Lydenburg	

GOVERNMENT STAKEHOLDERS

No.	Organisation	Contact Person	Designation/Position	Contact Details
1	Fetakgomu-Tubatse Local Municipality	Walter Phala	Municipal manager	Email: nwphala@tubatse.gov.za Cell no: 079 508 5082
2	Fetakgomu-Tubatse Local Municipality	Materipoyi Mashigo	Mining and Industrilisation Manager	Email: mmmashigo@tubatse.gov.za Cell no: 082 319 4573
3	Fetakgomu-Tubatse Local Municipality	Serofe Mkhabela	IDP Manager	email: smkhabela@tubatse.gov.za cell no: 072 597 1479
4	Fetakgomu-Tubatse Local Municipality	Lazarus Komani	Manager in Office of Mayor	Email: mlkomani@tubatse.gov.za cell no: 082 339 8013
5	Thaba Chweu Local Municipality	Sphiwe Matsi	Municipal Manager	Email: sphiwematsi@gmail.com Cell no: 079 497 9099
6	Thaba Chweu Local Municipality	Monty Mathebula	LED Manager	Email: tclmled@gmail.com Cell no: 078 0051 996
7	Thaba Chweu Local Municipality	Innocent Segobela	IDP Manager	Email: innocent.segobela@tclm.gov.za Cell no:
8	Thaba Chweu Local Municipality	Clement Mashego	Roads Engineer (Technical)	Email: mashegocm84@gmail.com Cell no: 076 454 3666
9	Thaba Chweu Local Municipality	Sinenhlanhla Manqele	Technical Direcor	Email: uduyaza@gmail.com Cell no: 082 501 8923
10	Sekhukhune District Municipality	Cleopas Nchabeleng	LED Manager	Email: nchabelengc@sekhukhune.gov.za Cell no: 083 345 7579
11	Sekhukhune District Municipality	Ntshudisani	Municipal Manager	Email: nchabelengc@sekhukhune.gov.za Cell no: 082 551 9666
12	Sekhukhune District Municipality	Mpae Rammupudu	PA - Office of the Executive Mayor	Email: rammupudum@sekhukhune.gov.za Cell no: 013 262 7300
13	Sekhukhune District Municipality	Mlatelo Mabitsela	Director - Planning and Development	Email: mabitselam@sekhukhune.gov.za Cell no: 013 262 7418
14	Department of Mineral Resources and Energy - Limpopo	Azwihangwisi Mulaudzi	Regional Manager	Email: azwihangwisi.mulaudzi@dmre.gov.za Cell no: 015 287 4757
15	Department of Mineral Resources and Energy - Limpopo	Lerato Mafoko	PA	Email: lerato.mafoko@dmre.gov.za Cell no: 015 287 4757
16	Department of Mineral Resources and Energy - Limpopo	Kolani Thivhulawi	Mineral Regulation	Email: thivhulawi.kolani@dmr.gov.za Cell no: 015 287 4761/082 818 9566
17	Sekhukhune Development Agency	Khopelo Phasha	CEO	Email: phashak@sekhukhune.gov.za Cell no: 082 777 5435
18	Sekhukhune Development Agency	Tshidi Elizabeth Kubuzie	Project Coordinator	Email: kubuziee@sekhukhune.gov.za Cell no: 074 312 2331/013 262 7300 (Reception)
19	Department of Agriculture - Limpopo	Esther Motseo		Email: esthermotseo@gmail.com Cell no: 066 079 3359
20	Department of Health - Sekhukhune	Patricia Mokwana		Email: mokwana.pat@gmail.com Cell no: 072 330 1724
21	Department of Health - Sekhukhune	Jacob Legodi	PA to HOD - Dr Mhlongo	Email: hodsupport@dhsd.limpopo.gov.za Cell no: 063 692 9448 / 015 293 6294
22	Department of Health - Limpopo	Mrs Ralefe	Regional Manager	Email: Cell no: 083 452 0423
23	Department of Health - Limpopo	Phillip Kruger	Chief Director - Clinical Support	Email: phillip.kruger2@dhsd.limpopo.gov.za Cell no: 083 415 8338

24	Department of Education - Sekhukhune	Segwarihle Dinkwanyane	Circuit Manager: Sekhukhune/Ngwaabe	Email: sdinkwanyane@gmail.com Cell no: 066 300 9901
25	Department of Education - Thaba Chweu	Thandi Shabangu	Lydenburg Circuit Office	Email: thandipromiseshabangu@gmail.com Cell no: 082 785 9870
26	SEDA - Sekhukhune	Sabelo Ntshangase	Branch Manager	Email: sntshangase@seda.org.za Cell no: 083 347 5428 / 013 262 9432
27	SEDA - Ehlanzeni	Ishmael Mmbadi	Branch Manager	Email: mmbadiishnael@gmail.com Cell no: 082 541 7427
28	Department of Social Development	ML Maphutha	Sekhukhune District Director	Email: maphuthaml@dsd.limpopo.gov.za Cell no: 082 089 4605
29	Department of Social Development	Joyce Makhudo	Social Worker	Email: makhudujoyce.dsd@gmail.com Cell no: 063 655 7006 / 067 403 1240
30	Department of Social Development	Kgothatso Seleka	Social Worker - Mampuru	Email: selekakgothatso@gmail.com Cell no: 073 604 2277
31	Department of Social Development	Morongwa	Social Work	Email: selekakgothatso@gmail.com Cell no: 073 604 2277
32	South African Police Services (SAPS)	Begadier Maluleke	Begadier	Email: Cell no: 072 570 5263
33	Mining Qualifications Authority (MQA) - Limpopo	Obed Nkwane	Stakeholder Relations Officer	Email: limpopo@mqa.org.za Cell no: 086 566 1989 / 087 095 0267
34	Department of Health - Sekhukhune District	David Modiba	District Manager	Email: dvdmodiba3@gmail.com Cell no: 0820435572
35	STATSSA Sekhukhune	Thabo Sebola	District Manager	Email: thabos@statssa.gov.za Cell no:
36	SEDA - Sekhukhune	Rodney Zitha	SEDA Official	Email: rzitha@seda.org.za Cell no: 072 616 8863
37	SEDA Mpumalanga	M Kgole	SEDA Provincial Manager (Mpumalanga)	Email: mkgole@seda.org.za Cell no: 082 565 6935

CPAs

No.	CPA Name	Community	Contact Details
1	Bahlakwana ba Rantho CPA	Ga Rantho	071 432 4875
2	Nokaneng-Kalkfontein CPA	Nokaneng	074 288 1368
3	Nokaneng-Kalkfontein CPA	Nokaneng	079 173 9608
4	Pakaneng-Choma CPA	Panakeng	061 529 7352
5	Mawela-St George CPA	Mawela	082 783 7693
6	Bakoni Tau-Phuti CPA	Buffelshoek	079 795 0775

WARD COUNCILLORS

No.	Councillor	Ward	Contact Details
1	Hlatshwayo	6	072 682 3289
2	Makine	2	076 828 1420
3	Malepe	5	082 644 2227
4	Mariri	29	072 632 1197
5	Rantho	28	082 433 5355
6	Makua	27	076 454 9081

SCHOOLS IN AOI

No.	EMIS Code	Institution	LEVEL	Sub-District	Circuit	FUN DIN G	Quintile	Grade R	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Total Learner Enrolment	Grade R	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Total Educators	Cell (Principal)	Cell (Deputy / HOD)	Cell (A A 1)		
1	925660099	Dikgageng Primary School	Primary	Sekukhune	Ngwabe	Public	1	89	59	80	102	56	73	53	67	0	0	0	0	0	579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	+27795208574			
2	996606313	Dithamaga Primary School	Primary	Sekukhune	Ngwabe	Public	1	22	18	17	15	22	16	17	13	0	0	0	0	0	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	+27820613528		
3	996606312	Excelsus Primary School	Combined	Sekukhune	Ngwabe	Public	1	8	30	34	33	17	11	22	14	16	10	0	0	0	169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	+27823619570			
4	925661467	Gobetswe Secondary School	Secondary	Sekukhune	Ngwabe	Public	1	0	0	0	0	0	0	0	0	276	219	310	184	156	1088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	+27827103457			
5	996606300	Kgahlang High School	Secondary	Sekukhune	Ngwabe	Public	1	0	0	0	0	0	0	0	0	407	324	362	234	219	1546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	+27725063801			
6	925660198	Kgoboko Primary School	Primary	Sekukhune	Ngwabe	Public	1	44	46	44	43	31	34	60	73	0	0	0	0	0	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	+27716823995			
7	800026856	Madibeng Primary School	Primary	Sekukhune	Ngwabe	Public	1	30	58	44	65	40	45	40	32	0	0	0	0	0	354	0	0	0	0	0	0	0	0	0	0	0	0	0	10	+27764105925				
8	925660389	Madiete Primary School	Primary	Sekukhune	Ngwabe	Public	1	35	31	45	34	34	28	30	31	0	0	0	0	0	269	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	+27823996360			
9	996606310	Maelebe Primary School	Primary	Sekukhune	Ngwabe	Public	1	103	131	130	133	126	133	118	76	0	0	0	0	0	269	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	+27726858235			
10	993301103	Mahlagare Combined School	Combined	Sekukhune	Ngwabe	Public	1	62	89	68	83	73	79	50	76	65	47	0	0	0	579	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	+27764782720			
11	925660457	Makgwale Secondary School	Secondary	Sekukhune	Ngwabe	Public	1	0	0	0	0	0	0	0	0	126	101	120	91	71	509	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	+27824253063			

1 2	9256 6143 6	Makopole High School	Secondary	Sekukhune	Ngwaa	Public	1	0	0	0	0	0	0	0	0	23 8	21 3	23 9	18 6	89	965	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	+27 64905 0250			
1 3	9256 6050 1	Malekane Primary School	Primary	Sekukhune	Ngwaa	Public	1	60	58	60	62	70	66	65	60	0	0	0	0	0	501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	+27 72490 9452			
1 4	9256 6057 0	Mampuru 2 Primary School	Primary	Sekukhune	Ngwaa	Public	1	73	86	74	68	63	82	80	77	0	0	0	0	0	603	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	+27 82692 5981			
1 5	9256 6061 7	Mante Primary School	Primary	Sekukhune	Ngwaa	Public	1	68	80	83	68	59	76	83	85	0	0	0	0	0	602	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	+27 82789 6689			
1 6	9256 6063 1	Maphoko Primary School	Primary	Sekukhune	Ngwaa	Public	1	94	73	97	85	95	85	76	80	0	0	0	0	0	685	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	+27 72491 99041			
1 7	9256 6064 8	Maphoha Primary School	Primary	Sekukhune	Ngwaa	Public	1	99	130	13 5	13 2	14 4	12 2	12 6	15 3	0	0	0	0	0	1041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	+27 60789 2165			
1 8	9256 6065 5	Maremele Primary School	Primary	Sekukhune	Ngwaa	Public	1	73	92	10 5	70	89	79	61	72	0	0	0	0	0	641	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	+27 82615 7334			
1 9	9256 6170 2	Masago Primary School	Primary	Sekukhune	Ngwaa	Public	1	48	56	79	76	72	65	65	54	0	0	0	0	0	515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	+27 66210 4240			
2 0	9256 6070 9	Masha Primary School	Primary	Sekukhune	Ngwaa	Public	1	12 4	118	11 4	12 8	13 4	15 7	11 4	95	0	0	0	0	0	984	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	+27 72959 7421			
2 1	8000 3488 1	Mashego Secondary School	Secondary	Sekukhune	Ngwaa	Public	1	0	0	0	0	0	0	0	0	57	64	12 8	91	30	370	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	+27 82789 6689			
2 2	9256 6073 0	Mashupje High School	Secondary	Sekukhune	Ngwaa	Public	1	0	0	0	0	0	0	0	0	10 6	76	12 3	68	68	441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	+27 73657 9620			
2 3	9256 6095 2	Ngwaabe High School	Secondary	Sekukhune	Ngwaa	Public	1	0	0	0	0	0	0	0	0	14 2	12 5	13 0	12 2	58	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	+27 82744 0570			
2 4	9256 6097 6	Ngwanangwato Secondary School	Secondary	Sekukhune	Ngwaa	Public	1	0	0	0	0	0	0	0	0	11 9	17 9	22 9	13 4	78	739	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	+27 82744 2979			
2 5	9256 6098 3	Ngwanatheko Primary	Primary	Sekukhune	Ngwaa	Public	1	61	81	76	82	10 6	70	92	67	0	0	0	0	0	635	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	+27 82516 1274			

**APPENDIX 9.3 – NOTIFICATION OF ORGANS OF
STATE, STAKEHOLDERS AND INTERESTED &
AFFECTED PARTIES**

1. INCEPTION NOTICE

1.1. EMAIL

From: **Alex Ndlovu** <a.ndlovu@cesnet.co.za>
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<petrustshesane@gmail.com>; 'mrmokonepl@gmail.com'
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Subject: INCEPTION NOTICE: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Date: 14.07.2022 23:57:26 (+02:00)

Dear Interested and Affected Party

INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

In accordance with the requirements of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

BACKGROUND:

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Greater Tubatse Local Municipality, within the Sekhukune District municipality, Limpopo Province.

APPLICATION PROCESSES:

Anglo American Platinum Ltd has appointed Coastal and Environmental Services (CES) to undertake the authorisation processes for the proposed Anglo Borwa ventilation shafts at Mototolo mine. The proposed development will require a Basic Assessment to be undertaken as the project activities trigger listed activities published under GNR. 983 and GNR. 985, as amended. The development will also require a Water Use Authorisation (WUA) from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of the National Water Act (NWA, Act No. 36 of 1998).

Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar

mining method. Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and-pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³ /s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is suboptimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and emulsion borehole, including the establishment of five borrow pits for material sourcing and the upgrading of access roads and powerlines.

A Background Information Document (BID) that provides details of the proposed ventilation shafts is available at <http://www.cesnet.co.za/anglo-vent-shafts>. To register as an Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment Practitioner (EAP) using the contact details provided.

Following the release of the Draft Report, if deemed necessary, a public meeting will be held to present the project and to give the public an opportunity to comment on the proposed development. You will be notified of the date, time and venue for the public meeting accordingly. CES request that you please confirm receipt of this notification via email, phone or post.

POPIA DISCLAIMER:

Please note that the collection and storage of personal information by CES is subject to the Protection of Personal Information Act, 2013 (Act No. 4 of 2013), any personal information collected and provided is exclusively for use as part of the public participation registration process, and may therefore not be utilised for any purpose, other than that for which it was provided. No additional copies may be made of documents containing personal information unless permission has been obtained from the owner of said information.

All documentation containing personal information must be destroyed as soon as the purpose for which the information was collected has run out. By providing CES with your details, you acknowledge and permit CES to your details for the purposes intended. Should you wish to retract your registration please do get in touch with CES.

Kind regards,
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From: **Alex Ndlovu** <a.ndlovu@cesnet.co.za>
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Subject: INCEPTION NOTICE: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Date: 14.07.2022 23:55:38 (+02:00)

Dear Interested and Affected Party

INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

In accordance with the requirements of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

BACKGROUND:

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Greater Tubatse Local Municipality, within the Sekhukune District municipality, Limpopo Province.

APPLICATION PROCESSES:

Anglo American Platinum Ltd has appointed Coastal and Environmental Services (CES) to undertake the authorisation processes for the proposed Anglo Borwa ventilation shafts at Mototolo mine. The

proposed development will require a Basic Assessment to be undertaken as the project activities trigger listed activities published under GNR. 983 and GNR. 985, as amended. The development will also require a Water Use Authorisation (WUA) from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of the National Water Act (NWA, Act No. 36 of 1998). Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method.

Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and -pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³ /s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is suboptimal, causing major challenges in complying with the design criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and emulsion borehole, including the establishment of five borrow pits for material sourcing and the upgrading of access roads and powerlines.

A Background Information Document (BID) that provides details of the proposed ventilation shafts is available at <http://www.cesnet.co.za/anglo-vent-shafts>. To register as an Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment Practitioner (EAP) using the contact details provided.

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CES request that you please confirm receipt of this notification via email, phone or post.

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Kind regards,
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Environmental Consultant
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Subject: INCEPTION NOTICE: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Date: 14.07.2022 23:53:46 (+02:00)

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Dear Interested and Affected Party

INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

In accordance with the requirements of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

BACKGROUND:

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Greater Tubatse Local Municipality, within the Sekhukune District municipality, Limpopo Province.

APPLICATION PROCESSES:

Anglo American Platinum Ltd has appointed Coastal and Environmental Services (CES) to undertake the authorisation processes for the proposed Anglo Borwa ventilation shafts at Mototolo mine. The proposed development will require a Basic Assessment to be undertaken as the project activities trigger listed activities published under GNR. 983 and GNR. 985, as amended. The development will also require a Water Use Authorisation (WUA) from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of the National Water Act (NWA, Act No. 36 of 1998).

Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method.

Prior to 2021, Borwa Shaft produced 200 kilotonnes per month (ktpm) from the UG2 reef horizon using the board-and -pillar mining method. Production increased to 240 ktpm in 2021 and will remain constant for life of mine. Currently the mine is ventilated with 320 m³ /s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is suboptimal, causing major challenges in complying with the design

criteria. The design process by Bluhm Burton Engineering Pty Ltd (BBE) included a detailed analysis of the current ventilation strategy implemented, the current Business Plan (BP) and full interactive computer simulations of heat flow and ventilation to determine air temperatures, flow rates, heat loads and cooling requirements using VUMA-3D software for the medium to long-term (BP). Part of the process is to determine the blast clearance re-entry times.

In light of this, Anglo American Platinum propose to develop three additional ventilation shafts and emulsion borehole, including the establishment of five borrow pits for material sourcing and the upgrading of access roads and powerlines.

A Background Information Document (BID) that provides details of the proposed ventilation shafts is available at <http://www.cesnet.co.za/anglo-vent-shafts>. To register as an Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment Practitioner (EAP) using the contact details provided.

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Kind regards,
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Date: 14.07.2022 23:47:58 (+02:00)

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Date: 14.07.2022 23:42:08 (+02:00)

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1.2. SMS

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Delivered to mobile	74.51%						
Delivery failed	1.55%						
Delivered upstream	23.94%						

Recipient	Status	Credits	Completed time	BodyHelp
+27606250495	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected P arty INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27606250495	Delivery failed	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10):

BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

In accordance with the requirements of Regulation 41 of

+27606250495 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 3 of 10):
the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (

+27606250495 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 4 of 10):
Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves

+27606250495 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 5 of 10):
as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department

+27606250495 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 6 of 10):
nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

A Background Information

+27606250495	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27606250495	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 8 of 10):</p> <p>ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
+27606250495	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27606250495	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27606375025	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27606375025	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27606375025	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
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+27606375025	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27606375025	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27606375025	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27606375025	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 8 of 10):</p> <p>ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
+27606375025	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27606375025	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27615297352	Delivered upstream	1.00		<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27615297352	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27615297352	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
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+27615297352	Delivered upstream	1.00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27615297352	Delivered upstream	1.00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
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+27615297352	Delivered upstream	1.00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27646117132	Delivered upstream	1.00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27646117132	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27646117132	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27646117132	Delivered upstream	1.00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27646117132	Delivered upstream	1.00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27646117132	Delivered upstream	1.00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27646117132	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter
+27646117132	Delivered upstream	1.00	Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27646117132	Delivered upstream	1.00	Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za ; Tel: (+27) 0
+27646117132	Delivered upstream	1.00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27679467503	Delivered upstream	1.00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO

+27679467503	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27679467503	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27679467503	Delivered upstream	1.00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27679467503	Delivered upstream	1.00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27679467503	Delivered upstream	1.00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27679467503	Delivered upstream	1.00		Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter
+27679467503	Delivered upstream	1.00		Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27679467503	Delivered upstream	1.00		Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za ; Tel: (+27) 0
+27679467503	Delivered upstream	1.00		Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO

+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 8 of 10):</p> <p>ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27711944851	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27712440214	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 8 of 10):</p> <p>ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
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+27712440214	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27713376650	Delivered upstream	1.00		<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27713376650	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27713376650	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27713376650	Delivered upstream	1.00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
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+27713376650	Delivered upstream	1.00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

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+27713376650	Delivered upstream	1.00		<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27713376650	Delivered upstream	1.00		<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27714324875	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27714324875	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 8 of 10):</p> <p>ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27714324875	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27714470580	Delivered upstream	1.00		<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27714470580	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27714470580	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27714470580	Delivered upstream	1.00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
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+27714470580	Delivered upstream	1.00		<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27714470580	Delivered upstream	1.00		<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>

+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>

+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 8 of 10):</p> <p>ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
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+27715374886	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27715959805	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>

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+27715959805	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>
+27720730791	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR</p>

				THE PROPOSED DEVELOPMENT OF AN GLO
+27720730791	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27720730791	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27720730791	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
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+27720730791	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27720832442	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

				AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27720832442	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27720832442	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27720832442	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
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+27720832442	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27720886747	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

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+27720886747	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
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+27720886747	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

				AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

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+27721225961	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

				AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

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+27721960381	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

				AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

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+27721989335	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27722807209	Delivered upstream	1.00		Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

			AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27722807209	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27722807209	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27722807209	Delivered upstream	1.00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27722807209	Delivered upstream	1.00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27722807209	Delivered upstream	1.00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p>

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+27722807209	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter
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+27722807209	Delivered upstream	1.00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27723580058	Delivered upstream	1.00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE

			AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27723580058	Delivered upstream	1.00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27723580058	Delivered upstream	1.00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27723580058	Delivered upstream	1.00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves</p>
+27723580058	Delivered upstream	1.00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27723580058	Delivered upstream	1.00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p>

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+27723580058	Delivered upstream	1.00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593

Message History Detail: Batch 1416917208

Time submitted 2022-07-20 11:51:20.0

Total messages 710

Total credits 710.00

Delivery summary

Delivered to mobile	74.51%
Delivery failed	1.55%
Delivered upstream	23.94%

Recipient	Status	Credits	Completed time	BodyHelp
+27725415984	Delivered upstream	1.00		<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27725415984	Delivered upstream	1.00		<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p>

			In accordance with the requirements of Regulation 41 of
+27725415984	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27725415984	Delivered upstream	1.00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27725415984	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27725415984	Delivered upstream	1.00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
			A Background Information
+27725415984	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

				/anglo-vent-shafts To register as an Inter
+27725415984	Delivered upstream	1.00		Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27725415984	Delivered upstream	1.00		Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27725415984	Delivered upstream	1.00		Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27726321197	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27726321197	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27726321197	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27726321197	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27726823289	Delivery failed	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27726823289	Delivery failed	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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+27726823289	Delivery failed	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27726823289	Delivery failed	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
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+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

				/anglo-vent-shafts To register as an Inter
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27729073939	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27730087233	Delivered upstream	1.00		Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27730087233	Delivered upstream	1.00		Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

			In accordance with the requirements of Regulation 41 of
+27730087233	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27730087233	Delivered upstream	1.00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27730087233	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27730087233	Delivered upstream	1.00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
			A Background Information
+27730087233	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

/anglo-vent-shafts To register as an Inter

+27730087233 Delivered 1.00
upstream

Concatenated SMS (part 8 of 10):

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+27730087233 Delivered 1.00
upstream

Concatenated SMS (part 9 of 10):

Practitioner (EAP) using the contact details provided.

Kind regards

Mr Alex Ndlovu

Environmental Consultant

Email: a.ndlovu@cesnet.co.za;

Tel: (+27) 0

+27730087233 Delivered 1.00
upstream

Concatenated SMS (part 10 of 10):

10 045 1375; or

Fax: (+27) 086 410 7593

+27733124885 Delivered 1.00
upstream

Concatenated SMS (part 1 of 10):

Dear Interested and Affected Party

INCEPTION NOTIFICATION:
BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR
THE PROPOSED DEVELOPMENT OF ANGLO

+27733124885 Delivered 1.00
upstream

Concatenated SMS (part 2 of 10):

BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

			In accordance with the requirements of Regulation 41 of
+27733124885	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27733124885	Delivered upstream	1.00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27733124885	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27733124885	Delivered upstream	1.00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
			A Background Information
+27733124885	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

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+27733124885 Delivered 1.00
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Concatenated SMS (part 8 of 10):

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Kind regards

Mr Alex Ndlovu

Environmental Consultant

Email: a.ndlovu@cesnet.co.za;

Tel: (+27) 0

+27733124885 Delivered 1.00
upstream

Concatenated SMS (part 10 of 10):

10 045 1375; or

Fax: (+27) 086 410 7593

+27734932523 Delivered 1.00
upstream

Concatenated SMS (part 1 of 10):

Dear Interested and Affected Party

INCEPTION NOTIFICATION:
BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR
THE PROPOSED DEVELOPMENT OF ANGLO

+27734932523 Delivered 1.00
upstream

Concatenated SMS (part 2 of 10):

BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

			In accordance with the requirements of Regulation 41 of
+27734932523	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27734932523	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
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Kind regards

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Environmental Consultant

Email: a.ndlovu@cesnet.co.za;

Tel: (+27) 0

+27734932523 Delivered 1.00
upstream

Concatenated SMS (part 10 of 10):

10 045 1375; or

Fax: (+27) 086 410 7593

+27742881368 Delivered 1.00
upstream

Concatenated SMS (part 1 of 10):

Dear Interested and Affected Party

INCEPTION NOTIFICATION:
BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR
THE PROPOSED DEVELOPMENT OF ANGLO

+27742881368 Delivered 1.00
upstream

Concatenated SMS (part 2 of 10):

BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

			In accordance with the requirements of Regulation 41 of
+27742881368	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27742881368	Delivered upstream	1.00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27742881368	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27742881368	Delivered upstream	1.00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
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+27742881368	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

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+27742881368	Delivered upstream	1.00		Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
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+27742881368	Delivered upstream	1.00		Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27760128579	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27760128579	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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+27760128579	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

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+27760128579	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27761451648	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27761451648	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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+27761451648	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27761917482	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27761917482	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
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+27761917482	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
				A Background Information
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

				/anglo-vent-shafts To register as an Inter
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27762217694	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27762302656	Delivered upstream	1.00		Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27762302656	Delivered upstream	1.00		Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

			In accordance with the requirements of Regulation 41 of
+27762302656	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27762302656	Delivered upstream	1.00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27762302656	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27762302656	Delivered upstream	1.00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
			A Background Information
+27762302656	Delivered upstream	1.00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

				/anglo-vent-shafts To register as an Inter
+27762302656	Delivered upstream	1.00		Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27762302656	Delivered upstream	1.00		Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27762302656	Delivered upstream	1.00		Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27762426763	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27762426763	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27762426763	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27762426763	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
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+27762426763	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27763075068	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27763075068	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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+27763075068	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27763075068	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
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				/anglo-vent-shafts To register as an Inter
+27763075068	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
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+27763075068	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 6 of 10): nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.
				A Background Information
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za

				/anglo-vent-shafts To register as an Inter
+27763881234	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 8 of 10): ested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27763881234	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 9 of 10): Practitioner (EAP) using the contact details provided. Kind regards Mr Alex Ndlovu Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27763881234	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27764549081	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27764549081	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27764549081	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27764549081	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27765223713	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27765223713	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27765223713	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27765223713	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27765341076	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27765341076	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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+27765341076	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27768281420	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27768281420	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

				In accordance with the requirements of Regulation 41 of
+27768281420	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27768281420	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
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+27768281420	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593

Records: 710

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1 **2** 3 4

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Message History Detail: Batch 1416917208

Time submitted	2022-07-20 11:51:20.0
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Total messages	710						
Total credits	710.00						
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Delivered to mobile	74.51%						
Delivery failed	1.55%						
Delivered upstream	23.94%						

Recipient	Status	Credits	Completed time	BodyHelp
+27768595882	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHO RISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27768595882	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVI NCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27768595882	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014</p>

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+27768595882	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter
+27768595882	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment

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+27768595882	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27768620733	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27768620733	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27768620733	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (

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+27768620733	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27768942422	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27768942422	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27768942422	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>

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+27769371117	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
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+27769860992	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
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+27790359621	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
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+27791739608	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27793376650	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27793376650	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
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+27794606613	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 6 of 10):</p> <p>nt of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>
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+27795633495	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (

+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 6 of 10): Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively. A Background Information
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+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment

+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27795756629	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27796863734	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27796863734	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27796863734	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>

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+27796863734	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27797015520	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27797015520	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27797015520	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (

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+27797015520	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment

+27797015520	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p> <p>Environmental Consultant</p> <p>Email: a.ndlovu@cesnet.co.za;</p> <p>Tel: (+27) 0</p>
+27797015520	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27797533443	Delivered upstream	1.00		<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27797533443	Delivered upstream	1.00		<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27797533443	Delivered upstream	1.00		<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>

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+27797533443	Delivered upstream	1.00	Concatenated SMS (part 5 of 10): as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department
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+27797533443	Delivered upstream	1.00	Concatenated SMS (part 8 of 10): Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment
+27797533443	Delivered upstream	1.00	Concatenated SMS (part 9 of 10):

				Practitioner (EAP) using the contact details provided.
				Kind regards
				Mr Alex Ndlovu
				Environmental Consultant
				Email: a.ndlovu@cesnet.co.za;
				Tel: (+27) 0
+27797533443	Delivered upstream	1.00		Concatenated SMS (part 10 of 10):
				10 045 1375; or
				Fax: (+27) 086 410 7593
+27797950775	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10):
				Dear Interested and Affected Party
				INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27797950775	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10):
				BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE
				In accordance with the requirements of Regulation 41 of
+27797950775	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10):
				the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (

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+27797950775	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27798175206	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27798175206	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27798175206	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>

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+27798175206	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 10 of 10):</p> <p>10 045 1375; or</p> <p>Fax: (+27) 086 410 7593</p>
+27799589195	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO</p>
+27799589195	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
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+27799589195	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORIZATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF ANGLO
+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION B OREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (

+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of this requirement, this letter hereby serves
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+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 7 of 10): Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter
+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 8 of 10): Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment

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+27799642996	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593

Records: 710

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1 2 **3** 4

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Message History Detail: Batch 1416917208

Time submitted 2022-07-20 11:51:20.0

Total messages 710

Total credits 710.00

Delivery summary

Delivered to mobile	74.51%
Delivery failed	1.55%

	Delivered upstream	23.94%
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Recipient	Status	Credits	Completed time	BodyHelp
+27818005606	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 1 of 10):</p> <p>Dear Interested and Affected Party</p> <p>INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO</p>
+27818005606	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 2 of 10):</p> <p>BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE</p> <p>In accordance with the requirements of Regulation 41 of</p>
+27818005606	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 3 of 10):</p> <p>the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (</p>
+27818005606	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 4 of 10):</p> <p>Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of</p>

this requirement, this letter hereby serves

+27818005606 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 5 of 10):
as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department

+27818005606 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 6 of 10):
Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

A Background Information

+27818005606 Delivered to mobile 1.00 2022-07-20 11:51:00

Concatenated SMS (part 7 of 10):
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Concatenated SMS (part 8 of 10):
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Concatenated SMS (part 9 of 10):
Practitioner (EAP) using the contact details provided.

Kind regards

Mr Alex Ndlovu

				Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27818005606	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27820663840	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27820663840	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27820663840	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27820663840	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of

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Practitioner (EAP) using the contact details provided.

Kind regards

Mr Alex Ndlovu

				Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27820663840	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of

				<p>this requirement, this letter hereby serves</p>
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 6 of 10):</p> <p>Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 7 of 10):</p> <p>Document (BID) that provides details of the proposed ventilation shafts is available at http://www.cesnet.co.za/anglo-vent-shafts To register as an Inter</p>
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 8 of 10):</p> <p>Interested and Affected Party (I&AP), please complete the last page on the attached Background Information Document and return to the Environmental Assessment</p>
+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 9 of 10):</p> <p>Practitioner (EAP) using the contact details provided.</p> <p>Kind regards</p> <p>Mr Alex Ndlovu</p>

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+27822660944	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27824335355	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27824335355	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
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+27824335355	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27825004231	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27825004231	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27825004231	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27825004231	Delivered to mobile	1.00	2022-07-20 11:51:00	<p>Concatenated SMS (part 5 of 10):</p> <p>as notification for the intent to submit applications for the authorisation of the proposed ventilation shafts and associated water uses to the Department</p>
+27825004231	Delivered to mobile	1.00	2022-07-20 11:52:00	<p>Concatenated SMS (part 6 of 10):</p> <p>Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.</p> <p>A Background Information</p>
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+27825004231	Delivered to mobile	1.00	2022-07-20 11:52:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27826442227	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27826442227	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
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+27826442227	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27827343001	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27827343001	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27827343001	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27827343001	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27827837693	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27827837693	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27827837693	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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+27827837693	Delivered to mobile	1.00	2022-07-20 11:51:00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27829615824	Delivered upstream	1.00		Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27829615824	Delivered upstream	1.00		Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
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			Environmental Consultant Email: a.ndlovu@cesnet.co.za; Tel: (+27) 0
+27829615824	Delivered upstream	1.00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27838945320	Delivered upstream	1.00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27838945320	Delivered upstream	1.00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27838945320	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
+27838945320	Delivered upstream	1.00	Concatenated SMS (part 4 of 10): Act No. 107 of 1998), we are required to notify all Interested and Affected Parties (I&APs). In fulfilment of

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+27838945320	Delivered upstream	1.00	Concatenated SMS (part 10 of 10): 10 045 1375; or Fax: (+27) 086 410 7593
+27839401832	Delivered upstream	1.00	Concatenated SMS (part 1 of 10): Dear Interested and Affected Party INCEPTION NOTIFICATION: BASIC ASSESSMENT AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED DEVELOPMENT OF AN GLO
+27839401832	Delivered upstream	1.00	Concatenated SMS (part 2 of 10): BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE In accordance with the requirements of Regulation 41 of
+27839401832	Delivered upstream	1.00	Concatenated SMS (part 3 of 10): the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (
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Email: a.ndlovu@cesnet.co.za;

Tel: (+27) 0

+27839401832 Delivered 1.00
upstream

Concatenated SMS (part 10 of 10):

10 045 1375; or

Fax: (+27) 086 410 7593

Records: 710

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1 2 3 4

APPENDIX 9.4 - BACKGROUND INFORMATION DOCUMENT

BACKGROUND INFORMATION DOCUMENT AND INVITATION TO COMMENT

PROPOSED DEVELOPMENT OF BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE



Return address for comments:

CES Coastal & Environmental Services

Mr Alex Ndlovu

72 Regency Drive

PO Box 934

Makhanda (Grahamstown)

6140

Tel: (+27) 010 045 1375

Fax: (+27) 082 783 6393

Email: a.ndlovu@cesnet.co.za

AIM OF THIS DOCUMENT

In terms of the National Environmental Management Act, the Waste Act and the Air Quality Act, certain listed activities require environmental approval and require that a **Basic Assessment (BA)** be conducted. The purpose of this document is to ensure that people interested in or affected by the **proposed development of Borwa ventilation shafts, emulsion borehole and overhead line at Mototolo Mine, Limpopo Province** are provided with information about the proposal, the process being followed, and an opportunity to be involved in the BA process.

Registering as an **Interested and/or Affected Party (I&AP)** allows individuals or groups the opportunity to contribute ideas, issues, and concerns regarding the project. I&APs also have an opportunity to review all reports and submit comments on those reports. All comments received are included in the reports submitted to the Competent Authority that will decide whether or not to issue an Environmental Authorisation.

ENVIRONMENTAL IMPACT ASSESSMENT PRACTITIONER

Coastal & Environmental Services (CES) was established in 1990 and specialises in impact assessments and environmental management. We were involved as lead consultants for a large mineral Environmental Impact Assessments (EIAs) in South Africa, and since completing that first EIA, we have expanded our scope of work to provide a wide variety of environmental advisory services to public and private-sector clients both within South Africa and internationally.

PROJECT DESCRIPTION

Anglo American Platinum is proposing the construction of three ventilation shafts and associated infrastructure at Mototolo Mine's Borwa Shaft, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Greater Tubatse Local Municipality, within the Sekhukune District municipality, Limpopo Province.

VENTILATION AND EMULSION SHAFTS

The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion shaft. The following details are currently available for the proposed ventilation and emulsion shafts.

BORROW PITS

Construction materials will be sourced from six borrow pits.

ACCESS ROADS

The proposed development will require the upgrading of the existing access roads on site, given their current eroded condition, as well as the generally rugged terrain of the project area. Upgraded access roads will be required to each ventilation shaft / emulsion hole and will be included in the applications. Access will be required to enable construction of the ventilation shaft and for future inspections. Road will need to be designed to accommodate environmental and physical vehicle requirements to lessen effect on the environment and enable safe use of the road by vehicles.

POWERLINES

The proposed development will require the construction of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including:

- The Ventilation Line South (Borwa-South), 2 600 m in length;
- The Ventilation Line North (Borwa-North), 2 000 m in length; and
- The Downcast Line, 1200 m in length (Figure 1.1).

CONSTRUCTION SITE CAMP

The proposed development will require the establishment of a site camp, within or near the project area, with the following basic services:

- Ablution facilities
- Tanks for water for drilling operations
- Site offices
- Security and access control
- Illumination, etc.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In terms of the South African Environmental Legislative Framework, the project will be subject to an Environmental Authorisation (EA) process which is governed by the National Environmental Management Act (NEMA - Act No. 107 of 1998 as amended). The process entails undertaking either a Basic Assessment (BA) or a full Scoping and Environmental Impact Assessment (S&EIA) in accordance with the NEMA Environmental Impact Assessment (EIA) Regulations set out in Government Notice R.982 (as amended). The EIA Regulations set out the processes that have to be followed in order to obtain an EA. Listing Notices 1 (GNR.983) and 2 (GNR.984) provide lists of activities that require a Basic Assessment Report (BAR), and S&EIA, respectively. Listing Notice 3 (GNR.985) lists activities that would require authorisation if carried out in specified geographical areas.

The proposed project will require a BA to be undertaken as the project activities trigger listed activities published under GNR. 983 and GNR. 985, as shown in the table below.

Table 1.1: Listed activities triggered by the proposed project

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	RELEVANCE TO THIS PROJECT
GNR 983 – Listing Notice 1		
11	The development of facilities or infrastructure for the transmission and distribution of electricity - (ii) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	The project entails the development of three new unshielded 11 kV pole mounted Fox overhead feeder lines (constructed to 33 kV specifications) with three 630 kVA 11 / 0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa, including: <ul style="list-style-type: none"> • The Ventilation Line South (Borwa-South), 2 600 m in length; • The Ventilation Line North (Borwa-North), 2 000 m in length; and • The Downcast Line, 1200 m in length
12	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; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —	The development will require the construction of permanent infrastructure (e.g. access roads, culverts and powerlines) with a physical footprint of more than 100 square metres within at least 32 m of watercourses.
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 construction works will require the infilling, depositing, excavation and removal of more than 10 cubic metres of soil, sand and rock from watercourses.

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	RELEVANCE TO THIS PROJECT
21	<p>Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and petroleum Development Act, 2002 (Act No. 28 of 2002), including –</p> <p>(a) Associated infrastructure, structures and earthworks, directly related to the extraction a mineral resource, or (including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)</p> <p>(b) The primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;</p>	<p>The project entails the mining of six borrow pits. The footprints of these still needs to be determined.</p>
22	<p>The decommissioning of any activity requiring –</p> <p>(i) A closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or</p> <p>(ii) A prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughout does not constitute closure:</p>	<p>The project entails the mining of six borrow pits. The footprints of these still needs to be determined.</p>
24	<p>The development of a road –</p> <p>(ii) With a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres;</p> <p>But excluding a road</p> <p>(a) Which is identified and included inactivity 27 in Listing Notice 2 of 2014;</p> <p>(b) Where the entire road falls within an urban area; or</p> <p>(c) Which is 1 kilometre or shorter.</p>	<p>The development will also include the upgrade the existing access roads.</p>
27	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.</p>	<p>The development will also include the upgrade the existing access roads and mining of six borrow pits.</p>
47	<p>The expansion of facilities or infrastructure for the transmission and distribution and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.</p>	<p>The development will require the construction of three new unshielded 11kV pole mounted. Fox overheader feeder lines (33kV) with three 630 kVA 11/0.55 kV ONAN Dyn11 Type B minisub stations feeding Borwa.</p>
56	<p>The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre –</p> <p>(i) Where the existing reserve is wider than 13,5 metres; or</p>	<p>The development will also include the upgrade the existing access roads.</p>

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	RELEVANCE TO THIS PROJECT
	(ii) Where no reserve exists, where the existing road is wider than 8 metres.	
GNR 985 – Listing Notice 3		
12e	The clearance of an area of 300 square meters or more of indigenous vegetation	One or more activities may be triggered under GNR. 985 (Listing Notice 3), depending on the location and footprint of the activity(ies) within sensitive areas as identified in the provincial biodiversity plan and/or local environmental management framework. These will be confirmed during the screening processes and site visit.
14e	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;	
18e	The widening of a road by more than 4 meters; or the lengthening of a road by more than 1 kilometre.	
23e	The expansion of – (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; where such expansion occurs— (a) within a watercourse;	

The development will also require a Water Use Authorisation (WUA) from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of the National Water Act (NWA, Act No. 36 of 1998). Under Section 21 of the NWA, the proposed development would require either a General Authorisation (GA) or Water Use License (WULA) (depending on level of risk), due to the triggering of the following water uses:

- 21(c) impeding or diverting the flow of water in a watercourse (relevant to the construction occurring in close proximity to drainage lines); and
- 21(i) altering the bed, banks, course or characteristics of a watercourse (relevant to the construction occurring in close proximity to drainage lines).

The level of risk associated with the water use activities will be assessed using the DHSWS Risk Assessment Matrix. Low risk activities may qualify for a GA, while moderate to high-risk activities would trigger a full WULA, subject to consultation with the DHSWS. Based on our experience and the nature of the proposed development, CES assume that a GA will be required. However, this will need to be confirmed by completing the risk assessment matrix and through consultation with the DHSWS.

APPROACH TO THE BASIC ASSESSMENT PROCESS

The BA for the proposed project is presently in the planning phase (Figure 2). This phase serves primarily to inform the public and relevant authorities about the proposed project and to determine any impacts. These impacts will then be extensively addressed during the environmental impact assessment studies. Only after the Final Basic Assessment Report (FBAR) has been submitted will the relevant authorities make a decision.

A Draft Basic Assessment Report (DBAR) will be compiled which will comprehensively describe the activities and impacts that the project may have on the receiving environment, including specialist reports and details from the PPP process. The DBAR and Environmental Management Programme (EMPr) will be published for a 30-day public comment period.

Subsequent to the review and commenting period, an FBAR will be compiled for submission to the Department of Mineral Resources and Energy (DMRE). This will include all public comments and response to issues raised by Interested and Affected Parties (I&APs).

Should the authorities grant approval via an environmental authorisation, all registered I&APs will be notified accordingly and given the opportunity to appeal against the decision, should they so wish.

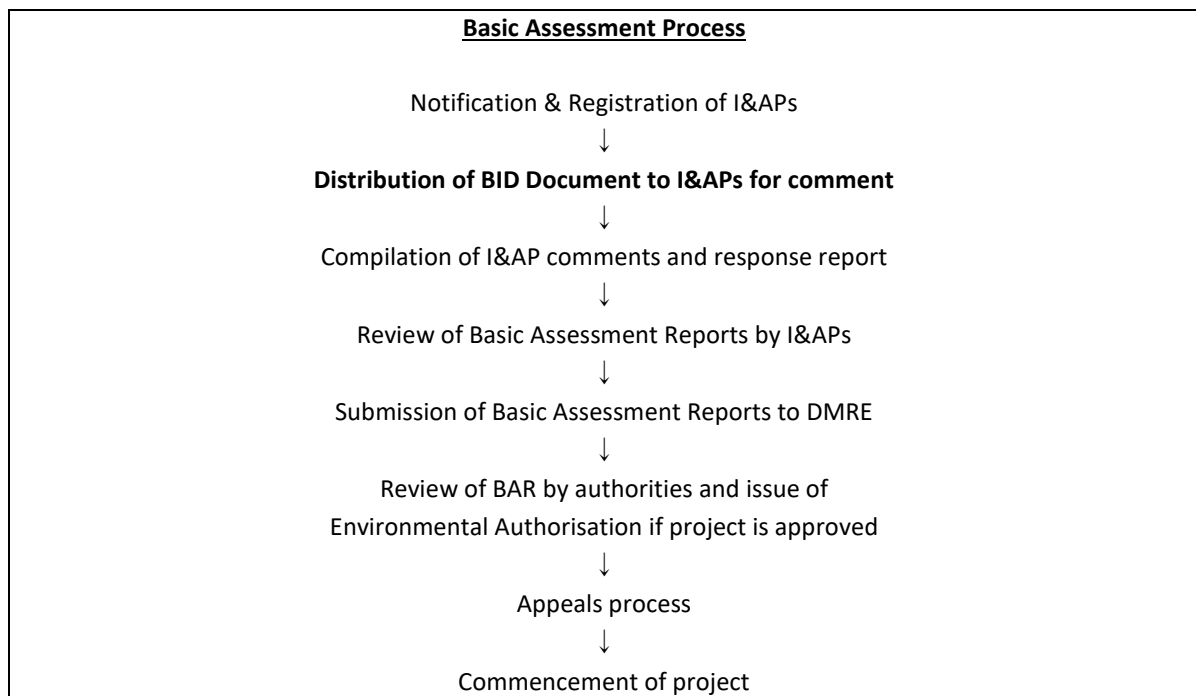


Figure 2: Proposed Basic Assessment Process Including Public Participation

POTENTIAL IMPACTS

The following general impacts are anticipated for the proposed projects such as this:

- Waste creation and storage.
- Soil erosion.
- Hazardous spillage.
- Alteration of hydrological regime of rivers.
- Water contamination.
- Invasive alien species spread.
- Vegetation and faunal impacts.
- Stormwater impacts.
- Loss of soil fertility.
- Dust generation.
- Noise increase.
- Light pollution.
- Sedimentation of rivers.
- Social impacts.
- Heritage impacts.
- Traffic impacts.
- Loss of habitat and ecosystem quality.

The following specialist studies will likely be required to ascertain any potential impacts, positive and negative, that may occur as a result of the potential authorization of the project, and to propose mitigation measures for the construction and operation phases:

- Heritage and Paleontological Impact Assessment;
- Ecological Impact Assessment; and
- Wetland and Aquatic Ecology Impact Assessment.

HOW CAN YOU BE INVOLVED

A Public Participation Process (PPP) is being conducted as part of the BA. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by, the proposed development to provide input into the process. The PPP will include:

- Advertisements in the local newspapers.
- Notice Boards on site.
- Circulation of the BID (this document) to all I&APs and stakeholders.
- Registration of all I&APs and stakeholders.
- Community and focus group meetings.
- Review of all comments by registered I&APs and stakeholders.

If you consider yourself an interested and/or affected person/party, **it is important that you become and remain involved in the public participation process**. In order to do so please follow the steps below in order to ensure that you are continually informed of the project developments and will ensure your opportunity to raise issues and concerns pertaining to the project.

STEP 1: Please **register** by responding to our notification and invitation, with your name and contact details (details provided on cover page and below). As a registered I&AP you will be informed of all meetings, report reviews and project developments throughout the EIA process.

STEP 2: Please send us any comments, concerns or queries you may have in relation to the proposed road upgrade activities.

STEP 3: Attend meetings that will be held throughout the BAR process. As a registered I&AP, you will be invited to these meetings.

CES is required to engage with all private and public parties that may be interested and/or affected by the proposed road upgrade, in order to distribute information for review and comment in a transparent manner.

In the same light, it is important for I&APs to note the following:

1. In order for CES to continue engaging with you, please **ENSURE** that you register on our database by contacting the person below.
2. As the BA process is regulated by specific review and comment timeframes, it is your responsibility to submit your comments within these timeframes.

Please note that the collection and storage of personal information by CES is subject to the Protection of Personal Information Act, No. 4 of 2013. By providing CES with your details you acknowledge and permit CES to your details for the purposes intended under the National Environmental Management Act 1998 EIA regulations (as amended 2017). Should you wish to retract your registration please do get in touch with CES.

I HEREBY WISH TO REGISTER AS AN INTERESTED AND AFFECTED PARTY (I&AP) FOR THE PROPOSED DEVELOPMENT OF BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Name: _____

Organisation: _____

Postal address: _____

Email: _____

Phone #: _____ Fax #: _____

My initial comments, issues or concerns are:

Other individuals, stakeholders, organisations or entities that should be registered are:

Name: _____

Organisation: _____

Postal address: _____

Email: _____

Phone #: _____ Fax #: _____

APPENDIX 9.5 - NEWSPAPER ADVERTISEMENT

NOTICE: PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended) of the release of the intent to submit applications for the authorisation of the proposed development of Anglo Borwa ventilation shafts, emulsion borehole and overhead line to the Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

Proposed Project: Anglo American Platinum is proposing the development of three ventilation shafts and associated infrastructure at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). Anglo American Platinum also proposes to establish six borrow pits for material sourcing and the upgrading of access roads and powerlines. The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole.

In terms of the EIA regulations, the proposed development will require a Basic Assessment application. A Water Use Authorisation (WUA) will also be applied for under the National Water Act, Section 21 (Act No 36 of 1998). Anglo American Platinum has appointed CES to undertake the authorisation processes and submit the applications to the abovementioned authorities. A Background Information Document is available at <http://www.cesnet.co.za/anglo-vent-shafts>. Please register as an Interested & Affected Party with the below consultant to receive further information on this project:



Mr Alex Ndlovu

Email: a.ndlovu@cesnet.co.za; Tel: (+27) 010 045 1375

Fax: (+27) 086 410 7593



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NOTICE: PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended) of the release of the intent to submit applications for the authorisation of the proposed development of Anglo Borwa ventilation shafts, emulsion borehole and overhead line to the Department of Mineral Resources and Energy (DMRE) and the Department of Human Settlements, Water and Sanitation (DHSWS), respectively.

Proposed Project: Anglo American Platinum is proposing the development of three ventilation shafts and associated infrastructure at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorndcliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). Anglo American Platinum also proposes to establish five borrow pits for material sourcing and the upgrading of access roads and powerlines. The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole.

In terms of the EIA regulations, the proposed development will require a Basic Assessment application. A Water Use Authorisation (WUA) will also be applied for under the National Water Act, Section 21 (Act No 36 of 1998). Anglo American Platinum has appointed CES to undertake the authorisation processes and submit the applications to the abovementioned authorities. A Background Information Document is available at <http://www.cesnet.co.za/anglo-vent-shafts>. Please register as an Interested & Affected Party with the below consultant to receive further information on this project:



Mr Alex Ndlovu
Email: a.ndlovu@cesnet.co.za; Tel: (+27) 010 045 1375
Fax: (+27) 086 410 7593

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paying the right social grant, to the right person, at the right time and place. NJALO!



PUBLIC NOTICE

www.polokwane.gov.za

07 July 2022

INVITATION TO APPLY FOR STREET TRADING PERMITS

Kindly be informed that application forms for street trading permits within Polokwane Municipality are now available for collection from the 11th July 2022 to 15th August 2022 at the following offices:

- Civic Centre, corner Landros mare and bodenstein street ground floor: Permit office or ED&T Offices
- Itsoeng Entrepreneurial Centre
- All Polokwane municipality Libraries

Required documents during submission:

- Proof of Resident
- Certified Copy of South African Identity document

NB: Street Traders who have previously applied for street trading permit but were unsuccessful or not issued with permits are then encouraged to re-apply. All street traders who are in possession of street trading permit must not re-apply.

Closing Date: 15th August 2022 Time: 16h30

NB: Submission of application forms must strictly be done at Civic Centre Corner Landros Mare and Bodenstein streets Permit office or ED&T Offices ground floor before or on the 15th August 2022.

For more information, please contact
Mr. Nare Marotela at 063 672 1147/015 290 2044

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All classifieds display, back or storage adverts Tuesday by 11:00

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- Step 1: Prepare the outline of your wording
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- Step 3: Our consultant will assist you in the placing of important details regarding your item for sale, vacancy or service

Cost Of Advert (Newspaper & Website)

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Remember: For private advertisers, The more you tell the more you sell

Payment: First time advertisers are required to pay cash at Lowveld Media or by EFT payment into the Lowveld bank account. A 30 day account is available once a credit application is approved.

Adjustments & Errors

Display Adverts: Although every effort is made to place display adverts next to relevant columns we cannot guarantee that this will be done. All display adverts will be placed as close to the relevant column as possible

The newspaper accepts no responsibility for more than one incorrect insertion of any classified advertisement or any costs beyond the costs of the space occupied by the error. All queries on the advertisement and account must reach the newspaper within 14 days of publication of advertisement. Failure to do so will result in the order and advertisement accepted as correct. No further discussions will be entered into.

The use of the letter "A": For the purpose of bringing the advert to the top of a classification, this is strictly prohibited. The right is reserved to withhold advertisement for publication and to cancel any order that has been accepted.

Cancellations: When cancelling an advert you must receive a cancellation ref number - no queries can be dealt with if you do not quote this number. Cancellation of advert will only be accepted in writing.

NOTICES

0005 Births
 0008 Birthdays
 0010 Congratulations
 0012 Matchmakers
 0015 Engagements
 0020 Marriages
 0022 Anniversaries
 0025 Greetings and Wishes
 0030 Thanks
 0035 Deaths
 0037 Funerals
 0038 Funeral Services
 0040 Condolences
 0045 In Memoriam
 0050 Consecrations
 0055 Church Notices
 0060 Personal
 0065 Psychics / Tarot Readers
 0070 Lost
 0075 Found
 0080 Lifts
 0085 Social
 0090 School News
 0095 Kids
 0098 General
 0099 Wanted

0005 DEATHS

AT+IT'S
 084-587-5666
 DE CLERQ STR 67
 LYDENBURG

LEONARD
 Colin Bruce
 Gebore: 1977-11-06
 Afssterwe: 2022-06-29

AT+IT'S
 084-587-5666
 DE CLERQ STR 67
 LYDENBURG

SPEAR

at+it's
 084-587-5666
 DE CLERQ STR 67
 LYDENBURG

YAN GREUNEN
 Richard Henry
 Wessels
 Gebore: 1962-09-11
 Afssterwe: 2022-06-30

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 0519 Factories / Industries / Workshops
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 0524 Holiday Accommodation
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 0636 Legal
 0639 Management
 0641 Medical
 0644 Parttime / Tempo
 0647 Personnel / HR
 0648 Prime Positions
 0650 Professional Vacancies
 0653 Reception / Switchboard
 0656 Sales / Marketing
 0659 Security
 0662 Secretaries / PAs
 0665 Senior Citizens
 0668 Technical
 0669 Technical / Building Employment Wanted
 0671 Trade
 0674 Training

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(07) DOMESTIC EMPLOYMENT WANTED

ATTENTION SATISO AANDAG R60 PER ADVERT FOR DOMESTIC EMPLOYMENT WANTED in the Steelburger newspaper.

Come to our office at 48 Viljoen street, Lydenburg. Office hours ONLY. We will need a copy of your ID and payment to ensure publication. **NO JOBS AVAILABLE** at the newspaper.

This is for you to advertise that you want work. T's & C's apply.

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 0910 Public & Legal Notices
 0915 Sales In Execution
 0920 Tenders
 0925 Estates
 0930 Liquidations
 0935 Town Planning
 0940 General

(09) PUBLIC / LEGAL NOTICES

NOTICE
 PROPOSED DEVELOPMENT OF ANGIO BOREA TERTIUM SHAFTS, CARLSON BURGHELD AND DRINKING LUK AT 80701510 WINE, LERPORENOVICE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations, 2014 (Gazetted) of the release of the EIA to relevant applicants for the advertisement of the proposed development of Anglo Boreas water shafts.

REQUISITION OF ANNUAL GENERAL MEETING OF THE MEMBERS OF TUBATSE AFRICAN AGRICULTURAL MERGEO

available for sale and located close to the Department of Mineral Resources and Energy (DMRE) and the Department of Water Affairs. Water and electricity available. Proposed Project: Anglo American Platinum is processing the construction of three ventilation shafts and associated infrastructure at Merobela Mine, located on the farm number of Farm Merobela 310 67 and 310 67/1 of Farm Merobela 310 67, approximately 20 km to the west of Mookgeloop (Lurup) and 36 km north-west of Lydenburg (Mookgeloop). Anglo American Platinum has proposed to establish the former pit for mineral recovery and the upgrading of access roads and pipelines. The proposed development will include the construction of one diamond shaft, one water supply shaft and one ventilation shaft, in terms of the EIA Regulations. Anglo American Platinum has invited all interested parties to submit a written objection to the proposed development. Objections should be submitted to Anglo American Platinum by 15 July 2022. Anglo American Platinum has approved EIA to undertake the construction process and submit the applications to the relevant authorities. A Geographic Information Document is available at <http://www.anglo.com> as a public information. Please register the document & attend the site with the above information on the project at the below:

On-site office:
 Ground level use:
 Tel: 082 084 40 1375
 Tel: 082 084 40 1349

Developing our people, growing your business

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Proposed development of Borwa ventilation shafts, emulsion borehole and overhead line at Mototolo Complex, Limpopo

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended) of the release of the intent to submit applications for the authorisation of the proposed development of Anglo Borwa ventilation shafts, emulsion borehole and overhead line to the Department of Mineral Resources and Energy and the Department of Human Settlements, Water and Sanitation, respectively.

Proposed Project

Anglo American Platinum is proposing the development of three ventilation shafts and associated infrastructure at Mototolo Mine, located on the remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, about 23km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga).

Anglo American Platinum also proposes to establish six borrow pits for material sourcing and the upgrading of access roads and powerlines. The proposed development will include the construction of one downcast shaft, two exhaust (upcast) shafts and an emulsion borehole.

EIA regulations

In terms of the EIA regulations, the proposed development will require a basic assessment application. A water use authorisation (WUA) will also be applied for under the National Water Act, Section 21 (Act No 36 of 1998).

Anglo American Platinum has appointed CES to undertake the authorisation processes and submit the applications to the abovementioned authorities.

A background information document is available at <http://www.cesnet.co.za/anglo-vent-shafts>. Please register as an interested and affected party with the below consultant to receive further information on this project:

CES Environmental and Social Advisory Services

Alex Ndlovu

Email: a.ndlovu@cesnet.co.za;

Tel: (+27) 010 045 1375

Fax: (+27) 086 410 7593

APPENDIX 9.6 - ISSUES AND RESPONSE TRAIL

A number of comments and issues have been raised by I&APs regarding the proposed development to date. The Issues and Response Trail (IRT) is provided in the table below.

Table 1: EAP responses to neighbour comments on BID Report

Name	Comments	CES (EAP) response
Masha Dineo Makgare	<ul style="list-style-type: none"> As host community business organisation, kindly consider the establishment in terms of 30% procurement development of youth entrepreneurs from local. 	<p>Your comments and concerns are duly noted and will be brought to the attention of the applicant (ANGLO).</p> <p>Please note that we are currently in the early phases of the Environmental Authorisation process and have only begun identifying and registering potential interested and affected parties. We have added your details to our database and will keep you informed of the availability of Draft Basic Assessment Report and specialist reports. This will afford you the opportunity to review and comment on the reports once they become available.</p>
Thabiso Malapaner	<ul style="list-style-type: none"> Laps plumbers and projects is a civil construction company based at house 705 Mapodile longtill Steelpoort, we have worked within Glencore Lion Smeltor and CSI projects (Glencore), we have constructed a day care center and ablution facilities within Glencore. 	
Lindiwe Masinga	<ul style="list-style-type: none"> Am interested to tender 	
Morati Mabelane	<ul style="list-style-type: none"> I'm having interest of working with you as Marakwana mining and construction pty 	
Agnes Maphile Leopeng	<ul style="list-style-type: none"> I would like to be part of this initiative of a service provider on the following: <ul style="list-style-type: none"> Ablution facilities Tanks for waste Site offices, security Illumination etc. 	
Kenneth Thabo Mothupi	<ul style="list-style-type: none"> Please invite all affected parties from Dithabeng or maybe allow us to spread the message to relevant people affected. 	<p>Thank you for your response, you're welcome to spread the message.</p>
Mokebisa Vincent Masie	<ul style="list-style-type: none"> I'm Masie Mokebisa Vincent, from Welgevonden mining and projects, from moletsi ga - leshaba. <p>I would like to register as an interested party, but I can't find the attached form to fill.</p>	<p>Please try this one http://www.cesnet.co.za/anglo-vent-shafts</p>
Mmushi Kgopane	<ul style="list-style-type: none"> Thanks for updating. The link did not work i need help 	
Manglo Industrial and Mining Supplier (PTY) LTD	<ul style="list-style-type: none"> Please note that the link you've sent us it's broken because when we try to open it says error. Kindly fix it and resend it. 	
Masie Mokebisa Vincent	<ul style="list-style-type: none"> I would like to register as an interested party, but I can't find the attached form to fill. 	
Kenneth Thabo Mothupi	<ul style="list-style-type: none"> Kindly assist on how we participate, I don't see any attachment and the link doesn't open.... Stating an error. 	
Lehlogonolo Micamilla	<ul style="list-style-type: none"> The link provided for registration form, is not accessible nor it can open. Kindly assist in this regard. 	<p>Please note that we are currently in the early phase of the Environmental Authorisation process and have only begun identifying and registering potential interested and affected parties. We have added your details to our database and will keep you informed of the availability of Draft Basic Assessment Report and specialist reports. This will afford you the opportunity to review and comment on the reports once they become available.</p> <p>Please find the background information document (BID) attached in the meantime.</p>
Mike	<ul style="list-style-type: none"> May you please clarify for us regarding this email. 	

APPENDIX 9.6 - ISSUES AND RESPONSE TRAIL

APPENDIX 9.6.1 – ISSUES RAISED BY I&APS

A number of comments and issues have been raised by I&APs regarding the proposed development to date. The Issues and Response Trail (IRT) is provided in the table below.

Table 1: EAP responses to neighbour comments on BID Report

Name	Comments	CES (EAP) response
Masha Dineo Makgare	<ul style="list-style-type: none"> As host community business organisation, kindly consider the establishment in terms of 30% procurement development of youth entrepreneurs from local. 	Your comments and concerns are duly noted and will be brought to the attention of the applicant (ANGLO).
Thabiso Malapaner	<ul style="list-style-type: none"> Laps plumbers and projects is a civil construction company based at house 705 Mapodile longtill Steelpoort, we have worked within Glencore Lion Smeltor and CSI projects (Glencore), we have constructed a day care center and ablution facilities within Glencore. 	
Lindiwe Masinga	<ul style="list-style-type: none"> Am interested to tender 	
Morati Mabelane	<ul style="list-style-type: none"> I'm having interest of working with you as Marakwana mining and construction pty 	
Agnes Maphile Leopeng	<ul style="list-style-type: none"> I would like to be part of this initiative of a service provider on the following: <ul style="list-style-type: none"> Ablution facilities Tanks for waste Site offices, security Illumination etc. 	
Kenneth Thabo Mothupi	<ul style="list-style-type: none"> Please invite all affected parties from Dithabeng or maybe allow us to spread the message to relevant people affected. 	Thank you for your response, you're welcome to spread the message.
Mokebisa Vincent Masie	<ul style="list-style-type: none"> I'm Masie Mokebisa Vincent, from Welgevonden mining and projects, from moletsi ga - leshaba. <p>I would like to register as an interested party, but I can't find the attached form to fill.</p>	Please try this one http://www.cesnet.co.za/anglo-vent-shafts
Mmushi Kgopane	<ul style="list-style-type: none"> Thanks for updating. The link did not work i need help 	
Manglo Industrial and Mining Supplier (PTY) LTD	<ul style="list-style-type: none"> Please note that the link you've sent us it's broken because when we try to open it says error. Kindly fix it and resend it. 	
Masie Mokebisa Vincent	<ul style="list-style-type: none"> I would like to register as an interested party, but I can't find the attached form to fill. 	
Kenneth Thabo Mothupi	<ul style="list-style-type: none"> Kindly assist on how we participate, I don't see any attachment and the link doesn't open ....Stating an error. 	
Lehlogonolo Micamilla	<ul style="list-style-type: none"> The link provided for registration form, is not accessible nor it can open. Kindly assist in this regard. 	
Mike	<ul style="list-style-type: none"> May you please clarify for us regarding this email.		Please find the background information document (BID) attached for more information on this project.
Lindiwe Masinga	<ul style="list-style-type: none"> I lindiwe Masinga from Namrubi pty Ltd, I didn't manage to connect to join the team meeting. Can you please arrange for me official meeting to come to your office please. 	<p>Hi Lindiwe,</p> <p>Thank you for your email.</p> <p>Unfortunately there won't be another public online session, the public review period is over.</p> <p>Please find the link below to the project folder: http://www.cesnet.co.za/anglo-vent-shafts</p> <p>Should you have any questions or comments, kindly revert to this email.</p> <p>Alternatively you can also visit Anglo Borwa offices for more information and request to see the project's representative:</p> <ul style="list-style-type: none"> Mengwai Mahlogonolo <ul style="list-style-type: none"> email address: mahlogonolo.mengwai@angloamerican.com <p>We look forward to hearing from you soon.</p> <p>Thank you for your time</p> <p>Warm regards, Alex</p>

APPENDIX 9.6.2 - ISSUES RAISED FROM THE RELEASE OF THE DBAR

No comments were received to date for the release of the DBAR

APPENDIX 9.6.3 - ISSUES RAISED FROM THE PUBLIC ONLINE SESSION

Minutes from the Public Online Session

LOCATIO N:	MS Teams			
DATE:	13 September 2022			
TIME:	11:00 - 13:30			
ATTENDE ES:	Name	Affiliati on	Designatio n	Contact
	Alex Ndlovu	CES	Environme ntal Consultant	a.ndlovu@cesnet.co.za
	Corrie Retief	CES	Principal Consultant	Corrie.retief@cesnet.co.za
	Derick Horn	AAP	SIB Project Manager	georg.horn@angloamerican.com
	Mahlogon olo Mengwai	APP	Stakeholde r Engageme nt	<a href="mailto:mahlogonolo.mengwai@angloamer
ican.com">mahlogonolo.mengwai@angloamer ican.com
	Sharron Mkhabela	APP		<a href="mailto:Sharron.Mkhabela@angloamerican
.com">Sharron.Mkhabela@angloamerican .com
	Thea Botha	Glencore	Environme ntal Officer	Thea.Botha@glencore.co.za
	Frans Makhura	Glencore	Environme ntal Assistant	Frans.Makhura@glencore.co.za
	CM Mashego	SMME	-	mashegocm84@gmail.com
	Phatlane Mahlaela	Sekgogo	-	sekgogoprojects@gmail.com
	Thabo Mothupi	SMME	-	kent.mothupi@gmail.com
	Sbongile Makhudo	DSD	Social Worker	Makhudujoyce.dsd@gmail.com
	Mashabel a	Natok	Sales	hello@natok.co.za

Agenda:

1. Welcome / Introduction
2. Attendance register
3. Background
4. Project site and description
5. Motivation for the proposed development
6. Environmental sensitivity
7. Environmental authorisation
8. Specialist studies to be undertaken
9. Public participation process
10. Discussion/Q&A
11. Closure

Table 2: Notes on questions and answers

Item	Question / Issue – Participant	Response
1.	<p><u>Background</u> (Presented by Alex Ndlovu (AN))</p> <p><u>Applicant:</u> Anglo American Platinum</p> <p><u>Location:</u> The site is located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga).</p> <p><u>Objective:</u> Anglo American Platinum propose to develop three additional ventilation shafts and associated infrastructure, including the establishment of six borrow pits for material sourcing and the upgrading of access roads and temporary powerlines.</p> <p><u>Background</u></p> <ul style="list-style-type: none"> • CES Environmental and Social Advisory Services has been appointed by Anglo American Platinum Limited, to undertake the environmental services required for the construction of three ventilation shafts and associated infrastructure at Mototolo Mine. • Mototolo Mine is fully owned by Anglo American Platinum Limited (AAP) and is in the business of mining of Platinum Group Metals, from Upper Group 2 (UG2) reef horizon using the board and pillar mining method. • Currently the mine is ventilated with 320 m³/s utilising a series ventilation system where significant re-use of air is taking place and re-entry times are above 2 hours. This ventilation practice is sub-optimal, causing major challenges in complying with the design criteria. <p><u>Motivation for the proposed development</u></p> <ul style="list-style-type: none"> • Anglo American Mine is responsible for a large portion of the regions GVA and the generation of approximately over 600 employment opportunities. • The development and implementation of an efficient ventilation shaft system will circulate air to and/or from the underground mining area, regulate the temperature and ensure employee safety and health. • The slope of the area was also considered in order to limit erosion. • The development of the access roads will provide the engineers and contractors with ease of access to the ventilation shafts during construction and for environmental monitoring and maintenance purposes once the vent shaft is fully operational. • The Mining Charter’s main objectives, which Anglo Mine will assist to reach, are: <ul style="list-style-type: none"> ○ To promote equitable access to South Africa’s Mineral Resources for all South Africans; ○ To substantially and meaningfully expand opportunities for historically disadvantaged South Africans (HDSAs); ○ To utilise the existing skills base for the empowerment of HDSAs; and 	

Item	Question / Issue – Participant	Response
	<ul style="list-style-type: none"> ○ To expand the skills base of HDSAs to serve the community; (Refer to the SLP conducted). <p><u>Specialist studies undertaken</u></p> <ul style="list-style-type: none"> • Terrestrial Biodiversity Assessment; • Heritage Impact Assessment; and • Aquatic Impact Assessment. <p><u>Environmental Authorisations required</u></p> <ul style="list-style-type: none"> • Environmental Authorisation from DMRE; and • General Authorisation from DWS. <p><u>Public Participation Process</u></p> <ul style="list-style-type: none"> • Inception; • Application and Draft Report Submission; and • Final Reports and Closure. 	
2.	PM: The Covid -19 regulations have been amended, therefore public interaction should be enforced.	AN: That is correct, but Covid 19 still exists and some people are still not comfortable meeting in crowded places and no request has been made from any stakeholder for a physical public meeting.
3.	TM: This notice is important and must cover the entire location in question, however this location is dominated by a very disadvantaged group of people with no smartphone and network is a problem.	MM: The invitation was issued and distributed to all stakeholders well in advance. We have not received a request for a physical public meeting otherwise we would've done that. If there are disadvantaged people who would like to know more about the project, they are more than welcome to come to our Anglo offices.
4.	SM: Could you please share project folder?	AN: The project folder was shared with all the I&APs and it is available on the CES link below: (http://www.cesnet.co.za/anglo-vent-shafts)
5.	Closing	

ACTION ITEMS:

- Link to the project folder – Alex (CES) to circulate to Sharron (Anglo)
- Meeting minutes (this document) – Alex (CES) to circulate to DMRE
- Community (ies) to liaise with Mahlogonolo (Anglo) should they require more information on the project.

APPENDIX 9.6.4 – COMMENTS FROM LEDET

Multiple attempts such as calls, and emails have been made to get comments from LEDET during the public review period and comments were only received after the review period. Proof is attached below:

Item	LEDET	CES (EAP) response
1.	<p>Good day Alex</p> <p>Please note that this Department issues comments on the Consultation Reports submitted as hard copies, it may be from DMRE or from the EAP. This Department currently does not have online systems to download the reports. You are therefore requested to submit the hard copy to number 19 Biccard Street, Polokwane.</p> <p>Should have any further queries in this respect, please do not hesitate to contact the Department.</p>	<p>Hi Tirhani,</p> <p>Thank you for your email.</p> <p>We will submit the hardcopies as advised and forward your comments to DMRE as soon as we receive them.</p> <p>Thanks and kind regards, Alex</p>

Alex Ndlovu

From: Alex Ndlovu
Sent: Wednesday, 05 October 2022 11:43
To: Kubaye T A
Cc: Mogashoa M S; Ngoasheng T R; Corrie Retief
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Hi Tirhani,

Thank you for your email.

We will submit the hardcopies as advised and forward your comments to DMRE as soon as we receive them.

Thanks and kind regards,
Alex

From: Kubaye T A <kubaye.tirhania@limpopo.gov.za>
Sent: Tuesday, 04 October 2022 16:34
To: Alex Ndlovu <a.ndlovu@cesnet.co.za>
Cc: Mogashoa M S <mogashoa.mokgadis@limpopo.gov.za>; Ngoasheng T R <ngoashengtr.tlhagalar@limpopo.gov.za>
Subject: Re: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good day Alex

Please note that this Department issues comments on the Consultation Reports submitted as hard copies, it may be from DMRE or from the EAP. This Department currently does not have online systems to download the reports. You are therefore requested to submit the hard copy to number 19 Biccard Street, Polokwane.

Should have any further queries in this respect, please do not hesitate to contact the Department.

Kind regards
Tirhani Kubaye
Environmental Impact Management
Tel: 015 293 8830
Mobile: 082 041 3222
19 Biccard Street, Evridiki Towers, Polokwane, 0699

ENVIRONMENTAL IMPACT MANAGEMENT
DEPARTMENT OF ECONOMIC DEVELOPMENT ENVIRONMENT & TOURISM

From: Alex Ndlovu <a.ndlovu@cesnet.co.za>

Sent: Tuesday, October 4, 2022 11:58 AM

To: Mukhari G J <MukhariGJ@ledet.gov.za>; Mothapo S W <MothapoSW@ledet.gov.za>; Ngoasheng T R <NgoashengTR@ledet.gov.za>; Choshi K J <ChoshiKJ@ledet.gov.za>; Appel A <AppelA@ledet.gov.za>

Cc: Corrie Retief <Corrie.Retief@cesnet.co.za>

Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good day,

I trust that all is well.

I'm following up on the email below for the release of the Draft BAR for public review which ran until 2 October 2022.

Could you kindly send your comments by tomorrow before COB.

Your urgent assistance would be highly appreciated.

Thank you for your time

Warm regards,

Alex

NEXTEC

ALEX NDLOVU
ENVIRONMENTAL CONSULTANT
CES – ENVIRONMENTAL AND
SOCIAL ADVISORY SERVICES

T +27100451375
a.ndlovu@cesnet.co.za



From: Alex Ndlovu

Sent: Friday, 23 September 2022 10:34

To: MukhariGJ@ledet.gov.za; MothapoSW@ledet.gov.za; NgoashengTR@ledet.gov.za; Choshi K J

<ChoshiKJ@ledet.gov.za>; Appel A <AppelA@ledet.gov.za>

Cc: Corrie Retief <Corrie.Retief@cesnet.co.za>

Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good morning,

I hope this email finds you well.

On behalf of Anglo American Platinum, CES has submitted an application for environmental authorisation for the above-mentioned project to the Department of Mineral Resources and Energy (DMRE).

As per the notification email below, dated 02 September 2022, the public review period for the Draft BAR will run until 2 October 2022.

CES would like to provide LEDET with the opportunity to provide any comments they may have on the Draft BAR. The Draft reports are available electronically at: <http://www.cesnet.co.za/anglo-vent-shafts>

Please acknowledge receipt of this email and submit any comments before 2 October 2022.

Your feedback would be greatly appreciated.

Warm regards,

Alex

From: Alex Ndlovu

Sent: Friday, 02 September 2022 12:44

To: Alex Ndlovu <a.ndlovu@cesnet.co.za>

Subject: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Dear Interested and Affected Party

APPLICATION FOR THE INCEPTION & PUBLIC REVIEW NOTICE: DRAFT BASIC ASSESSMENT FOR THE DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) for the release of the Draft Basic Assessment Report (BAR), Environmental Management Programme (EMPr) and Specialist Impact Assessments for the abovementioned project for public review.

Proposed project: Anglo American Platinum is proposing the development of three ventilation shafts, emulsion borehole and overhead line at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Fetakgomo Tubatse Local Municipality, within the Sekhukhune District Municipality, Limpopo Province.

As per the Environmental Impact Assessment (EIA) regulations of 2014 (as amended), the Anglo Borwa Ventilation Shafts project requires an Environmental Authorisation, from the Department of Mineral Resources and Energy (DMRE) and WUA application to the Department of Human Settlement, Water and Sanitation (DHSWS), respectively. The triggered activities are listed under Listing Notices 1 & 3 (published in Government Notices No. R 983 and No. R 985 respectively), and as such, the BA process needs to be followed.

All Interested and Affected Parties (I&APs) are hereby notified of the availability of the Draft BAR, EMPr and specialist reports for public review from **02 September 2022** to **02 October 2022** at the following emplacement below:

- The draft reports are available electronically on the CES website <http://www.cesnet.co.za/anglo-vent-shafts>
- Hardcopies of the executive summaries will be sent via registered post, upon request, to I&APs should they be unable to access the electronic version

Following the release of the Draft reports, an **online public information session** will also be held on **Tuesday, 13 September 2022** from **11:00 to 13:30** to present the project and to give the public an opportunity to comment on the proposed development. Should you wish to attend the online session, please provide your **email address** to the EAP below:

Mr Alex Ndlovu
Email: a.ndlovu@cesnet.co.za
Tel: (+27) 010 045 1375

PLEASE NOTE: By registering as an I&AP you consent to CES recording your details and using them to contact you regarding this project. Should you not consent or wish to be removed from the database please do let CES know. For more information on how your data is managed according to the Protection of Personal Information Act (Act No 4 of 2013) please visit our website at www.cesnet.co.za (refer to the PAIA manual).

Thank you for your time and consideration.

Warm regards,
Alex

Under the Protection of Personal Information Act, 04 of 2013 ("POPIA"), we have a general legal duty to protect the information we process. EOH Holdings (Pty) Ltd and its subsidiaries ("EOH") are committed to ensuring the security and protection of the personal information processed by the organization, and to provide a compliant and consistent approach to data protection. The information contained in this email and any attachments thereto may be privileged or confidential and are only intended for the exclusive use and attention of the addressed recipient. If you have received this email by mistake, please delete same and advise the sender immediately. Should you have any questions related to our POPIA compliance, please contact Control.Room@eoh.com or you may refer to the [EOH Privacy Policy](#) and to the [EOH Disclaimer](#)

Under the Protection of Personal Information Act, 04 of 2013 ("POPIA"), we have a general legal duty to protect information we process. EOH Holdings Ltd and its subsidiaries (collectively "EOH") are committed to ensuring the security and protection of the personal information processed by the organisation, and to provide a compliant and consistent approach to data protection. The information contained in this email and any attachments thereto may be privileged or confidential and are only intended for the exclusive use and attention of the addressed recipient. If you have received this email by mistake, please delete same and advise the sender immediately. Should you have any questions related to our POPIA compliance, please send a mail to privacy@eoh.com or you may refer to [EOH's Privacy Policy](#) and [EOH's Email Disclaimer](#)

Public Consumption - Information can be used externally

Public Consumption - Information can be used externally

APPENDIX 9.6.5 – ATTEMPTS TO GET COMMENTS FROM DWS

Item	DWS	CES (EAP) response
1.	No comments have been received to date	Multiple attempts such as calls, and emails have been made to get comments from DWS. Proof is attached below.

Alex Ndlovu

From: Alex Ndlovu
Sent: Tuesday, 04 October 2022 11:57
To: MunyaiP2@dwa.gov.za; Matidze Thendo
Cc: Corrie Retief
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good day,

I trust that all is well.

I'm following up on the email below for the release of the Draft BAR for public review which ran until 2 October 2022.

Could you kindly send your comments by tomorrow before COB?

Your urgent assistance would be highly appreciated.

Thank you for your time

Warm regards,
Alex

From: Alex Ndlovu
Sent: Friday, 23 September 2022 10:29
To: MunyaiP2@dwa.gov.za; Matidze Thendo <MatidzeT@dws.gov.za>
Cc: Corrie Retief <Corrie.Retief@cesnet.co.za>
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good morning,

I hope this email finds you well.

On behalf of Anglo American Platinum, CES has submitted an application for environmental authorisation for the above-mentioned project to the Department of Mineral Resources and Energy (DMRE).

As per the notification email below, dated 02 September 2022, the public review period for the Draft BAR will run until 2 October 2022.

CES would like to provide DWS with the opportunity to provide any comments they may have on the Draft BAR. The Draft reports are available electronically at: <http://www.cesnet.co.za/anglo-vent-shafts>

Please acknowledge receipt of this email and submit any comments before 2 October 2022.

Your feedback would be greatly appreciated.

Warm regards,
Alex

From: Alex Ndlovu

Sent: Friday, 02 September 2022 12:44

To: Alex Ndlovu <a.ndlovu@cesnet.co.za>

Subject: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Dear Interested and Affected Party

APPLICATION FOR THE INCEPTION & PUBLIC REVIEW NOTICE: DRAFT BASIC ASSESSMENT FOR THE DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) for the release of the Draft Basic Assessment Report (BAR), Environmental Management Programme (EMPr) and Specialist Impact Assessments for the abovementioned project for public review.

Proposed project: Anglo American Platinum is proposing the development of three ventilation shafts, emulsion borehole and overhead line at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Fetakgomo Tubatse Local Municipality, within the Sekhukhune District Municipality, Limpopo Province.

As per the Environmental Impact Assessment (EIA) regulations of 2014 (as amended), the Anglo Borwa Ventilation Shafts project requires an Environmental Authorisation, from the Department of Mineral Resources and Energy (DMRE) and WUA application to the Department of Human Settlement, Water and Sanitation (DHSWS), respectively. The triggered activities are listed under Listing Notices 1 & 3 (published in Government Notices No. R 983 and No. R 985 respectively), and as such, the BA process needs to be followed.

All Interested and Affected Parties (I&APs) are hereby notified of the availability of the Draft BAR, EMPr and specialist reports for public review from **02 September 2022** to **02 October 2022** at the following emplacement below:

- The draft reports are available electronically on the CES website <http://www.cesnet.co.za/anglo-vent-shafts>
- Hardcopies of the executive summaries will be sent via registered post, upon request, to I&APs should they be unable to access the electronic version

Following the release of the Draft reports, an **online public information session** will also be held on **Tuesday, 13 September 2022** from **11:00 to 13:30** to present the project and to give the public an opportunity to comment on the proposed development. Should you wish to attend the online session, please provide your **email address** to the EAP below:

Mr Alex Ndlovu

Email: a.ndlovu@cesnet.co.za

Tel: (+27) 010 045 1375

PLEASE NOTE: By registering as an I&AP you consent to CES recording your details and using them to contact you regarding this project. Should you not consent or wish to be removed from the database please do let CES know. For more information on how your data is managed according to the Protection of Personal Information Act (Act No 4 of 2013) please visit our website at www.cesnet.co.za (refer to the PAIA manual).

Thank you for your time and consideration.

Warm regards,
Alex

APPENDIX 9.6.6 – ATTEMPTS TO GET COMMENTS FROM DARD

Item	DARD	CES (EAP) response
1.	No comments have been received to date	Multiple attempts such as calls, and emails have been made to get comments from DARD. Proof is attached below.

Alex Ndlovu

From: Alex Ndlovu
Sent: Tuesday, 04 October 2022 11:59
To: Kekana.ephenia@gmail.com
Cc: Corrie Retief
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good day,

I trust that all is well.

I'm following up on the email below for the release of the Draft BAR for public review which ran until 2 October 2022.

Could you kindly send your comments by tomorrow before COB.

Your urgent assistance would be highly appreciated.

Thank you for your time

Warm regards,
Alex

From: Alex Ndlovu
Sent: Friday, 23 September 2022 10:35
To: Kekana.ephenia@gmail.com
Cc: Corrie Retief <Corrie.Retief@cesnet.co.za>
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good morning,

I hope this email finds you well.

On behalf of Anglo American Platinum, CES has submitted an application for environmental authorisation for the above-mentioned project to the Department of Mineral Resources and Energy (DMRE).

As per the notification email below, dated 02 September 2022, the public review period for the Draft BAR will run until 2 October 2022.

CES would like to provide Limpopo Department of Agriculture and Rural Development with the opportunity to provide any comments they may have on the Draft BAR. The Draft reports are available electronically at:
<http://www.cesnet.co.za/anglo-vent-shafts>

Please acknowledge receipt of this email and submit any comments before 2 October 2022.

Your feedback would be greatly appreciated.

Warm regards,
Alex

From: Alex Ndlovu

Sent: Friday, 02 September 2022 12:44

To: Alex Ndlovu <a.ndlovu@cesnet.co.za>

Subject: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Dear Interested and Affected Party

APPLICATION FOR THE INCEPTION & PUBLIC REVIEW NOTICE: DRAFT BASIC ASSESSMENT FOR THE DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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Proposed project: Anglo American Platinum is proposing the development of three ventilation shafts, emulsion borehole and overhead line at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Fetakgomo Tubatse Local Municipality, within the Sekhukhune District Municipality, Limpopo Province.

As per the Environmental Impact Assessment (EIA) regulations of 2014 (as amended), the Anglo Borwa Ventilation Shafts project requires an Environmental Authorisation, from the Department of Mineral Resources and Energy (DMRE) and WUA application to the Department of Human Settlement, Water and Sanitation (DHSWS), respectively. The triggered activities are listed under Listing Notices 1 & 3 (published in Government Notices No. R 983 and No. R 985 respectively), and as such, the BA process needs to be followed.

All Interested and Affected Parties (I&APs) are hereby notified of the availability of the Draft BAR, EMPr and specialist reports for public review from **02 September 2022** to **02 October 2022** at the following emplacement below:

- The draft reports are available electronically on the CES website <http://www.cesnet.co.za/anglo-vent-shafts>
- Hardcopies of the executive summaries will be sent via registered post, upon request, to I&APs should they be unable to access the electronic version

Following the release of the Draft reports, an **online public information session** will also be held on **Tuesday, 13 September 2022** from **11:00 to 13:30** to present the project and to give the public an opportunity to comment on the proposed development. Should you wish to attend the online session, please provide your **email address** to the EAP below:

Mr Alex Ndlovu

Email: a.ndlovu@cesnet.co.za

Tel: (+27) 010 045 1375

PLEASE NOTE: By registering as an I&AP you consent to CES recording your details and using them to contact you regarding this project. Should you not consent or wish to be removed from the database please do let CES know. For more information on how your data is managed according to the Protection of Personal Information Act (Act No 4 of 2013) please visit our website at www.cesnet.co.za (refer to the PAIA manual).

Thank you for your time and consideration.

Warm regards,
Alex

APPENDIX 9.6.7 – ATTEMPTS TO GET COMMENTS FROM SEKHUKHUNE DISTRICT MUNICIPALITY

Item	SEKHUKHUNE DM	CES (EAP) response
1.	No comments have been received to date	Multiple attempts such as calls, and emails have been made to get comments from Sekhukhune DM. Proof is attached below.

Alex Ndlovu

From: Alex Ndlovu
Sent: Tuesday, 04 October 2022 11:59
To: nchabelengc@sekhukhune.gov.za; rammupudum@sekhukhune.gov.za; mabitselam@sekhukhune.gov.za; mahlangug@sekhukhune.gov.za; seoketsam@sekhukhune.gov.za; sekinfo@sekhukhune.co.za; Pilusab@sekhukhune.gov.za; Mphahlelep@sekhukhune.gov.za
Cc: Corrie Retief
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good day,

I trust that all is well.

I'm following up on the email below for the release of the Draft BAR for public review which ran until 2 October 2022.

Could you kindly send your comments by tomorrow before COB.

Your urgent assistance would be highly appreciated.

Thank you for your time

Warm regards,
Alex

From: Alex Ndlovu
Sent: Friday, 23 September 2022 10:27
To: nchabelengc@sekhukhune.gov.za; rammupudum@sekhukhune.gov.za; mabitselam@sekhukhune.gov.za; mahlangug@sekhukhune.gov.za; seoketsam@sekhukhune.gov.za; sekinfo@sekhukhune.co.za; Pilusab@sekhukhune.gov.za; Mphahlelep@sekhukhune.gov.za
Cc: Corrie Retief <Corrie.Retief@cesnet.co.za>
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good morning,

I hope this email finds you well.

On behalf of Anglo American Platinum, CES has submitted an application for environmental authorisation for the above-mentioned project to the Department of Mineral Resources and Energy (DMRE).

As per the notification email below, dated 02 September 2022, the public review period for the Draft BAR will run until 2 October 2022.

CES would like to provide Sekhukhune DM with the opportunity to provide any comments they may have on the Draft BAR. The Draft reports are available electronically at: <http://www.cesnet.co.za/anglo-vent-shafts>

Please acknowledge receipt of this email and submit any comments before 2 October 2022.

Your feedback would be greatly appreciated.

Warm regards,
Alex

From: Alex Ndlovu

Sent: Friday, 02 September 2022 12:44

To: Alex Ndlovu <a.ndlovu@cesnet.co.za>

Subject: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Dear Interested and Affected Party

APPLICATION FOR THE INCEPTION & PUBLIC REVIEW NOTICE: DRAFT BASIC ASSESSMENT FOR THE DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Notice is given in terms of Regulation 41 of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), published under Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) for the release of the Draft Basic Assessment Report (BAR), Environmental Management Programme (EMPr) and Specialist Impact Assessments for the abovementioned project for public review.

Proposed project: Anglo American Platinum is proposing the development of three ventilation shafts, emulsion borehole and overhead line at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Fetakgomo Tubatse Local Municipality, within the Sekhukhune District Municipality, Limpopo Province.

As per the Environmental Impact Assessment (EIA) regulations of 2014 (as amended), the Anglo Borwa Ventilation Shafts project requires an Environmental Authorisation, from the Department of Mineral Resources and Energy (DMRE) and WUA application to the Department of Human Settlement, Water and Sanitation (DHSWS), respectively. The triggered activities are listed under Listing Notices 1 & 3 (published in Government Notices No. R 983 and No. R 985 respectively), and as such, the BA process needs to be followed.

All Interested and Affected Parties (I&APs) are hereby notified of the availability of the Draft BAR, EMPr and specialist reports for public review from **02 September 2022 to 02 October 2022** at the following emplacement below:

- The draft reports are available electronically on the CES website <http://www.cesnet.co.za/anglo-vent-shafts>
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Mr Alex Ndlovu
Email: a.ndlovu@cesnet.co.za
Tel: (+27) 010 045 1375

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Thank you for your time and consideration.

Warm regards,
Alex

APPENDIX 9.6.8 – ATTEMPTS TO GET COMMENTS FROM FETAKGOMO-GREATER TUBATSE LOCAL MUNICIPALITY

Item	FETAKGOMO GREATER LM	CES (EAP) response
1.	No comments have been received to date	Multiple attempts such as calls, and emails have been made to get comments from Fetakgomo Greater Tubatse LM. Proof is attached below.

Alex Ndlovu

From: Alex Ndlovu
Sent: Tuesday, 04 October 2022 12:00
To: 'Sjsekgebela@tubatse.gov.za'; 'kshongwe@tubatse.gov.za'
Cc: Corrie Retief
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good day,

I trust that all is well.

I'm following up on the email below for the release of the Draft BAR for public review which ran until 2 October 2022.

Could you kindly send your comments by tomorrow before COB?

Your urgent assistance would be highly appreciated.

Thank you for your time

Warm regards,
Alex

From: Alex Ndlovu
Sent: Friday, 23 September 2022 10:33
To: Sjsekgebela@tubatse.gov.za; kshongwe@tubatse.gov.za
Cc: Corrie Retief <Corrie.Retief@cesnet.co.za>
Subject: RE: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Good morning,

I hope this email finds you well.

On behalf of Anglo American Platinum, CES has submitted an application for environmental authorisation for the above-mentioned project to the Department of Mineral Resources and Energy (DMRE).

As per the notification email below, dated 02 September 2022, the public review period for the Draft BAR will run until 2 October 2022.

CES would like to provide Fetakgomo-Greater Tubatse LM with the opportunity to provide any comments they may have on the Draft BAR. The Draft reports are available electronically at: <http://www.cesnet.co.za/anglo-vent-shafts>

Please acknowledge receipt of this email and submit any comments before 2 October 2022.

Your feedback would be greatly appreciated.

Warm regards,

Alex

From: Alex Ndlovu

Sent: Friday, 02 September 2022 12:44

To: Alex Ndlovu <a.ndlovu@cesnet.co.za>

Subject: APPLICATION & DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

Dear Interested and Affected Party

APPLICATION FOR THE INCEPTION & PUBLIC REVIEW NOTICE: DRAFT BASIC ASSESSMENT FOR THE DEVELOPMENT OF ANGLO BORWA VENTILATION SHAFTS, EMULSION BOREHOLE AND OVERHEAD LINE AT MOTOTOLO MINE, LIMPOPO PROVINCE

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Proposed project: Anglo American Platinum is proposing the development of three ventilation shafts, emulsion borehole and overhead line at Mototolo Mine, located on the Remainder of Farm Malokela 370 KT and Portion 7 of Farm Thorncliffe 374 KT, approximately 23 km south-west of Steelpoort (Limpopo) and 36 km north-east of Lydenburg (Mpumalanga). The project falls within the Fetakgomo Tubatse Local Municipality, within the Sekhukhune District Municipality, Limpopo Province.

As per the Environmental Impact Assessment (EIA) regulations of 2014 (as amended), the Anglo Borwa Ventilation Shafts project requires an Environmental Authorisation, from the Department of Mineral Resources and Energy (DMRE) and WUA application to the Department of Human Settlement, Water and Sanitation (DHSWS), respectively. The triggered activities are listed under Listing Notices 1 & 3 (published in Government Notices No. R 983 and No. R 985 respectively), and as such, the BA process needs to be followed.

All Interested and Affected Parties (I&APs) are hereby notified of the availability of the Draft BAR, EMPr and specialist reports for public review from **02 September 2022** to **02 October 2022** at the following emplacement below:

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Mr Alex Ndlovu

Email: a.ndlovu@cesnet.co.za

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Thank you for your time and consideration.

Warm regards,
Alex