DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME

Application for Prospecting Right with Bulk Sampling in terms of Section 16 & 20 of the Mineral and Petroleum Resources Development Act 2002

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File Reference number SAMRAD: **LP 30/5/1/1/2/13050 EM**

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PURPOSE OF REPORT: PUBLIC COMMENT AND REVIEW FROM 11 June – 11 July 2018

Report date: 28 May 2018

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIR)
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

Compiled in terms of Appendix 3 and 4 of the Environmental Impact Assessment (EIA) Regulations of 2014 and submitted as contemplated in Regulations 23 of the regulations for:

An Application for Environmental Authorisation in terms of the National Environmental Management Act 107 of 1998 in respect of Listed Activities that have been triggered by the application in terms of the Mineral Petroleum Resources Development Act 2002

PREFACE

- PROSPECTING AND BULK SAMPLING BY SAMIN GROUP AT MADIMBO CORRIDOR- VHEMBE DISTRICT, LIMPOPO PROVINCE

DMR has accepted Samin Group Pty Ltd's application for a prospecting right and environmental authorisation over the farms 'unsurveyed state land' 440MT and 442MT on 22 November 2017. The application area (herein after study site) comprises the bulk of the Madimbo Military Corridor and covers 42 628 hectares of semi-arid Mopane bushveld bordering the Limpopo River next to the South African/Zimbabwe border.

The study site is a declared nature reserve. It is used by the SANDF for military training and managed as conservation area. The Gumbu/Mutale communities reside on the southern parts of the site and are in title to the land. DPW and SANDF will soon release this land to the community but reserve land use rights for the SANDF on the eastern side of the corridor.

Samin intends to identify if there are economically exploitable concentrations of Brytes, Chrome ore, Coal, Cobalt, Copper ore, Diamond, Gold ore, Graphite, Iron Ore and Nickel ore minerals within the study site. Prospecting would be focused to an area of 4000 hectares in the northern section of the site along the west-east boundary. Target areas will include 1 brownfield target area, the old Gumbu Gaphite Mine and a further 18 greenfield target areas.

Naledzi has been appointed as the independent environmental assessment practitioner to undertake the EIA Process relevant to the application for Environmental Authorisation as required for a Prospecting Right in terms of Section 16 & 20 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA).

The EIA Process requires the submission of a Scoping Report, EIR and EMPr to the DMR for decision making. The reports need to be subjected to a 30 day public comment period. The Scoping Report was subject to public comment from 12 January to 12 February 2018 and a public meeting was held on 7 February 2018. Public inputs were consolidated into the Scoping Report and submitted to the DMR for approval, which was granted on 28 February 2018. Site investigations and specialist studies followed in March and April 2018. The findings of the site investigations and EIA Process have now been consolidated in this EIR.

This EIR contains an independent assessment with specialist studies of the proposed project's impacts on the environment and recommends ways to reduce the impact of the project by imposing mitigation/management measures. The EIR is now also subject to 30 calendar day public review and comment. Afterwards the report would be finalised and submitted to the DMR for approval.

The EIR is the key document of the EIA process. It forms the basis for decision making and is a tool for communicating with I&AP's. The EIR will help the DMR to understand the environmental consequences of approving the project, the public in understanding the likely impacts of the proposal and the proponent in managing these impacts.

OPPORTUNITY TO COMMENT ON THE EIR & EMPR

I&APs are hereby given the opportunity to comment on this EIR. Comments and responses received on the EIR will be consolidated into an Issues and Response Report and included in the final EIR. The final EIR will give due consideration to the comments received and will be submitted to DMR for approval.

This draft EIR and EMPr is available for public review and comment, from Monday **11 June 2018 to Wednesday 11 July 2018.** Copies of the Report are available for review at the following public venues:

- Tribal Offices of Malale, Sigonde, Gumbu, Tshenzhelani and Masisi
- It is also available for download from the Naledzi website: www.naledzi.co.za/publicdocuments.

STIPULATED TIME FRAME FOR COMMENT SUBMISSION: ON OR BEFORE 11 JULY 2018

Interested and Affected parties wishing to comment on the Report may do so by:

- Comment by email, facsimile or telephone;
- Any written submission

Please address any written comments/enquiries to:
Mrs. Marissa Botha or Mr. Desmond Musetsho
Naledzi Environmental Consultants CC
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1. Objective of the ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

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

a) Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
b) Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
c) Identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
d) Determine the
   i. nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
   ii. degree to which these impacts—
      (aa) can be reversed;
      (bb) may cause irreplaceable loss of resources, and
      (cc) can be avoided, managed or mitigated;
e) Identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
f) Identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
g) Identify suitable measures to manage, avoid or mitigate identified impacts; and
h) Identify residual risks that need to be managed and monitored.

2. APPOINTED EAP AND DECLARATION

Naledzi Environmental Consultants CC is an independent environmental consultancy based in Polokwane specialisting in environmental management services, with no vested interest (either business, financial, personal or other) in the proposed project proceeding other than remuneration for work performed in terms of NEMA and its EIA Regulations of 2014 and its subsequent amendments.

The responsible environmental assessment practitioners for the EIA Process are Mrs. Marissa Botha and Mr. Desmond Musetsho. Marissa Botha is responsible for public participation, environmental report writing and part project management. Desmond Musetsho formed part of all public information sessions, review of reports and general project management.

REPORT COMPILED BY:

…….
Marissa Ilse Botha (*Pr.Sci.Nat*)
Environmental Assessment Practitioner
Registered Environmental Scientist (SACNASP Registration number: 117526)

REPORT REVIEWED BY:

…….
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Environmental Assessment Practitioner
Registered and accredited Environmental Scientist
(SACNASP Registration number: 400287/16 & SAIEES registration nr 277)

Disclaimer: *Please note that Naledzi Environmental Consultants CC has prepared this EIR for the sole use of Samin Group Pty Ltd and the appointed contractors/subcontractors to this project, in accordance with generally accepted consulting practices and for the intended purposes, as stated in the agreement under which this work was prepared. The report is also intended for review by the relevant competent authorities. I&APs are also privy to the review of the report to provide input to the EIA process. This report may not be relied upon by any other party without the explicit written agreement of Samin and Naledzi. No other warranty, expressed or implied, is made as to the professional advice included in this report.*

THIS DOCUMENT CONTENT COMPRISES TWO REPORTS:

PART A
ENVIRONMENTAL IMPACT REPORT (EIR)
SUPPORTING DOCUMENTATION

PART B
ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

1 Contents

PART A

PART B

APPENDICES

Appendix 1 – CV of EAP

Appendix 2 – Site Plan

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3. 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.

Part A: Environmental Impact Report (EIR)

SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1 Details of EAP who prepared the report

Name of Practitioner: Naledzi Environmental Consultants CC
Contact person: Marissa Botha
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Email: botham@naledzi.co.za

1.2 Expertise of the EAP

Mrs Marissa Botha is a registered professional Environmental Scientist with SACNASP (registration number 117526) has 13 years working experience in the environmental management industry. **See Appendix 1 for CV of EAP**.

- Ms Botha has 13 years' experience in environmental management. **See Appendix 1 for CV of EAP**.

  Short list of past experience in mining related projects / prospecting right applications includes:

- Mining Right-and Environmental Authorisation Application for Rakhoma Mining Resources to open an iron and vanadium ore suface mine, proposed 'Geluk Mine' on farms Geluk 512KS, Geluk Oos 513KS and Ironstone 847KS, Sekhukhune District, Limpopo Province (2015-2017);
- Mining Permit Application for Pinzari Limited for Hazyview Ext 42 Borrow Pit, to mine sand on farm De Rust 12JU, Magisterial District of White River, Mpumalanga Province (2014)
- Prospecting Right Application for Bakwena Ba Phalane Traditional Community and Mantra Mineral Development to prospecting for iron ore and several other ore bodies at Koedoeskop on farm Nooitgedacht, Magisterial District of Thabazimbi, Limpopo Province (2013);
- Prospecting Right Application for Thanduko Minerals Pty Ltd to prospect for coal on farm Fanie 578MS, Wildgoose 577MS and Chase 576MS, Magisterial District of Makhado, Limpopo Province (2013);
- Prospecting Right Application for Thanduko Minerals Pty Ltd to prospect for limestone on the farm Kalkbank 552LS, Magisterial District of Aganang (enroute to Dendron), Limpopo Province (2013);
- Prospecting Right Application for Naledzi Environmental Consultants CC to prospect for coal, iron ore and copper on farms Salton 290MS, Polton 289MS and Hosselappe 288LS at Alldays, Magisterial District of Musina, Limpopo Province (2013)

2 DESCRIPTION OF PROPERTY

Table 1: Property Description

Farm name:	Un-surveyed state land 440MT and 442 MT
Application area:	42 628 Hectares
Magisterial District:	Magisterial District of Musina, Vhembe District Municipality
Distance& direction to nearest town	91km east of Musina town; 80km north east of Sibasa District
21 digit SG code for farms	RE/440 MT – T0MT00000000044000000 RE/442 MT – T0MT00000000044200000
Registered owner	National Department of Public Works
Notarial Lease agreement	SA National Defence Force
Succesfull Claimants of study site	Vhembe Communal Property Association

The study site is state owned registered to the National Department of Public Works (DPW). The site covers the Madimbo Military Corridor and alienated state land. The corridor is reserved for military use under the Defence Act 42 of 2002. The SA National Defence Force (SANDF) has a lease agreement against the study site and uses it for training and border control.

In 1983, the military corridor was declared a nature reserve under the Transvaal Nature Conservation Ordinance of 1983 and was proclaimed in Government Gazette of 1 January 1992. SANDF manages the corridor as a conservation area.

In 2004, the Vhembe CPA (herein after CPA) successfully claimed restitution of rights of the study site. The property was acquired through the Regional Land Claims Commission (RLCC) Limpopo. But the claim has not been finalised yet. DPW and SANDF will soon release the land of the military corridor to the CPA but reserve land use rights for the SANDF on the eastern side of the corridor. Then a new military fence line and lease agreement will be settled between the DPW (on behalf of CPA) and the SANDF. For now the SANDF continues to use the study site as training ground.

3 LOCALITY MAP

The study site is located 91km east of Musina town within the Vhembe District Municipality of Limpopo Province within the confines of Venda. The site covers the farms ‘unsurveyed state land’ 440MT and 442MT in the Gumbu valley bordering the Limpopo River next to the South African/Zimbabwe border. Prospecting will be focussed to the military corridor. There is the old Gumbu Graphite Mine in the western section of the corridor and villages of Malale, Sigonde, Gumbu, Tshenzhelani and Bende-Mutale.

Refer to **Figure 1** for a Locality Map of the Prospecting Right area indicating the direction from the nearest town of Musina in Limpopo Province. Also refer to **Figure 2** for a Google Earth Aerial Locality Map showing the extent of the Prospecting Right area (red polygon) in relation to the existing Madimbo Military Corridor (green polygon) and position of existing local villages.

Refer to **Figure 3** for a Google Earth image showing the application area (red polygon) and the new proposed Madimbo Military Corridor fence line (blue polygon) reserved for SANDF use.

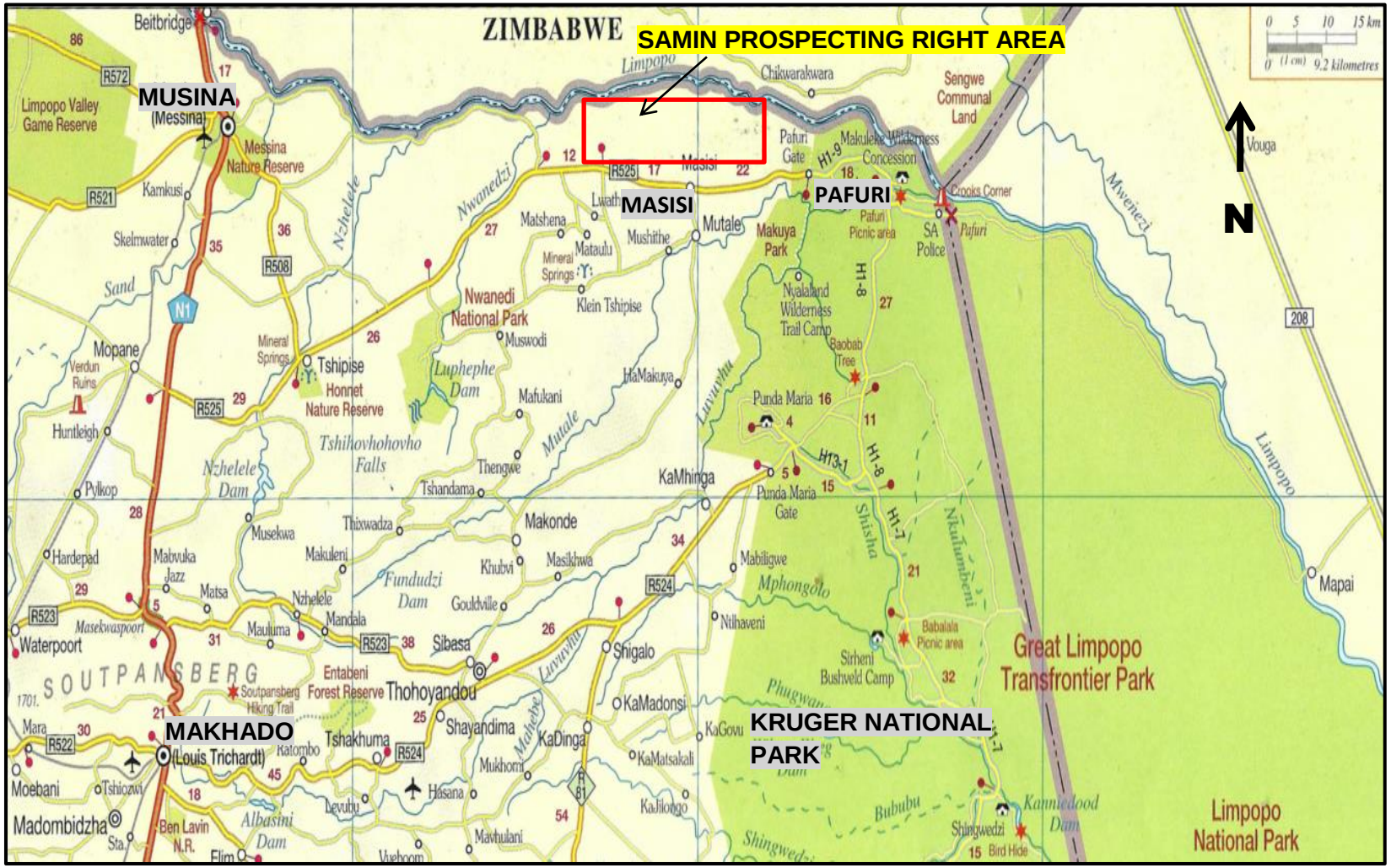


Figure 1: Location of prospecting area in terms of nearest towns of Musina (91km)

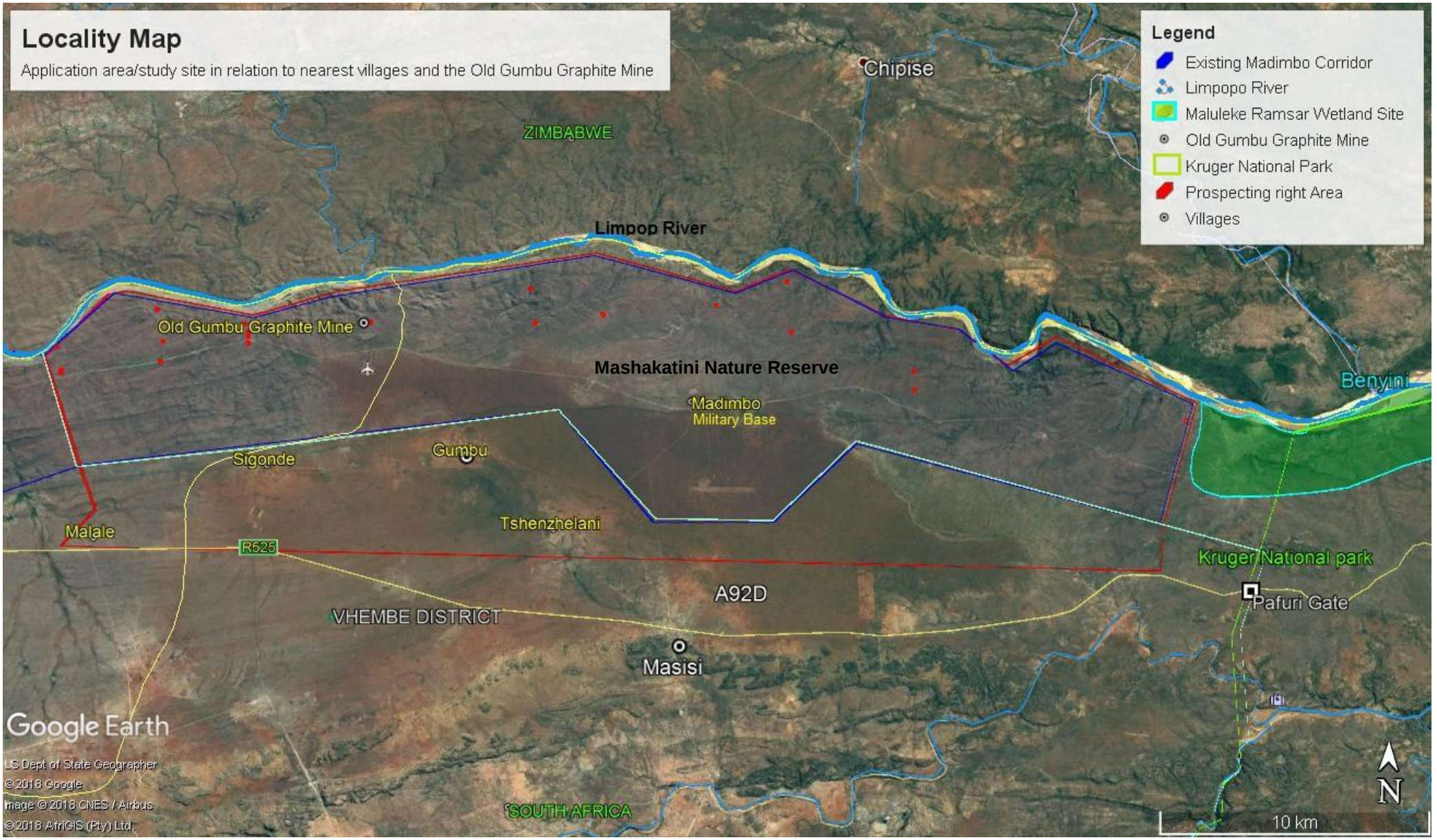


Figure 2: Google Earth Aerial Locality Map of study site in relation to nearest villages, the existing Madimbo Millitary Corridor and nature reserve

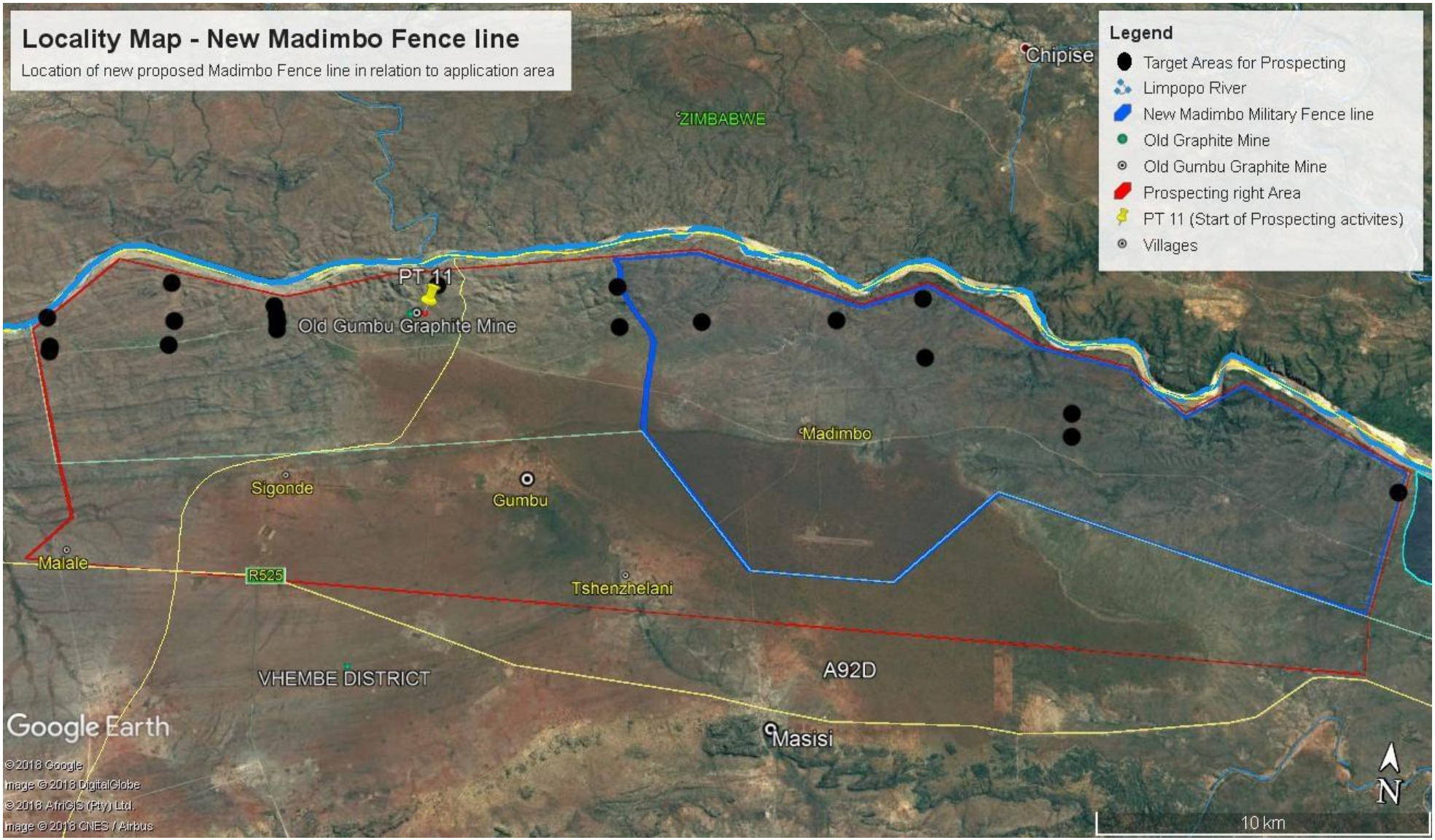


Figure 3: Aerial Locality map showing the new proposed Military Corridor Fence line and lease area (blue polygon) in relation to the Prospecting Right application area (red polygon)

3.1 Listed and specified activities

A Site Plan indicating the location, area in hectares of all specified main and listed activities, and infrastructure to be placed on site is attached under **Appendix 2**. **Table 2: Listed and specified activities**

NAME OF ACTIVITY (All activities including activities not listed) (**Eg. Excavations, blasting, stockpiles, discard dumps or dams, loading and hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, stormwater control, berms, roads, pipelines, power lines, conveyors etc etc etc)**	**AERIAL EXTENT OF ACTIVITY IN Ha or m^2**	**LISTED ACTIVITY Mark with X where applicable or affected**	**APPLICABLE LISTING NOTICE** (GNR 983, 984 or 985) / NOT LISTED	**WASTE MANAGEMENT AUTHORISATION** (Indicate if an authorisation is required ito Waste Management Act). **(Mark with an X)**
Prospecting Right Application in terms of Section 16 & 20 of MPRDA	42628 Ha	**X**	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Main Target: Establish a prospecting site for drilling, trenching and bulk sampling with site camp at old Gumbu Graphite Mine: - 23 drill holes (drill pads, excavation, lining of drill water sump) - 20 Trench Sites (Dimensions: 1m x 1m x 20m long) - Site camp, ablution facilities, site office, accommodation, equipment storage at old Gumbu Mine site - Temporary fencing	1.5 Ha for site camp and prospecting activities	**X**	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Establish 18 Greenfield Target areas for trenching, pitting and drilling on project site	1 Ha per target area	**X**	GNR 983 Activity 20	
Establish access track to drill site and bulk sampling	Single track with no	**X**	GNR 983 Activity 20	N/A

sites (use of existing routes as far as possible)	vegetation clearance		GNR 984 Activity 19	
Clearing of indigenous vegetation and topsoil for drilling, pitting, trenching, bulk sampling, including clearing thereof in priority biodiversity areas	Maximum of 200m^2 per site	**X**	GNR 983 Activity 27 GNR 985 Activity 12 (ii)	N/A
Excavation of soil from 3 Exploration pit target areas in old river channels (pits are 4m^2 each at 5 per site)	20m^2 per site with removal of maximum of 30m^3	**X**	GNR 983 Activity 19 (i)	N/A
Supply of water for domestic purposes at site camp and for drilling operations	100 litres/ day for domestic use. 10m^3/day- drilling operations.	**X**	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Overburden piles/stockpiles	None due to outcropping			N/A
Decommissioning and Rehabilitation				
• Backfilling of trenches and pits, capping of boreholes • Removal of alien vegetation • Ripping of compacted ground, sloping trenched areas • Encouragement of indigenous vegetation	19.5 ha			
Non-invasive Mine Feasibility Reporting				
• Prefeasibility Study • Bankable Feasibility Study • Planning for Mining License	42628 Ha			

3.2 Description of activities to be undertaken

The DMR has approved SAMIN Group Pty Ltd application for a prospecting right on the study site on 22 November 2017. Samin therefore seeks Environmental Authorisation to prospect for economically exploitable concentrations of Brytes, Chrome ore, Coal, Cobalt, Copper ore, Diamond, Gold ore, Graphite, Iron Ore and Nickel ore minerals within the study site.

SAMIN has applied for a prospecting area of 42 628 hectares, but will focus activities to an area of 4000 hectares. The company will focus its prospecting activities to a former recognised mineral deposit, the old Graphite Mine and another 18 Greenfield target areas in the northern portion of the study site. Initially 21 target areas were identified of which 2 have been omitted due its position within very high ecological sensitivity areas.

4 DESCRIPTION OF THE SCOPE OF PROPOSED OVERALL ACTIVITY:

Old Graphite Mine mineral deposit

There is the old Graphite Mine in the western section of the study site which operated from 1942 to 1970. Graphite was its main target. There is a verified existence of mineralisation at the old mine with a sufficient graphite grade to support a viable operation. Detailed exploration work will be carried out at the old mine which will include trenching, pitting, bulk sampling and mineralogical test work to ascertain recoverability of graphite. Planned prospecting work will include 23 drill holes, 20 trenches and bulk sampling to evaluate the mineral deposit. The total area of impact will be 1.5 Hectares including site offices, storage areas and site camp.

18 Greenfields Target Areas

Another eighteen (18) target areas have been identified to search for graphite, metamorphic diamonds, and alluvial diamonds and gold. There is the potential for limestone and construction aggregate. These target area positions are within the northern portion of the study site within the western, central and eastern section of the existing and current military corridor.

Each target area will have an extent of a maximum of 1 hectare and require either trenching/pitting. Vegetation clearance to establish drill and trench sites would however be minimal at $200m^2$ per site.

There would be three (3) exploration pitting target areas in old river channels which will require 5 exploration pits per site. Each pit will be $4m^2$ in extent and a total of $20m^2$ will be required for exploration pitting per site. Based on preliminary mapping only 1 target area will require drilling of exploration boreholes. Drilling would mostly be focused to the old Gumbu mine area.

The total work planned at the 19 target areas are 45 trenches, 25 drill holes and 15 exploration pits. Each target detail will change with more work done per site.

Prospecting activities will begin at the old graphite mine and spread out to the rest of the study site in a phased manner. Prospecting will include both non-invasive and invasive methods. See Table 3 for the summary of activities to be undertaken.

Table 3: Summary of activities to be undertaken

ACTIVITY	TIME FRAME	OUTCOME	TIME FRAME FOR OUTCOME
Phase 1: Non-invasive methods			
Surface Geological mapping, old mine works mapping and channel sampling	1 month	Detailed Geological map of structural controls of mineralisation (thickness, dips, strike, depth)	Month 2
Literature review, desktop study and conceptual study	1 month	Estimate of potential mineral inventory	Month 3

Phase 2: Invasive methods			
Trenching, pitting and Bulk Sampling	3 months	Assay results & grade of mineralisation. Bulk sample and Metallurgical test work results	Month 8
Phase 3a: Non-invasive methods			
Prefeasibility Study	4 months	Geology model, Resource model and mining options	Month 14
Phase 3b: Invasive methods			
Exploration Drilling	6 Months	Drill sample results and confirmation of depth of mineralisation	Month 22
Phase 4: Non-invasive methods			
Feasibility Study and preparation for Mining License / EIA	12 Months	Bankable Feasibility Study with resource and reserves and financial model	Month 36
Phase 5 Preparation for Mining License	1 Month	Mining Permit	Month 37

INVASIVE PROSPECTING ACTIVITIES WILL MAINLY COMPRISE:

- **Site preparation**
- **Trenching** (long linear excavation of 1m x 1m x 20m long)
- **Pitting** (shallow, square shaped holes of 2m x 2m x 2x deep)
- **Drilling (**Drilling of surface boreholes to extract core samples and determine depth of mineralisation with 100m^2 extent)
- **Bulk Sampling** (taking mineral samples to evaluate mineral deposit through grade verification and metallurgical test work.Samples will be collected from trenching spoil)

All pits and trenches will be filled in after evaluation work is completed. Drill holes would be filled and capped. Detailed geological logging would be carried out and large undisturbed samples collected.

PHASES OF THE PROSPECTING WORK

- **Site planning & preparation:** Geological Mapping of area including mapping of old mine works, channel sampling trenches and finalising identification of target areas for prospecting (non-invasive). Site clearance will follow and establishment of site camps and equipment on site (invasive).
- **Trenching, pitting, bulk sampling, drilling and logging** (invasive)
- **Decommissioning and Rehabilitation** of prospecting infrastructure, excavations and affected areas

Phase 1 - Site Planning and Preparation

Geological Mapping and Literature Review to identify target areas

- A Geologist will carry out geological mapping of both surface and current adit;
- Rock and chip samples will be collected and analysed where applicable;
- Orebody structural controls will be defined include strike dip and true thickness
- A desktop study and conceptual study has been undertaken in January 2018 to create a mineral inventory. Originally twenty one (21) target areas were identified. Two have been omitted. Only nineteen (19) target areas will be persued for prospecting and planned work will begin at the old graphite mine where there is verified existence of mineralisation;

Site Preparation

- Site preparation will follow by establishing a site camp, mobile office, ablution facilities and an equipment storage area at the old Graphite Mine. The total area required for the infrastructure is 0.5 hectares.
- The areas designated for infrastructure will be cleared of vegetation and fenced off. An excavator, survey and geological equipment, drilling rigs, trucks will be brought to site;
- Firstly the trench, pit and bulk sampling target areas / positions at the old Graphite Mine will be cleared by dozing off vegetation where necessary (most of the minerals form outcrop on the project area);
- Areas designated for drill holes, sumps and parking bays will be removed of vegetation and topsoil. The truck mounted drill rig will be placed on site. The drill unit is diesel powered and require storage a low volumes of diesel and oil next to the drill unit. Small sumps would be excavated and lined for the purposes of drilling water. Drill water will be trapped and stored in sumps for reuse in the drilling process.
- Next, other greenfield target areas for trenching, drill and pitting would be cleared by dozing off vegetation where necessary and a drill rig would be set up;

Phase 2 - Trenching, pitting and bulk sampling

Identified target areas for trench, pit and bulk sampling will be fenced off with barrier tape to control access. The identified target areas and planned prospecting work are detailed in Table 4. Please note Target Area 1 and 21 have been omitted due to their location in very high ecological sensitivity areas.

Table 4: Target areas for prospecting work (highlighted targets are omitted from plan)

Target	Planned Work	Target area type	Number of drill holes/Trenches/pits	Aerial extent of work	Co-ordinates	
					Northing	Easting
1	Exploration pits to bedrock (old river channel)	Greenfields	5 pits (2m x 2m x2m deep)	1 Ha ($30m^3$)	$22^0$20.880'	$31^0$02.920'
2	Trenching	Greenfields	5 trenches (1m x 1m x 20m long)	1 Ha	$22^0$20.028'	$30^0$57.002'
3	Trenching	Greenfields	2 trenches	1 Ha	$22^0$20.400'	$30^0$57.028'
4	Trenching	Greenfields	5 trenches	1 Ha	$22^0$18.297'	$30^0$54.231'
5	Exploration pits	Greenfields	5 pits	1 Ha ($30m^3$)	$22^0$19297'	$30^0$54.330'
6	Trenching	Greenfields	5 trenches	1 Ha	$22^0$18.801'	$30^0$52.713'
7	Trenching	Greenfields	5 trenches	1 Ha	$22^0$19.030'	$30^0$50.283'
8	Locate Source of Gossan float	Greenfields	No excavations proposed	1 Ha	$22^0$18.555'	$30^0$48.708'
9	Trenching and drilling (Old workings and trenches)	Part of Brownfields	5 trenches (drilling not specified)	1 Ha	$22^0$19.234'	$30^0$48.820'
10	Trenching	Greenfields	2 drill holes, 2 trenches	1 Ha	$22^0$18.796'	$30^0$45.450'
11	Trenching, Drilling, Bulk Sampling (Old	Brownfields	23 drill holes, 20 trenches, bulk sampling	1.5 Ha	$22^0$19.269'	$30^0$45.269'

	Graphite Mine)					
12	Trenching	Greenfields	2 trenches	1 Ha	$22^0$19.370'	$30^0$42.545'
13	Trenching	Greenfields	5 trenches	1 Ha	$22^0$19.524'	$30^0$42.613'
14	Trenching	Greenfields	5 trenches	1 Ha	$22^0$19.623'	$30^0$42.634'
15	Exploration pits	Greenfields	5 pits	1 Ha ($30m^3$)	$22^0$19.717'	$30^0$42.612'
16	Exploration pits	Greenfields	5 pits	1 Ha ($30m^3$)	$22^0$20.146'	$30^0$40.748'
17	Trenching	Greenfields	5 trenches	1 Ha	$22^0$19.753'	$30^0$40.791'
18	Trenching	Greenfields	5 trenches	1 Ha	$22^0$19.121'	$30^0$40.649'
19	Trenching	Greenfields	5 trenches	1 Ha	$22^0$20.419'	$30^0$38.614'
20	Trenching	Greenfields	2 trenches	1 Ha	$22^0$20.367'	$30^0$38.606'
21	Trenching	Greenfields	5 trenches	1 Ha	$22^0$19.885'	$30^0$38.485'

Pits will be dug with a mechanical excavator, logged, sampled and re-filled. Trenches will be dug either manually or mechanically depending on depth or terrain. All pits and trenches will be excavated in a phased manner. Topsoil will be stockpiled next to site and spoil material will be placed alongside excavations. Trenches and pits will be mapped and samples collected where mineralisation is intersected. Bulk sampling at a selected grid depending on ore body variability will be carried-out. Each trench / pit will be immediately rehabilitated on completion of sampling.

Bulk samples will be collected from trenching spoil if sufficient size can be collected. Mineral Samples will be tested and a result and grade of mineralisation will be determined. Depending on sample quality required exploration drilling will be planned as informed by trenching and bulk sampling results.

Prefeasibility stage

Next, a prefeasibility study will be carried out to define the geological model, mineral resource and reserves. Mining options will be tested and the most suitable method will be selected. Hereafter required exploration drilling will be carried out based on sampling/bulk sampling results.

Drilling of Surface Boreholes

23 drilling positions have been confirmed as part of the prospecting programme at the old Gumbu Mine and 2 additional drill holes as part of the Greenfield target areas. Drill sites will be fenced off or demarcated with barrier tape to control access. Core samples will be taken from the drill holes for results and confirmation of depth of mineralisation. Core drilling, reverse circulation or percussion drilling will be considered. Each borehole site will have a lined sump and will be capped / rehabilitated after sampling. A borehole is capped by placing a steel casing to a suitable depth and concrete cap on top of the borehole.

Feasibility Study

At feasibility stage a bankable resource/reserve will be produced with human resource and financial models.

Phase 3 - Decommission and Rehabilitation

Once the excavations, drilling, pitting, sampling and logging process is completed infrastructure and equipment will be removed from site. Firstly trenches, pits and bulk sampling sites will be

backfilled with spoil material, topsoil replaced and landscaped. Most boreholes will be capped; some may be used as future water wells. The site camp, mobile office, ablution facilities and equipment storage areas will be removed from site and disturbed areas will be ripped to promote rehabilitation to pre-prospecting state. Any bare soils left post prospecting will be re-vegetated.

5 POLICY AND LEGISLATIVE CONTEXT

Table 5: Policy and Legislative context applicable to application

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT	REFERENCE WHERE APPLIED
LEGISLATION	
Constitution of Republic of South Africa Act (Act 108 of 1996) Section 24 of the Constitution states that every person has the right to an environmental that is not harmful to their health or well-being and to have the **environment protected** for the benefit of present and future generations through legislative measures that prevent pollution, environmental degradation, promote conservation and secure ecological sustainable development.	NEMA is designated within the framework of the Constitution. An application for environmental authorisation has been lodged for the project. Prospecting activities will be undertaken in accordance with an approved Environmental Management Programme (EMPr) aimed to manage and minimize environmental impacts on the project site and ensure rehabilitation of affected areas.
National Environmental Management Act (Act 107 of 1998) (NEMA) NEMA has been designated within the framework of the Constitution to promote sustainable development. It requires that development must be socially, environmentally and economically sustainable by taking measures to prevent pollution and ecological degradation; promote conservation and secure ecologically sustainable development while promoting environmental justice. It requires that social, economic and environmental impacts of activities are considered, assessed and evaluated and the impact on people must be anticipated and prevented. Section 28 of NEMA imposes the 'polluter pays' principle whereas the person who causes the pollution must pay for its remediation. Section 24 (5) of NEMA provides for specific listed activities which require environmental authorisation prior to their commencement. Environmental impacts of such activities must be considered, assessed, evaluated and where possible managed, minimized or prevented. The EIA Regulations of 2014 (GNR 982) published in GNR 983, 984 and 985 lists developments which require authorisation. The regulations and list of activities were amended by GNR 324, 325, 326 and 327 of 7 April 2017. A prospecting right activity is subject to application for environmental authorisation. It triggers an activity under GNR 984 (as amended by GNR325) and is subject to a full Scoping and EIA Process. The applicant must submit the following to the authorisation authority for decision making: ▪ Application for Environmental Authorisation ▪ Conduct Public Participation Process ▪ Submit a Scoping Report ▪ Submit an Environmental Impact Report & Environmental	The principles of NEMA have been considered. This EIR and EMPR have been prepared which contains an assessment of the project's impacts on the environment and recommends ways to reduce the impact of the project by imposing mitigation measures. The EIR & EMPr have been prepared in compliance with NEMA.

Management Programme (EIR & EMPr).	
NEMA Environmental Impact Assessment (EIA) Regulations of 2014 (read with its amendment under GNR 326 of 7 April 2017) The NEMA EIA Regulations of 2014, GNR 982 of 4 December 2014 (as amended by GNR 326) , Regulation 21-26 and Regulation 39-44 set out the process required to undertake the Scoping and EIA Process including the public participation process to be undertaken as part of the EIA.	A Scoping and EIA Study is being followed in terms of the EIA Regulations. This EIR forms part of the EIA being undertaken. It forms the basis for decision making it will help the DMR to understand the environmental consequences of approving the project, the public in understanding the likely impacts of the proposal and the proponent in managing these impacts.
Section 16 & 20 of Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA) and its amendments In terms of the MPRDA all mining related activities require environmental authorisation, rights and or permits before any mineral is removed or activity commenced with. The proposed prospecting activities and bulk sampling for Brytes, Chrome ore, Coal, Cobalt, Copper ore, Diamond, Gold ore, Graphite, Iron ore and Nickel requires a prospecting right application in terms of Section 16 and 20 of the MPRDA. The MPRDA has also been amended to align with specific environmental legislation associated mining activities and NEMA has been aligned with the MPRDA to provide for one environmental system. The DMR is therefore the authorising authority for environmental authorisations.	An application has been lodged for a prospecting right with bulk sampling to the DMR in terms of Section 16 and 20 of the MPRDA. An application for environmental authorisation has simultaneously been lodged with the prospecting right application to the DMR. The environmental authorisation is subject to an EIA Process. This EIR contains the findings of the EIA Study in respect of the Prospecting Right application with bulk sampling.
Section 48 of the MPRDA – Restriction/prohibition of prospecting and mining on certain land Subject to Section 48 of the NEMPAA 2003 and Section 48 of the MPRDA no prospecting right, mining right may be granted or mining permit issued in respect of – **Section 48** c) any land being used for public or government purposes or reserved in terms of any other law (d) Areas identified by the Minister by notice in Gazette in terms of Section 49. Section 49 specifies the Minister's power to prohibit or restrict prospecting or mining in certain areas. The Minister may, having regard to national interest, prohibit or restrict granting of prospecting right, mining right or permit in respect of land identified by the Minister for a period and on such terms and conditions as the Minister may determine. Madimbo Training Area is state land and belongs to the DPW as the custodian.The land is reserved for military use under the Defence Act.It is a strategic area in SA. In 1970's SANDF took control of the land and it was later proclaimed a nature reserve in 1992 in terms of the Transvaal Nature Conservation Ordinance of	The DPW and SANDF have been consulted during the EIA Process. The Limpopo Department of Economic Development, Environmental and Tourism have also been consulted in regard to the application lodged in a protected area. The CPA has successfully claimed restitution of rights on the application area. One of the major priority areas identified by the community as activities to be undertaken on the acquired land includes mining. DPW and SANDF has agreed to release the land to the community in title but reserve land use rights for the SANDF on eastern side of Madimbo Corridor (new proposed military zone/fence line-See Figure 3). The lease agreement of the

1983.	SANDF against the land will be registered against the CPA title deed of the land.
National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEMPAA) NEMPAA provides for the protection and conservation of ecologically viable areas representative of SA's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas. NEMPAA provides in Chapter 4 Section 48 that, despite other legislation, no person may conduct prospecting or mining activities in special nature reserves or protected areas without the prior consent of the Ministers of Mineral Resources and Environmental Affairs. This prohibition extends to a protected area that was immediately before NEMPAA's enactment, reserved or protected in terms of provincial legislation for any purpose for which an area could in terms of NEMPAA be declared as a nature reserve or protected environment. NEMPAA binds all state organs and trumps other legislation, including the Minerals and Petroleum Resources Development Act, No 28 of 2002 (MPRDA), in the event of a conflict concerning the development of protected areas. Proclaimed nature reserves can only be de-proclaimed for the purposes of development / mining by the MEC of Environmental Affairs Limpopo (LEDET) with sufficient motivation for its deproclamation and consent by the landowner.	The Prospecting Right – and Environmental Authorisation application has been lodged within a declared nature reserve. It was proclaimed in 1992 under the old Transvaal Nature Conservation Ordinance of 1983. It is a recognised protected area under NEMPAA. Prospecting & Mining is prohibited on this land. The nature reserve is managed by the SANDF as a conservation area and military training zone. Since DMR has approved the prospecting right application on the study site Samin will continue with the application. According to the findings of the EIR prospecting is feasible from an environmental point of view. But current legislation prohibits prospecting on the study site.
National Water Act (Act 36 of 1998) The principles and objectives of the NWA are to guide the protection, use, development, conservation, management and control of water resources in a sustainable and equitable manner for the benefits of all persons. Section 19 of the NWA deals with prevention and remedying effects of pollution in particular where pollution of water resources occur/might occur as a result of activity on land. The person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources. Chapter 4 of the NWA requires licensing of 11 listed water uses which are captured in Section 21.	100 litres of water/person per day (x10 labourers) will be required for human consumption. (1000 litres/day) $10m^3$ of water will be required for drilling operations. Water for human consumption will be obtained from existing boreholes in nearby villages. Raw water will be abstracted from the Limpop River and brought to the target areas with a waterbowser, A 50m buffer zone will be upheld to all riparian zones and wetlands as recommended by the Ecological Impact Report; these will be regarded as no-go zones for prospecting. Target areas 1 and 21 have been omitted from the identified prospecting target areas due to their location within a unique habitat with unmapped wetland as well as location within the Limpopo River riparian zone.

	Any other target areas will adhere to the recommended buffer zone. The abstraction of raw water from the Limpopo River for drilling operations will require a Water Use License from DWS.
Mine Water Regulations 704 of 1999 The "Mine-water Regulations" is aimed at ensuring the protection of water resources through restrictions on locality, material, and the design, construction, maintenance and operation of separate clean and dirty water systems related to mining activities. Restrictions to locality refers specifically to placement of mine infrastructure and pollution control above the 1: 50 and 1: 100 year flood zones or within a horizontal distance of 100m of any watercourse or estuary, borehole or well. With the exception of mining alluvial diamonds/sand no activity, no prospecting may take place under or within the 1: 50 year floodline or 100m from any watercourse (whichever is the greatest). No person may undertake mining for alluvial diamonds/sand from channel of a watercourse unless reasonable precautions are taken. Detailed regulations on the use of water for mine-related activities were issued in 1999 under the National Water Act framework.	The Ecological Impact Report for the project recommends upholding a 50m buffer zone to all riparian zones and wetlands. Target Area 1 and 21 have been omitted from the identfied target areas due to their location below the 1: 100 year floodline of the Limpopo River and in too close proximity to unmapped wetlands and the Makuleke Wetland outside the site. All necessary precautions have been recommended in the EMPr
National Environmental Management: Waste Act (Act 58 of 2008) (NEM:WA) NEMWA is the principal act governing waste management within South Africa since 2009. The objectives of the act involve the protection of health, wellbeing and the environment. It provides measures for to avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste. It further requires that all waste management activities must be licensed. GNR 633/2015 recently inserted residue deposits resultant from prospecting as a Category A activity which requires a WML under the provisions of NEM: WA. Accordingly no person may undertake a waste management activity, without a waste management license. The DMR is the authorising authority for waste management activities related to prospecting, exploration and or mining.	No waste management license is required for the prospecting right application. It is stated in the project prospecting works programme that no mine waste will be created as the minerals to be tested outcrop onto the surface hence no overburden is anticipated. Soils excavated will be backfilled after testing and sampling.
National Heritage Resources Act (Act 25 of 1999) (NHRA) NHRA protects all structures and features older than 60 years (Section 24), archaeological sites and material (Section 35) and graves and burial sites (Section 36). Section 38 indicates that any person intending on undertaking any form of development which involves the activities listed below must, at the earliest stage of initiation, notify the South African Heritage Resources Association (SAHRA): • Construction of road, wall, power line, pipeline, canale/similar form of linear development / barrier exceeding 300m in length; • Construction of a bridge/similar structure exceeding 50m in length • Any development or other activity which will change the character of the site-	The Limpopo Heritage Resources Agency (LIHRA) and the South African Heritage Resources Agency have been informed of the application. An HIA Study has been undertaken for the project and is attached to this EIR. Several site of heritage significance were found onsite such as the old graphite mine shafts, excavated trenches, buildings foundations dating to early 1942; graves, stonewall sites, historical homesteads, sacred trees and river pools. Prospecting activities will

o Exceeding 5000m^2 in extent or o Involving 3 or more existing erven / subdivision thereof or; o The re-zoning of a site exceeding 10 000m^2 in extent; or o Any other category of development provided for in regulations by SAHRA / provincial heritage resources agency. A Heritage Impact Assessment (HIA) Study must be conducted for such developments.	be planned to avoid all identified heritage sites. Recommendations and management measures are documented in this EIR & EMPr
National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM:AQA) NEM: AQA regulates air quality to protect the environment by providing measures for prevention of pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring. Government Notice 893 of 22 November 2013 provides a list of atmospheric emission activities in terms of Section 21 of NEM: AQA which require licensing. The notice further establishes minimum emission standards for the listed activities. NEMAQA places the responsibility for air quality management on district authorities tasked with baseline characterisation, management and operation of ambient monitoring networks, licensing of listed activities and emission reduction strategies.	No Air Emission License (AEL) will be required for the prospecting activities as no listed activities are triggered under NEM: AQA. Increased dust can be expected during prospecting activities as a result of vegetation clearance, excavations, and use of gravel roads. The impact is anticipated to be low due to the distance of the target sites to sensitive receptors.
National Forest Act, (Act 84 of 1998) In terms of Section 15(1) of the act, 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 forest 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. If any protected trees require removal from a development site a Protected Tree Permit needs to be obtained from the Department of Agriculture Forestry and Fisheries (DAFF) prior to such removal.	The Ecologist identified several protected trees onsite during a survey from 11-15 April 2018. Species include Baobab, Shepard's Tree, Leadwood, Apple-Leaf and Marula. The presence/absence of these species, in particular large individuals of Baobab will be verified at each target area prior to invasive activities. The prospecting activities would avoid removal of protected trees as far as possible. In stances where it cannot be avoided, a permit for removal will be obtained from DAFF (this excludes any large trees such as Baobab).
National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA) The NEMBA provides for the management and conservation of South Africa's biodiversity within the framework of NEMA and the protection of species and ecosystems that warrant national protection. A list of threatened and protected species, categorised as critically endangered (CR), endangered (EN), and vulnerable (VU) or protected has been issued in terms of Section 56 (1) of the NEMBA. South Africa also uses the internationally endorsed World Organisation-International Union for Conservation of Nature (IUCN) **IUCN Red List Categories and Criteria** in the Red List of South African plants.	Clearing of vegetation will be required for trenching, drilling, pitting and bulk sampling as well as site infrastructure. It will however be kept to an absloute minimum as the rehabilitation potential of vegetation onsite is low. A Biodiversity survey was done in April 2018 over the application area, except the eastern portion due to inaccessablity into military zone. No flora species of concervation

A list of threatened and protected ecosystems has been gazetted in 2011 in terms of Section 52 (1) of the same act. The ecosystems are categorised as critically endangered (CR), endangered (EN), and vulnerable (VN) or protected.	concern were found resident onsite, except protected trees. Yet fauna of high conservation concern are resident onsite (mammals, birds, reptiles, butterflies, rare butterflies, scorpions and fruit beetles). If any protected plant species are identified later within target areas, prior to prospecting, a licence to disturb protected flora will be obtained from the LEDET. Yet the rule would be to leave the species intact as much as possible. The listed ecosystems have been studied through SANBI BGIS. The project site does not fall within a nationally threatened and or protected ecosystem. It corresponds to a least threatened terrestrial ecosystem. In terms of Aquatic Biodiversity the site is part of a Fish Sancuary and Fish Support Area & associates sub-quaternary catchment in Levhuvhu & Letaba WMA. Fish Sanctuaries are rivers that are essential for protecting Threatened or Near Threatened freshwater fish that are indigenous to South Africa. This has been considered in the EIR.
UNESCO – United Nations Educational, Scientific and Cultural Organisation UNESCO World Network of Biosphere Reserves (WNBR) covers internationally designated protected areas, each known as biosphere reserves, meant to demonstrate balanced relationship between people and nature (e.g. encourage sustainable development). The project site is located within the UNESCO proclaimed Vhembe Biosphere Reserve (inscribed 2009) buffer zone area.	Prospecting activities will be undertaken in accordance with an approved EMPr inclusive of recommendations made by the ecologist (specialist) to minimise or curb any negative environmental impacts. Disturbed areas will be rehabilitated as close as possible to pre-prospecting state.
Convention on Wetlands (Ramsar, 1971 enforced 1975) The Convention on Wetlands, Ramsar Convention, is an environmental treaty established in 1971 by UNESCO. It provides for national action and international cooperation regarding the conservation of wetlands, and wise sustainable use of their resources. Ramsar lists wetlands of international importance across the world. The World Ramsar Maluleke Wetland, is located 500m east, **outside**, the application area in the Pafuri Section of the Kruger National Park. It is associated with the Limpopo River floodplain vlei.	No prospecting activities will be undertaken in the vicinity of the ramsar site. Target Area 1 in proximity to wetlands and channels draining towards the Maluleke wetland off site; have been omitted from the identified prospecting target areas.
PROVINCIAL LEGISTLATION & MANAGEMENT PLANS, GUIDELINES	

Limpopo Environmental Management Act (Act 7 of 2003) (LEMA) LEMA was written to consolidate and amend the environmental management legislation of the Province. It includes Regulations which call for the protection of indigenous plants, animals which require a permit from provincial authority, LEDET for its pick, sell, removal, donate, in and or export in the province. The lists of plants and animals are itemized under Schedule 8, 11 and 12 of the act.	The Biodiversity Assessment undertaken to determine if any protected species are located within the sites found no flora species of concervation concern resident onsite, except for protected trees. But fauna of high conservation concern were found resident onsite (mammals, birds, reptiles, butterflies, rare butterflies, scorpions and fruit beetles). The findings of the specialist study have been included in this EIR. If any protected plant species are identified later within target areas, prior to prospecting, a licence to disturb protected flora will be obtained from the LEDET. Yet the rule would be to leave the species intact as much as possible.
Limpopo Conservation Plan version 3, 2017. LEDET is the custodian of the environment in the Limpopo Province and primary implementing agent of the Limpopo Conservation Plan version 2. This is done by providing a map of biodiversity priority areas, referred to as Critical biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), with accompanying land use planning and decision making guidelines. The project site covers large transacts of ecological areas namely ecological support areas 1 (ESA) and critical biodiversity areas (CBA) 2 earmarked by the Limpopo Conservation Plan of 2017 (revised for Vhembe District). The prospecting activities will correspond to both priority areas. A number of important conservation corridors exist in the study area. Rocky ridges, streambeds and tributaries of the Limpopo River form a vital conservation corridor network in the larger area. Limpopo river is a conservation corridor of major and fundamental importance. Hence the correspondence to ESA and CBA areas.	A Biodiversity, Ecology and Aquatic Assessment Report has been prepared and included in the EIR which has considered the impact of prospecting on these priority areas and provide management measures to minimise the impact.
National and Limpopo Protected Areas Expansion Strategy (NPAES, LPAES) The goal of the NPAES / LPAES is to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change. It sets targets for protected area expansion and makes recommendations on mechanisms for protected area expansion. The project site corresponds to a priority focus area identified as part of the NPAES and LPAES. The intent of priority focus areas is to proclaim and formally incorporate such areas into the Protected Area Network.	The application area corresponds to a LPAES priority area. But the Vhembe CPA successfully claimed the corridor and unsurveyed stated land in 2004.The western section of the corridor is to be released to the community and the SANDF reserve land rights for the eastern side of the corridor as military training zone. The military have been operation in the area since the 1970's and the land is reserved for military use under the Defence Act. Its incorporation as a protected area into the Kruger National Park is highly improbable in the near

	future. Prospecting activities would therefore not affect this strategy.
Vhembe District Bioregional Plan, 2017 The bioregional plan is an appropriate tool for addressing the management and conservation of biodiversity in the Vhembe District Municipality, while supporting and promoting much needed sustainable development.	The Vhembe Bioregional Plan has been consulted. Based on the bioregional plan the application site corresponds to the Vhembe Biosphere Reserve, the site is a general buffer and potential core area for expansion, corresponds to NPAES / LPAES. The application area is considered environmentally sensitive and hosts various area of critical biodiversity which are irreplaceable. The bioregional plan has been used to inform the biophysical environment characterisation in this report.
Mining and Biodiversity Guideline 2013 (MBG) The MBG identifies and categorizes biodiversity priority areas sensitive to mining in order to main stream biodiversity issues in decision making into the mining sector. It provides direction as to where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining.	The MBG 2013 has been consulted through the SANBI BGIS online mapping system. The majority of the project area is not affected however the Limpopo Riverine Forest along the Limpopo River towards the KNP is of highest biodiversity importance and is to be protected from prospecting/mining. The MBG has been used to inform the biophysical environment characterisation in this report. Riparian zones along the Limpopo River and close to the unique habitat in the northeastern section would be considered no-go zones for prospecting.
Musina Integrated Development Plan 2016/2017 – 2021/2022 The Integrated Development Plan is a strategic tool for governance and planning at the municipal sphere of government. It is used as a delivery tool that integrates the functions of three spheres of government in a given municipal space. As such, IDPs are a collective expression of the developmental intentions of all three spheres of government in a given municipal space based on local needs.	The IDP has been referred during the preparation of this EIR. The Musina SDF is however silent on development initiatives for the project area. The project site corresponds to the former Mutale SDF and has therefore rather been consulted for the purposes of this EIR.
Mutale Spatial Development Framework The project area falls within the former Mutale Spatial Development Framework. The Musina Spatial development Framework is silent on the Masisi, Gumbu and hence referral is made to the former Mutale SDF. An SDF is a core component of the Municipality's economic, sectorial, spatial, social, institutional, environmental vision.	The Mutale SDF has been consulted in the compilation of this EIR. The northern part of the prospecting right area bordering the Limpopo River is earmarked as 'Mutale Biosphere Reserve/Park'/'Reserve'. The southern part of the application area comprises settlements and is not earmarked for these purposes and indicates areas of cultivation. The area can be prospected from an

	eenvironmental point of view yet from a legislative point commericial prospecting is not desirable in protected areas and prohibited through the NEMPAA.
2007 Madimbo Landuse and Development Plan This land use and development plan aims to guide the Gumbu Mutale Community to development generate appropriate land-uses and development plans for the Madimbo Corridor that would assist them to engage in viable, sustainable and legally acceptable activities on the property, guided by clearly articultated development objectives. The core economic activities identified to be practised on the corridor include farming (i.e. cattle & crop production) and mining. The landuse being recommended for the Madimbo corridor guided by the climate, land type, surface and groundwater, topography, vegetation profile are crop production, livestock production, enclosed game farming & hunting and eco tourism. Graphite mining was previously conducted in the Madimbo corridor, but was discontinued in the 1970's. Detailed information obtained from the Council for Geo-Science indicated that the corridor has the following minerals: Barite, Copper, Iron, Graphite, Magnesite and Nickel.	The proposed prospecting application is inline with the ecore economic activities identified by the community to be practised on the corridor. The application for prospecting right will focus its intial prospecting activities to the former exploited mineral resources, the old Gumbu Graphite mine.
SANBI BGIS Online Mapping System (www.bgis.sanbi.org) Online biodiversity mapping system by SANBI used to determine sensitive environmental features across South Africa which is sensitive to surface impacts from developments.	The SANBI BGIS system has been used to determine the baseline environmental conditions of the project site.

6 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Inline with the 2007 Land use and Development Plan prepared for the RLCC for the Madimbo Corridor, core economic activities identified for the study site include farming (crop and cattle) and mining. These were the options planned by the Gumbu/Mutale community of which mining required further investigation into the availablility of an economic resource.

Historic exploitation of graphite at the old grahite mine indicates mining of 45 tonnes of graphite per month between the years 1942 to late 1970, which make this a good prospect for future mining. Prospecting activities would therefore need to be undertaken through invasive prospecting methods to confirm historic information of the mineral resource including occurrence of other viable mineral resources; and if a viable mineral deposits still exists within the project site.

Prospecting will confirm the information obtained through field mapping, desktop studies and literature review. It will allow the preparation of Geological Modelling and a resource estimation which confirms if the identified mineral resource/s can be feasibility mined in future in an environmentally, socially and economically viable manner.

If the prospecting activities prove that the mineral deposit can be optimally mined, it becomes a viable land use option for the community and a new mine may/could be developed with the

potential to contribute to the provincial and local economy as well as generate employment for the local communities. There is a lack of economic activity and job opportunities at Gumbu.

Desirability of prospecting at its preferred location

Prospecting is desirable at the study site as it has a verified mineral resource and mining is a land use option being investigated by the Gumbu/Mutale community for the study site.

But, from a legislative point of view commerical prospecting is prohibited within a proclaimed nature reserve and defined military zone. NEMPAA prohibits prospecting and or mining within a protected area and so too does the Defence Act of 2002 reserve the restricted military zones.

The Madimbo Corridor is the SANDF's only suited training area for military Special Forces and importantly there are a number of unexploded ammunitions, dangerous excavations and terrains in the corridor making it unsafe for civilian activity. This is also true for the old Graphite Mine shafts speculated to be filled with unexploded ammunition (UXO's).

The SANDF reserves land use rights on the eastern side of the corridor (see Figure 3) to be registered against the CPA title deed for the land.

The western section of the military corridor has been swept for UXO's down to a depth of 1m making this section suitable for agricultural practice not prospecting/mining. For the land to be used for prospecting; sweeping for UXO's are required down to a depth of 4 meters. According to the SANDF this comes at a substantial cost, rendering prospecting not feasible.

Yet, Samin intends to follow the requirements to make the target areas safe for prospecting. Samin would like the opportunity to do detailed exploration work to upgrade the delineated graphite mineral inventory into a resource. The exploration work would be conducted in line with an approved Environmental Management Programme.

6.1 Description of process followed to reach proposed preferred site

6.1.1 The location where it is proposed to undertake the activity

Selected Application Area

An alternative study site was not considered for the prospecting activities. The site was selected based on the underlying geology and review of historic information of former mineral explotation in the area. The historic information indicates the presence of graphite within the Gumbu formation. Geological series map number 2230 Messina shows occurrence of graphite within the study site and the mineral has been exploited earlier during 1942 – 1970 at the old Graphite Mine. This is evident from old shafts, existing mined areas, old mine lands and existing trenches on site.

Graphite was its main target, but the potential for other minerals e.g. Gold, diamonds, base metals and limestone was also recognised. Based on the historic data and physical evidence of historic exploitation non-invasive activities will be applied to the entire study site under application.

Preferred site targeted for invasive prospecting activities (identified target areas)

Target positions were identified by geological formations underlying the site and verified by a Geologist through a site inspection.

Twenty one (21) target areas were originally identified by the Geologist which was then considered through the EIA investigation and public participation process. The public participation process saw concerns raised of potential impacts on terrestrial priority biodiversity areas, impacts on drainage features, the Limpopo River and impacts on the Makuleke Wetland downstream outside the study site.

Thus specialist investigations were undertaken during April 2018 to delineate sensitive environmental (ecological) and heritage features which need to be avoided and managed.

The findings from the Ecological Assessment established the northeastern section of the study site to be the most ecologically sensitivite comprising a unique habitat (unmapped wetlands, possible forests and nearby downstream Makuleke wetland). Target area 1 is to be sited within this unique habitat and target area 21 within the riparian zone of the Limpopo River. The study recommends that both target areas and the northeastern section of the study site be regarded as no-go zones for prospecting. Wetlands & riparian zones on the study site are of high sensitivity. A 50m buffer zone is to be upheld to aquatic features and is to be regarded as no-go zones for prospecting.

Next, the findings of the heritage survey revealed eight areas of heritage significance. These include the old graphite mine shafts, trenches, building foundations, stonewall sites, historical homesteads, a sacred river pool and tree. The sites of significance were mapped in relation to target areas. The target areas are not affected and will avoid any sites of significance especially the features at the old graphite mine.

The overall outcome, based on environmental features, is that 19 target areas remain on the site plan which can be persued for prospecting with implementation of strict environmental management measures detailed in the EMPr.

Remaining issues on the site plan post finding the best environmental option:

The study site is protected and restricted for military use. It is unsafe for civilian activity and contaminated with UXO's. Limited clearing for UXO's were done by SANDF but the land is only suitable for agriculture purposes not prospecting. It first needs to be made safe for prospecting and civilian activity. The SANDF will reserve land use rights for the eastern section of the corridor with only the western section available to the community. The ban on prospecting remains on the entire existing military corridor up until the land claim is fully settled, unless the Minister of the National Defence Force provides consent for the activity.

The planned prospecting work is intended to start at the verified mineral resource on the western section of the corridor and spread out to other identified Greenfield target areas. Due to the current

key land use, target areas 8-20 can be investigated. Possiblity remains that target areas 2-7 are within a military restricted area and can only be persued with the consent of the Minister of the National Defence Force.

6.1.2 The type of activity to be undertaken

NEMPAA prohibits commercial prospecting in protected areas. But there is no alternative means of determining the available mineral resources other than through non-invasive and invasive prospecting.

Hence, no activity alternatives were considered. Trenching, drilling, pitting and bulk sampling are the recognised methods of prospecting for the minerals under application which includes graphite and other minerals such as Brytes, Chrome ore, Coal, Cobalt, Copper ore, Diamond, Gold ore, Iron ore and Nickel ore minerals.

Samin undertook a meeting with LEDET on 26 April 2018 to discuss their intent. Samin would like to opportunity to conduct prospecting at the study site based on the current use of land, recent change in ownership, lack of economic activities at Gumbu and the verified existence of mineralisation at the Old Gumbu Graphite Mine.

6.1.3 Design or layout of the activity / Phasing

Buffer zones will be applied to sensitive environmental and heritage features and include:

- Invasive activities are to avoid identified heritage resources. No invasive activities are to be placed within 50m from heritage sites;
- A 50m buffer zone will be upheld to wetlands and riparian zones and be regarded as no go zones for prospecting
- The northeastern section of the study site will be viewed as a no-go area for prospecting because of the likelihood of unique habitats (unmapped wetland, possible forests);
- Target Areas 1 and 21 have been omitted from the identified target areas due to their location within the northeastern section site and within the Limpopo River riparian zone;
- Target footprint areas will be confined to a narrow strip to have the least possible edge effects on ecosystems;
- Prospecting at rocky ridges would be avoided, if it cannot be avoided footprint areas will be limited to a minimum on rocky ridges;
- Disturbance through exploration pitting in old river channels will be limited to an absolute minimum;

Prospecting activities are to be located along existing access roads as far as possible.

6.1.4 Technology to be used

An alternative in technology / method is being considered for drilling of surface boreholes. Core drilling, reverse circulation or percussion drilling will be considered.

6.1.5 Operation aspects of activity

No alternatives have been considered. The recognised prospecting methods of trenching, drilling, pitting and bulk sampling will be used.

6.1.6 Option of not implementing the activity

The no-go option will be call off prospecting ideals in the application area. Military training in the corridor will continue as usual. The potential is that the western section of the application area would be used for agricultural ventures/grazing.

The potential environmental impacts would not take place and no mining activity would trail the prospecting.

No economic activity will be generated for the Gumbu Valley and unemployment will linger. Communities will not benefit from the employment opportunities associated with development of a mine post positive prospecting results.

The prospecting programme will confirm an available mineral resource and reserve. Without the implementation of prospecting with bulk sampling a Bankable Feasibly study with the resource and resource statement cannot be prepared. There will be no detailed data to validate the economic feasibility to mine the available mineral resource. Therefore no new mine will be established.

The applicant will seek other possible ore bodies and prospecting areas to delineate ore bodies.

6.2 Details of the Public Participation Process followed

The public participation process identifies potential interested and affected parties (I&APs) on the project and solicits inputs and comments pertaining to the activities from such parties. This section summarises the public participation process followed during the Scoping and EIA Phase of the EIA study.

In short the EIA Process requires the submission of a Scoping Report and EIR & EMPr to the DMR for decision making, which has been to subjected to a 30 day public comment period. To this effect the project Scoping Report was subject to public comment from 12 January to 12 February 2018 and a public meeting was held on 7 February 2018. Inputs were consolidated into the Scoping Report and submitted to the DMR for approval, which was granted on 28 February 2018. The EIA Phase kicked off on 1 March 2018 after which site investigations and specialist studies were undertaken during April 2018. I&APs were notified of the approval of the SR and commencement of the EIA Phase on 7 March 2018 via email.

The findings of the site investigations and EIA Process have now been consolidated in this EIR and are made available for a 30 calendar day public review and comment period from 11 June to 11 July 2018. A public information session has been scheduled for 29 June 2018 to further facilitate comments on the report. Once the review period lapses, public inputs will be incorporated into the EIR & EMPR and submitted to the DMR for approval.

6.2.1 Identification and Registration of Interested and Affected Parties (I&APs)

In terms of Regulation 40, 41 -44 of the EIA Regulations of 2014 of NEMA the Environmental Assessment Practitioner (EAP) managing the application must:

1) Provide access to information to all information that reasonably has or may have the potential of influence any decision and must include consultation with-
    (a) The competent authority
    (b) Every state department that administers a law relating to a matter affecting the environment relevant to an application for environmental authorisation;
    (c) All organs of state which have jurisdiction in respect of the activity;
    (d) All potential, or, where relevant registered interested and affected parties
    (e) Registered landowners;
    (f) Occupiers of the proposed application site;
    (g) Person in control of the proposed application site;
    (h) Owners, persons and occupiers of land adjacent to the site where the activity is to be undertaken;
    (i) Municipal ward councillor for the project area, ratepayers organisation representing the community in the area;
    (j) Municipality in which jurisdiction the application falls;

As per the requirements of regulations an Interested and affected party database was opened for the project and landowners, organs of state, occupiers of the land, adjacent land owners, local and district authorities including organs of state were pre-identified and registered on the project database.

The PPP commenced on 12 January 2018 announced through a newspaper advertisement in the Limpopo Mirror and onsite notices. It called for registration of I&APs until 12 February 2018. A second advertisement has been published in the Limpopo Mirror on 8 June 2018 to announce the availability of the EIR & EMPR for public review and comment from 11 June to 11 July 2018. Project information notifications regarding public meetings, focus group meetings and documents for review were distributed to registered I&APs only.

The I&AP Database is attached under **Appendix 3A**.

Key Stakeholders in the Public Participation Process:

- National Department of Public Works (DPW) – Registered Landowner
- South African National Defence Force - Long standing lease agreement with the DPW for the Madimbo Military Corridor within the application area
- Department of Rural Development and Land Reform (DRDLR) – Negotiate settlement that restore land to claimants;
- Vhembe Communal Property Association (Vhembe CPA) – Claimant / to be reinstated landowners of application area
- Tshikundamalema Traditional Authority (occupiers, claimants of land)
- Communities for Malale, Sigonde, Gumbu, Tshenzhelani, Masisi, Bende Mutale (occupiers, claimants of land)

- Limpopo Department of Economic Development, Environment & Tourism (LEDET) – responsible for provincial protected areas, environmental commenting authority;
- Vhembe Biosphere Reserve (Conservation entity of application area and Vhembe District)
- Kruger Nation Park (adjacent landowners)
- Musina Local Municipality and Vhembe District Municipality (local and district authority)
- Department of Water and Sanitation

6.2.2 Methods implemented to announce and notify Interested and Affected Parties about the project included:

6.2.2.1 NOTIFICATION OF THE EIA PROCESS

On 27 December 2017 a project briefing meeting took place at Gumbu to inform traditional leadership and the Vhembe CPA of the proposed prospecting activities (**Appendix 3B** - Minutes Project Briefing Meeting). A Background Information Document (BID) containing information about the prospecting activities, EIA Process and public meeting was compiled and delivered to I&APs by hand and email from 11 to 16 January 2018 (**Appendix 3C** - Proof of BID delivery to I&APs.)

A newspaper advertisement announcing the start of the Scoping & EIA Process, the availability of the BID and draft Scoping Report, scheduled public meeting and inviting the public to register on the I&AP database was placed in the Limpopo Mirror on 12 January 2018(See **Appendix 3D** for the Limpopo Mirror Tear Sheet). A second notice has been issued in the Limpopo Mirror of 1 June 2018 to announce the availability of the draft EIR & EMPR for public review and a scheduled public meeting. Site notices were erected in the project area on 12 January 2018 (See **Appendix 3D** for Photographic evidence). A second set of notices have been erected in the project area to announce the draft EIR & EMPR availability as well as a scheduled public meeting.

6.2.2.2 DRAFT SCOPING REPORT (DSR) AVAILABLE FOR 30 DAYS PUBLIC REVIEW AND COMMENT

The release of the DSR for public review coincided with the release of the BID. The BID was sent to all identified and registered I&APs by hand and or by email and indicated the availability of the DSR at public venues from 12 January 2018 until 12 February 2018 and a scheduled public meeting on 7 February 2018. Hard copies of the report were available from the tribal offices of: Malale, Sigonde, Gumbu, Tshenzhelani and Masisi and was available on the Naledzi website: www.naledzi.co.za. Electronic and hard copies of the report were submitted to organs of state including local and district authorities. (**Appendix 3E** – DSR Email & Delivery List)

The list of organs of state presented with a copy of the DSR included:

- Department of Water & Sanitation
- Roads Agency Limpopo
- Limpopo Department of Economic Development, Environment & Tourism
- Limpopo Department of Rural Development and Land Reform
- Musina Local Municipality and Vhembe District Municipality
- National Department of Public Works

- South African National Defence Force

A public meeting (PM) took place on 7 February 2018 at the Gumbu Primary School from 14:00hrs – 16:00hrs to facilitate comments on the DSR (See **Appendix 3F** – Scoping Phase: Minutes of Meetings). Later a focus group meeting (FGM) took place on 12 February 2018 with the SANDF in Polokwane to record their issues and concerns, as the unit was unable to attend the public meeting. (Also see **Appendix 3F**- Scoping Phase: Minutes of Meetings).

6.2.2.3 COMMENCEMENT OF THE EIA PHASE

The Scoping Report was submitted and approved by the DMR on 28 February 2018. I&APs were informed of the report approval and commencement of the EIA Phase through emailed notification on 7 March 2018. (See **Appendix 3G** - DMR Scoping Approval, I&AP Notification thereof).

On 26 April 2018 a key stakeholders meeting took place at Naledzi's Offices in Polokwane between LEDET and SAMIN to discuss the protection status of the application area and options available to SAMIN if it is to proceed with the prospecting right application in a protected area. (**Appendix 3H**- EIA Phase: Minutes of Meetings).

6.2.2.4 DRAFT EIR & EMPR AVAILABLE FOR 30 DAYS PUBLIC REVIEW AND COMMENT

The draft EIR & EMPr is the first official approach to I&APs and organs of state and information submission during the EIA Phase. The Draft EIR contains all the issues raised throughout the EIA process, findings of the specialist investigations and outcome of the assessment. I&APs are provided the opportunity to review the findings of the EIA.

The Draft EIR & EMPr is made available for public review from 11 June to 11 July 2018. Copies of the report are available at the following venues:

- Tribal offices of: Malale, Sigonde, Gumbu, Tshenzhelani and Masisi; and
- Also available the Naledzi website: www.naledzi.co.za/publicdocuments

Electronic and hard copies of the report have also been submitted to organs of state including local and district authorities.

A public meeting has been scheduled for **Friday 29 June 2018 at 14:00hrs – 16:00hrs at Gumbu Primary School**. The meeting will convey the findings of the EIR and allow the public to interact with the project team to seek clarity on information contained in this report.

6.2.2.5 ISSUES AND CONCERNS RAISED BY I&APS DURING THE EIA PROCESS

Written submissions were received from registered I&APs on the DSR. A summary of the comments received from I&APs, whether at meetings, written or verbal, during the Scoping& EIA Phase up to the preparation of the draft EIR have been captured in the Issues and Response Report (IRR) Version 2 under **Appendix 3I.** The Issues and Response Report consist of versions. Version 1 is appended to the Scoping Report and Version 2 to the draft EIR. A summary of the issues are also contained in Section (iii) on page 31.

6.2.2.6 SUBMISSION OF FINAL EIR

All comments and issues received during the public review period of the Draft EIR and EMPr would be captured in a Final EIR and submitted to DMR for review and ultimately approval. I&APs would receive notification of the submission of the final report.

6.2.2.7 PUBLIC CONSULTATION DURING DECISION MAKING

DMR will review the Final EIR and consult with any other key organs of state eg. the Department of Water & Sanitation (DWS) before granting or refusing an environmental authorisation.

The environmental authorisation will be made available for public review for a period of 20 consecutive calendar days. This provides I&AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&APs are also then informed of the appeal procedure, should they have a reason to appeal.

6.2.3 Summary of comments and issues raised by I&APs

Comments and responses solicited during the Scoping and EIA Process have been included in the comments and responses table below.

LIST OF INTERESTED AND AFFECTED PARTIES (List of names of persons consulted in this column and Mark with X where those who must be consulted were in fact consulted)		DATE COMMENTS RECEIVED	ISSUES RAISED	EAP'S RESPONSE TO ISSUES	Section & Paragraph reference in report where issues & response incorporated
AFFECTED PARTIES					
Landowners					
National Department of Public Works (DPW)	**x**	None received to date.	None	None	None
Lawful occupiers of land					
South African National Defence Force (SANDF)	**x**	05/02/2018	The prospecting right area is managed by the SANDF. The area is required for military training and is not safe for civilian activity.	Noted. A meeting took place with the SANDF on 12 February 2018 to discuss the issues. Minutes are attached under Appendix 3F.	Appendix 3F and 3I. Section 6.1
		12/02/2018	SANDF oppose the prospecting application. - Property registered to the Department of Public Works. - Substantial money spent to clear area of bombs so land can be used for agricultural purposes. - Area not safe. Still bombs up to depth of 4m below ground in area. - There is a land claim on application area. It has not been settled yet. - Area west of Beacon 5 would have been cleared of UXO's and given back to the community. Vigorous training still undertaken east of Beacon 5. - SANDF has no other area, except for Madimbo to continue to conduct training. - Site is a declared Nature Reserve. - Rumour has it ammunition has been dumped into the Gumbu Mine. Notify the National Dept. Public Works of the project, they are the current landowners of the prospecting site. What volumes of material will be sampled for lab	Noted. NEC informed the DPW, Mr Yuza Siwela responsible for Property Management Facilities, of the application and emailed the BID, availability of the draft Scoping Report on 16/01/2018. NEC has obtained Land Claim results on 10/01/2018 from the Commissioner on Restitution on Land Rights. Stipulating the claimants of the land. Yet it states the claim is settled. We note the comment. The legal maximum allowed volume for bulk sampling is 500 000 tons/annum.	Appendix3F and 3I Section 2 Section 6.1 Section 7.1.7 Section 7.2 Section 7.3 Section 8.1 Section 10.1, 10.6

			testing?		
		11/03/2018	Prospecting is prohibited in a protected area. Madimbo Corridor is a proclaimed nature reserve. It was proclaimed under Gazette of 1 January 1992 under the Transvaal Conservation Ordinance of 1983.	Samin engaged with the LEDET in this regard on 26 April 2018. The applicant wishes to continue with the application and motivate de-proclamation of the land with the consent of the Vhembe CPA. This will permit prospecting in the area.	
		20/04/2018	The military corridor is not safe for prospecting. There is a significant safety risk due to the existence of UXO's within the military corridor. The SANDF sweeped parts of the area for UXO's, down to a depth of 1 metre. If the land is to be used for prospecting clearing/sweeping for UXO's is required down to a depth of 4 metres. This sweeping exercise will come with a significant cost. Hence prospecting in this area is not possible. It is not safe to conduct prospecting activities as it may result in machinery unearthing and detonating UXO's and this is a major safety risk for the Defence Force.	Noted. Samin has requested the SANDF to provide a list of requirements that need to be undertaken to make the area safe for prospecting.	
		08/05/2018	Refer to Section 48 (d) of the MPRDA. The Madimbo Training Area is State Land and belongs to the National DPW as the custodian. It is reserved for military use under the Defence Act. Also make contact with Ms Krishnee Nadasen, Key Account Manager fo the Defence Force Portfolio at the NDPW. Also in terms of the Restitution of Land Rights Act of 1994, the DoD cannot agree to any other activities on the area unless the restitution claim has been settled.	Noted. Ms. Krishnee Nadasen of the NDPW has been added to the I&AP Database for the project. All project information available during the EIA Phase will be made available to the NDPW.	Appendix 3I Section 2 Section 5
Lawful occupiers of land: Communities/ Claimants					
Vhembe CPA (representing Malale, Sigonde, Gumbu, Tshenzhelani, Masisi villages) Tshikundamalema Traditional	**x** **x**	27/12/20017	The Communal Property Association is an existing structure, a Trust, which accommodates all the villages. Its constitution (ya CPA) incorporates all villages and encourages these communities to work together.	Noted. A project briefing meeting took place on 27/12/2018 to determine correct structures for consultation.	Section 2, Section 6.2.1 Appendix 3B, Appendix 3I

Authority		07/02/2018	- Local people must be employed (youth) during the construction and operation of the mine; - The project must succeed to mining to create job opportunities for the local people - The project will assist to combat crime as a result of unemployment in the area - What is the planned mining period and people to be employed? - The water and environmental department must be consulted.	The current application is for a prospecting right. There are limited prospects for job opportunities during the prospecting phase. Once the mine is established, people would be employed as per their qualifications and expertise. There will be an entity which would deal with employment issues. Lower income/poor people will be employed in numbers. The planned mining period and employment relates to actual mining. This is a prospecting right application for now. The mining period and number of people to be employed if the mine is developed is unknown, since the quantities of minerals will only be known after the prospecting phase. The Department of Water & Sanitation including the Limpopo Department of Economic Development, Environment and Tourism are key stakeholders in the Scoping and EIA Process.	Appendix 3I
		26 April 2018 Verbal comment Meeting with LEDET, SAMIN	How is the SANDF still able to conduct military training within the nature reserve?	The SANDF is managing the land as a conservation area and military corridor. SANDF is managing the corridor through a 99 year lease agreement with the National Department of Public Works.	Appendix 3I Section 2 Section 5
		26 April 2018 Verbal comment Meeting with LEDET, SAMIN	What are the implications of the proclamation if the Vhembe CPA is given their land back? The claim was already finalised in 2004.	Prospecting and mining is prohibited in protected areas under the NEMPAA. Also in terms of Section 48 (d) of the MPRDA, the Madimbo Training Area is State Land and belongs to the DPW as custodian. It is reserved for military use under the Defence Act. DPW and SANDF will reserve the eastern side of	Appendix 3I Section 2 Section 5

				the corridor for military use through a lease agreement to be registered to the property title deed issued to new owners.	
		26 April 2018 Verbal comment Meeting with LEDET, SAMIN	When was the application area proclaimed as a nature reserve? Is the entire area affected by the proclamation?	The entire application area is affected. The project site was declared the Matshakatini Nature Reserve in 1983.	Appendix 3I Section 2 Section 5
Biodiversity conservation area – prospecting right area					
UNESCO Vhembe Biosphere Reserve (includes the prospecting right area)	**x**	Registered as I&AP 15/01/2018. Submitted comments 12/02/2018	VBR has concerns with regard to prospecting activities: Project location in terms of Critical Biodiversity Areas (irreplaceable). Its location upstream of the World RAMSAR site, Maluleke Wetlands. The activities could have detrimental impact on biodiversity and aquatic environment upstream of this important Ramsar Site. Locality maps in draft Scoping Report (DSR) are low resolution, high scale can't determine location of prospecting. Also not specific on target areas. Maps in the DSR don't indicate location of prospecting sites in relation to sensitive environments. **Aquatic Environments** At what distance from Limpopo River riparian zone will invasive trenching be undertaken? The prospecting activities could have detrimental impact on Maluleke Wetland downstream of site Concerned with prospecting of alluvial diamond in Limpopo River sedimentary deposits. **Plans/Maps**	The Biophysical environment description has been updated in the Scoping Report & EIR. The impacts have been considered in the EIA Study. A Biodiversity, Ecological and Aquatic survey has been undertaken for the EIA Process to determine the impact on biodiversity, ecology and aquatic features. A Site Plan was included in the updated Scoping Report with the location of target areas for prospecting. Each site would be 1 hectare. The target area at Gumbu Mine would be 1.5 hectares. The report has also been updated with sensitivity maps indicating target areas in relation to sensitive environments of the Limpopo Conservation Plan and Vhembe Bioregional Plan. Target areas would be located between 300m to 1km south of the Limpopo River Riparian Zone. The target area located on the north western extreme of site on the bank of the Limpopo River	Appendix 3I Appendix 4A Appendix 6 – Final Site Plan Section 7.1 Section 8.1 Section 9 Please note a 50m buffer zone will be upheld to riparian zones and wetlands to be regarded as no-go zones. The northeastern section fo the study site is also regarded as a no-go zone for prospecting due to unmapped forests, wetlands and to stop any potential impact on the ramsar site. Accordingly Target Areas 1 & 21 has been omitted.

			Maps in DSR do not show location of prospecting activities in relation to Limpopo Conservation Plan and Vhembe Bioregional Plan priority biodiversity areas. Required to facilitate comments. **Social impacts** Traffic impacts, dust increase Accidents with livestock (impact on livelihoods) Negative social impacts (migration of people to area, increase in crime, violent crimes against woman.	has been omitted. The impact of the prospecting activities on the Limpopo River would be considered. Target areas in general would need to remain 100m away from drainage lines, except for exploration pits to be located in old river channels in search of alluvial diamonds. Please note that is a prospecting right application. Some of negative social impacts listed are related to mining. The potential increase in traffic, dust impacts will be updated and listed in the Scoping Report and considered in the EIA report.	
Landowners on adjacent properties					
South African National Parks (SANPARKS)	**x**	Registered on 05/01/2018 Sent completed Comments and Registration Form on 09/01/2018.	SANPARKs will send comments once consolidated from colleagues in park.	Noted.	
		07/02/2018 Emailed comment	The study area is very dry, where will the mine operation obtain its water from? Will the mine abstract water from the Limpopo River? What is the total area to be prospected?	The prospecting activities will not require much water, mainly for domestic purposes. Any water requirements would be brought to site by the contractors. Samin will prospect an area of 4000 hectares.	Section 4.1 Section 5 Appendix 3I Recent development: The site camp will require 100 litres of water per day/person (x10 labourers) for human consumption to be obtained from the existing boreholes at Gumbu villages. $10m^3$ of water per day will be required for drilling operations. Raw water will

					be abstracted from the Limpopo River and brought to drill sites with water bowser. DWS has been consulted in this regard. A General Authorisation or Water Use license is required for the abstract of raw water from the river.
Greater Limpopo Transfrontier Conservation Area (GLTCA)	**x**	15/02/2018 Emailed comment	What is the status of EIA? Overheard exploration already started on site.	EIA Process currently in Scoping Phase. The BID registration period was from 12 January to 12 February 2018. A public meeting took place on 7 February 2018. The Scoping Report will be updated and submitted to DMR for approval end of February 2018. No prospecting / exploration work has been undertaken. The Geologist went to site end of January 2018 to determine target areas for prospecting based on surface geological mapping and literature review.	Appendix 3I
Municipal Councillor					
Phillip Mbezi – Ward 12 (Musina Local Municipality)	**x**	None received to date			
MJ Mariba – DA Councillor	**x**	07/02/2018	Community members should not fight amongst each other and take account of groups which will oppose the proposed development.	Comment noted.	
Municipality					
Musina Local Municipality	**x**	None received to date			
Vhembe District Municipality	**x**	None received to date			
Mopani District Municipality	**x**	None received to date			
Organs of State (Roads Department, Eskom, Telkom, DWA)					

Eskom Transmission	**x**	None received to date			
Eskom Distribution – Northern Region	**x**	None received to date			
Department of Water and Sanitation	**x**	14/02/2018 Emailed request	DWS requires a site visit before commenting. Confirm if a site visit can be scheduled.	A site visit can be arranged post the public meeting to take place during the EIA Phase.	The draft EIR& EMPr is made available to DWS for review and comment. A public meeting has been scheduled at Gumbu for 29 June 2018
Roads Agency Limpopo (RAL)	**X**	None received to date			
South African Heritage Resources Agency	**x**	None received to date			
Limpopo Heritage Resources Agency	**x**	None received to date			
Department of Agriculture Forestry and Fisheries (Directorate: Forestry Regulation)	**x**	None received to date			
Department of Land Affairs					
Commissioner on Restitution on Land Rights – Department of Rural Development and Land Reform	**x**	10 January 2018 Official comment-Land Claim Result	There is a settled land claim through Land Restoration on 01/07/2004. (KRP 9733). The Claimants are Gumbu, Masisi, Tshenzelani, Swigwende Community, Mutale Community. The Project Manager is Mr Jacob Tshabangu.	Noted. The claimants have been consulted through the EIA Process from onset and are actively involved in consultation meetings.	Section 2 Section 5 Section 6.2.1 Section 6.2.2.2 Appendix 3B, 3F, 3I
Department of Rural Development and Land Reform – Legal Division	**x**	6 April 2018 Verbal communication via telephone	The current registered land owner is the National Department of Public Works (DPW). The Vhembe CPA is entitled to the land since 2004. The issuing of the title deeds to the CPA is still pending. SANDF uses the areas as a training base and manages the area as conservation area.The area is a protected military corridor. The DRDLR is in discussion with Vhembe CPA on the land issue. The Vhembe CPA will receive a title deed for the land but they will only be 'entitled' to the land. Not be permitted to live on the land or conduct agriculture/graze the land as it is protected for the purposes of the SANDF's lease agreement/activities and to ensure it continuation.	Noted.	Section 2 Section 6.1 Section 7.1

			DRDLR is currently busy arranging for the lease agreement to be renewed and signed between SANDF and Vhembe CPA.		
Traditional Leaders					
Senior Chief Mr Tshikundamalema	**x**		Refer to Land occupiers – Claimants issues and responses		
Traditional Senior Chief for Malale	**x**		Refer to Land occupiers – Claimants issues and responses		
Department of Environmental Affairs					
Limpopo Department of Economic Development Environment and Tourism (LEDET)	**x**	26 April 2018 Meeting	The prospecting right application is lodged against a proclaimed nature reserve. NEMPAA prohibits prospecting and mining within protected areas. LEDET communicated the proclamation and gazette to Naledzi. The only avenue available to the applicant to prospect/mine on the land is to de-proclaim the nature reserve. The MEC for LEDET is mandated to de-proclaim protected areas. The applicant would need to convince the MEC to de-proclaim the land to allow proposed prospecting activities. Samin has a valid argument in that the landownership has changed, land use for military activity and area needs economic development. Samin should send its motivation for de-proclamation directly to the MEC. The MEC will request the different units within LEDET to respond. De-proclamation of the area will be beneficial to the local communities. LEDET is not against development. It understands people require job opportunities and economic development, yet has to abide by the law to protect the environment. LEDET supports sustainable economic development.	Noted. Samin is aware of the application area protection status. This issue has been considered. Samin wishes to motivate de-proclamation of the nature reserve to the MEC of LEDET to allow for prospecting.	Section 2 Section 5 Section 6, 6.1 Section 7.1, 7.1.7

7 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE SITES

7.1 BASELINE ENVIRONMENT

In summary the proposed study site lies fallow and is currently used for military training. The land is a proclaimed nature reserve and is managed as such. There are seven settlements in its southern portion with associated subsistence farming. The Limpopo River forms the northern border of the study site and runs in the west-east boundary of the Madimbo Corridor. The landscape is mostly 'sandveld', semi-arid and features a combination of rocky ridges, hillcrest, steep & mid slopes, valley bottoms, streamlets and sandy riverbeds. It is covered in savannah vegetation in pristine condition with a noticeable diversity of indigenous plant species. Some areas have been ecologically disturbed around the old graphite mine. Cultural and heritage sites exist in the study site comprising old graphite mine shafts, excavated trenches, associated building foundations dating to early 1942. There are also graves and stone walled sites, historical homesteads, sacred river pools and trees, site of importance on rocky outcrops and old army base ruins.

The study site has limited water resources and poor soils. It has moderate-low groundwater potential and the groundwater quality is marginal to unacceptable. The main groundwater user in the area is the SANDF.

There are seven villages within the study site with a population of approximately 900 people. These villages are small in population and function as residential areas with no economic base except for subsistence farming.

After due consideration of the location and sensitivity of identified target areas, only 19 target areas will be persued for prospecting.

Figure 4: Surface exposure of mineral and Mopane Vegetation at Gumbu Mine

Figure 5: Mopane Vegetation at Target 12

Figure 6: Target Area 2

Figure 7: Target area 9 where old excavations are evident

7.1.1 CLIMATE

The climate data used for the purposes of the prospecting right area reflects the average climate data for Masisi, which is located at the southern border of the application area next to the R525 Punda Maria Road. This is 5km south of the Madimbo Corridor. The data was retrieved from www.worldweatheronline.co/masisi-weather-average.

Rainfall / Mean Annual Percipitation

The project area is situated in a summer rainfall region. The long term mean annual precipitation (MAP) recorded for the area indicates a low average rainfall rate of approximately 300mm. The highest rainfall months are January to February. The average MAP was derived from the rainfall graph for 2009 until 2018. The highest rainfall for the period was recorded in February 2018 at 205.8mm.Winter months are very dry and include shoulder months of May and September. See Figure 8 below for the average rainfall graph for the year 2009 until 2018.

Temperature

The application area has hot temperatures. The average maximum is above 30°C in summer and 22 to 25°C during winter months. Based on the long term temperature graph of 2009 until 2018 November to December is the warmest months with an average temperature was 30°C and the coldest month is July with an average temperature of 25°C. See Figure 9 for the graph indicating monthly temperatures from 2009 until April 2018.

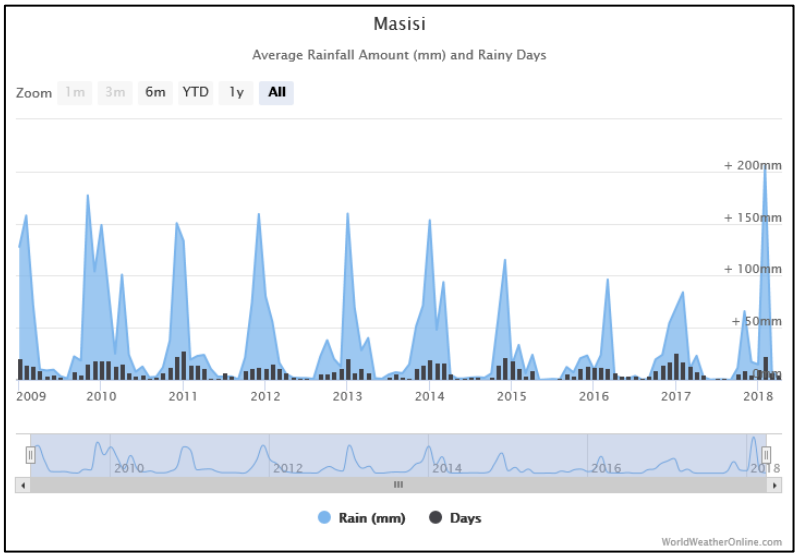


Figure 8: Long term expected average rainfall amount for Masisi for the period 2009 until April 2018

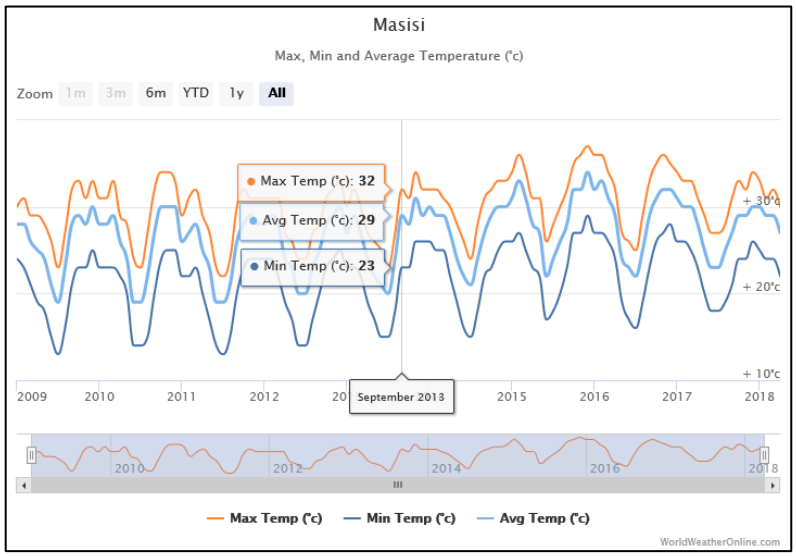


Figure 9: Max, Min and Average Temperatures for Masisi for period 2009 to April 2018

Wind

The predominant wind direction in the application area is from the east. The long term record of wind speed indicates wind speed ranges from 0 to more than 8.0m.s^{-1}.The maximum speed rarely rises beyond 5.5ms^{-1}. Data for the long term wind speed was derived from the Land Use and Development Plan for Madimbo Corridor dated 2007 which was obtained from Weather SA, station number 0766377 for Tshipise, 60km south east of Madimbo Corridor.

7.1.2 GEOLOGY

The geological formation of the project area includes Gneiss, silicate rocks, marble, scapolite leucocratic-quartzo-gelspatic Gneiss. Associated minerals include Graphite, base metals and hydrothermal precious metals deposits.

The area under study has a history of artisanal graphite mining within the Gumbu formation. The Gumbu mine is hosted by the Graphitic schist located in the Limpopo metamorphic belt. The country rocks are characterised by highly folded and altered gneisses with limestone and cal-silicate intercalations. . The main band is about 15 to 20m wide striking east west and dipping at about 70° to 80° to the south. Mineralization occurs in lenticular fashion. Garnetiferouse gneisses are not

uncommon indicating high grade metamorphism. Average graphite content is 30%. The hanging and footwalls of the mineralized bands are characterised by folded felsic gneisses.

The presence of Calsillicate sediments, i.e. marble, the likelihood of the prevalence of historic aquatic low oxygen environmental over 2000 million years ago and regional metamorphism coupled with the mining history between 1942 to 1978 make this a good prospect for future mining. Geological Series Map number 2230 Messina shows occurrence of graphite with the prospecting area. See Figure 10 below for a Geological Map of the project site.

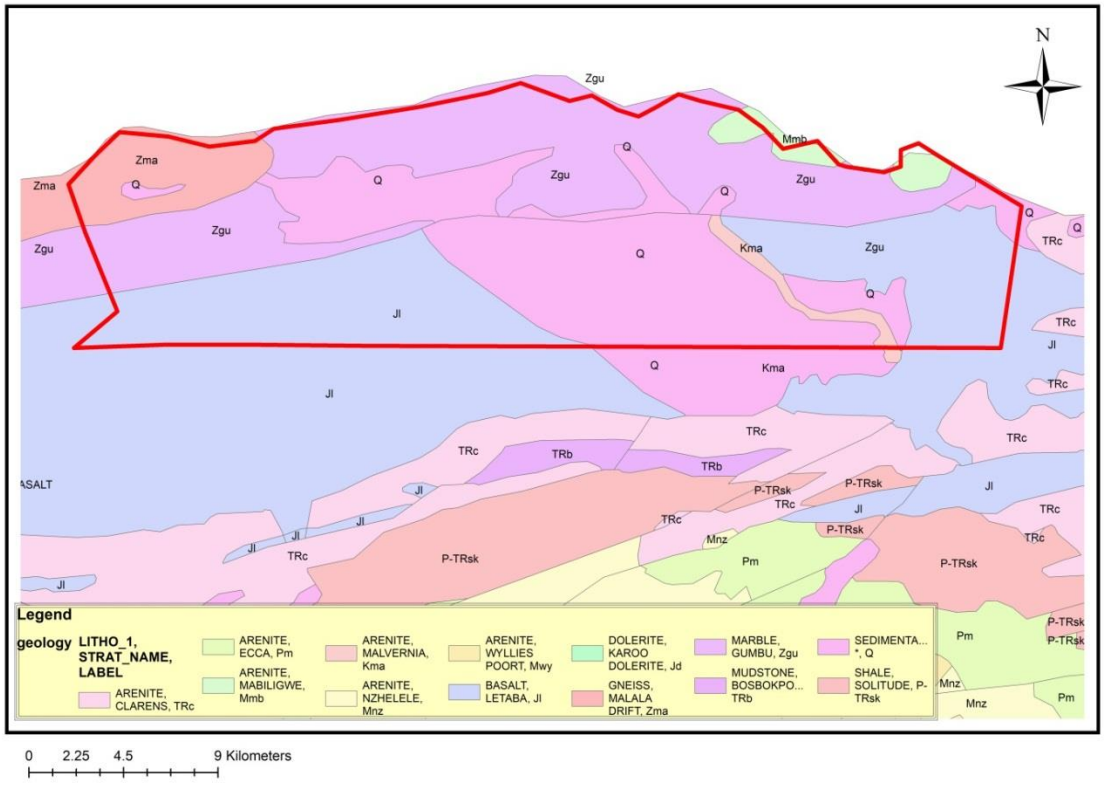


Figure 10: Geological Map indicating the geological formations underlying the project area demarcated by a red polygon

There are 19 areas targeted for prospecting which would take place in the following geological formations:

- Letaba Basalt (JI)
- Sedimentary rocks of quartz (Q)
- Arenite Malvernia (Kma)
- Marble Gumbu (Zgu)
- Gneiss Malala Drift (Zma)
- Arenite Mabiligwe (Mmb)

7.1.3 SOILS

The National Soil descriptions for the project site as per the SANBI BGIS interactive mapping system indicate the site comprises the following soils:

- Soils with minimal development, usually shallow on hard weathered rock, with or without intermittent diverse soils. Lime is generally present in part or most of the landscape;

- Red soils with a high base status;
- Soils with dark coloured, well-structured topsoil and high base status (melanic soils). In addition, one or more of vertic and red structured soils may be present.

The prospecting target areas would correspond to soils with minimal development, shallow on hard weathered rock with or without intermittent diverse soils where lime is present including in red soils with a high base status.

There is a risk for soil impacts during invasive activities. To minimise the risk of soil compaction by heavy machinery, soil erosion along trenches, pits & drilling areas including contamination of soil due to hydrocarbons pillages the applicant would use existing access roads, restrict vehicle access to designated areas and provide drip trays for standing equipment. Any hydrocarbon spillages would be cleaned up.

7.1.4 TOPOGRAPHY

The site is ruggered comprising a mixture of terrains from undulating hill crest, scarp (steep slopes), mid slopes, footslopes including valley bottoms. Rocky ridges are present in a number of places at the site. At flatter areas surface rock are sparse / absent. The northern and north western portion of the property is dominated by midslopes and the rest are hill crest and valley bottom. Half of the central portion to the northern portion is dominated by steep slopes; part of the central portion is composed of foot slopes and some hill crest, scart and valley bottom. The central-southern portion comprise foot slope.

The prospecting target areas would mostly be located within the hills and ridges of site between the elevations of 421m to 413m absl. It is unlikely that prospecting would impact the topography and if so it would be insignificant. Prospecting on rocky ridges would however be avoided as far as possible but where not possible would be limited to minimum footprint areas.

7.1.5 GROUND WATER

According to the 2007 Land Use and Development Plan for Madimbo Corridor; the Groundwater potential studies including hyrdologial investigatios conducted at Madimbo, Masisi and Mutale areas discovered that there is moderate to low groundwater potential. The average borehole yield is less than 2.0 litres per second. At Madimbo, the water quality ranges from marginal to unacceptable. This is due to high nitrate concentration and total hardness owed to high levels of naturally occurring basalts in the area. The main user of groundwater in the application area is the Defence Force obtaining water for domestic needs from three boreholes. There are also several boreholes within the Gumbu community villages.

The prospecting site camp would require a 1000 litres of water per day for human consumption/domestic use. The applicant intends to obtain the water from existing boreholes at the Gumbu villages.

The consumption of groundwater from the existing boreholes would be low and not anticipated to have any significant impact on available groundwater supply to the villages. There is a risk for hydrocarbon spillages infiltrating the groundwater through the usage of machinery, fuel, oil and chemicals during invasive activities. This will be managed by implementing standard house keeping rules to manage the impact and lower the risk.

7.1.6 AQUATIC ECOSYSTEMS AND ECOLOGICAL CHARACTERISTICS

An Ecological Impact Assessment Study was undertaken by Holistic Environmental Services in April 2018. The objective of the study was to identify senstivie species and ecosystems within the application area and at target areas covering aspects of fauna, flora wetlands and riparian zones. See **Appendix 4A** for the specialist study. Detail contained in the Aquatic Ecosystem and Ecological Characteristics section of this report is informed by the specialist inputs.

Surveys by R.F Terblanche took place during 11-15 April 2018 at the site and also surrounding areas to note key elements of habitat onsite, presence of particular conservation concern species (fauna&flora) as well as ecosystems of conservation concern. The survey covered the western section of the site and surrounding areas but the eastern section was inaccessible due to its protection as military area. Inaccessible areas were desktop reviewed through aerial photography.

7.1.6.1 SURFACE WATER / AQUATIC ECOSYSTEMS

The project site is located in quaternary catchment region A92D of the Mutal River subcatchment in the Luvuhu & Letaba Water Management Area. Aquatic Ecosystems and habitat features present at the study site include:

- Limpopo River
- Riparian zones and active channels present at the Limpopo River and its tributaries
- Old river channels/sandy river beds
- Unmapped wetland in the eastern section of the application area
- Ramsar site Makuleke Wetland outside of the application area

Refer to Figure 11 for larger key aquatic ecosystems in relation to the site and surroundings.

The Limpopo River forms the west-east boundary of the application area. It is a vital conservation corridor of major and fundamental importance in the larger area. The river is perennial with a constant base flow. Occassionaly in winter surface flow is restricted due to high sediment build up in the river bed. (2007 Land Use and Development Plan).

Riparian zones and active channels are present at the Limpopo River and its tributaries (non-perennial) in the study area.

The Makuleke Wetland is east outside the application area. The watercourses and wetlands in the eastern section of the application area feed into this wetland (and another possible unmapped wetland). These watercourses and wetlands should remain in a pristing condition for the Makuleke Wetland to function as a Ramsar site and important conservation area.

Bulk of the identified target areas for prospecting is located 300m to 1km south of the Limpopo river riparian zone along the west-east boundary. Target area 21 is located on the southern bank of the Limpopo River in the western section of the site. Target Area 1 is located in the northeastern section of the site considered most sensitive as it comprises Subtropical alluvial vegetation (possible unmapped wetland) and close to the ramsar site wetland.

Drilling, trenching, pitting and bulk sampling could cause erosion along pits, trenches carrying sedimentation into aquatic ecosystems, streamlets on site. Damage or destruction of stream vegetation during pitting could take place. It could also result in loss of habitat, loss of sensitive species (plant, animal, rare fish). Accidental spillage of contaminants can be carried into streamlets, aquatic features on and off site (Makuleke Wetland).

The prospecting crew would require $10m^3$ /day of raw water from the Limpopo River for drilling operations. The water will be pumped into a waterbowser and transported to the drill site.

A 50 metre buffer zone will be upheld to all wetland and riparian zones and would serve as no-go zones for prospecting. These zones would also be fenced off with appropriate material. Erosion and sediment control and waste management would be implemented and fuel, oil and chemicals would be stored in designated areas outside water body buffer zones.

The eastern section of the site would be viewed as a no-go area for prospecting due to likelihood of unique habitats (unmapped wetlands, alluvial vegetation, rare animal and plant species, rare localised fish species). Target area 1 and 21 will be regarded no-go zones and omitted from the list of identified target areas.

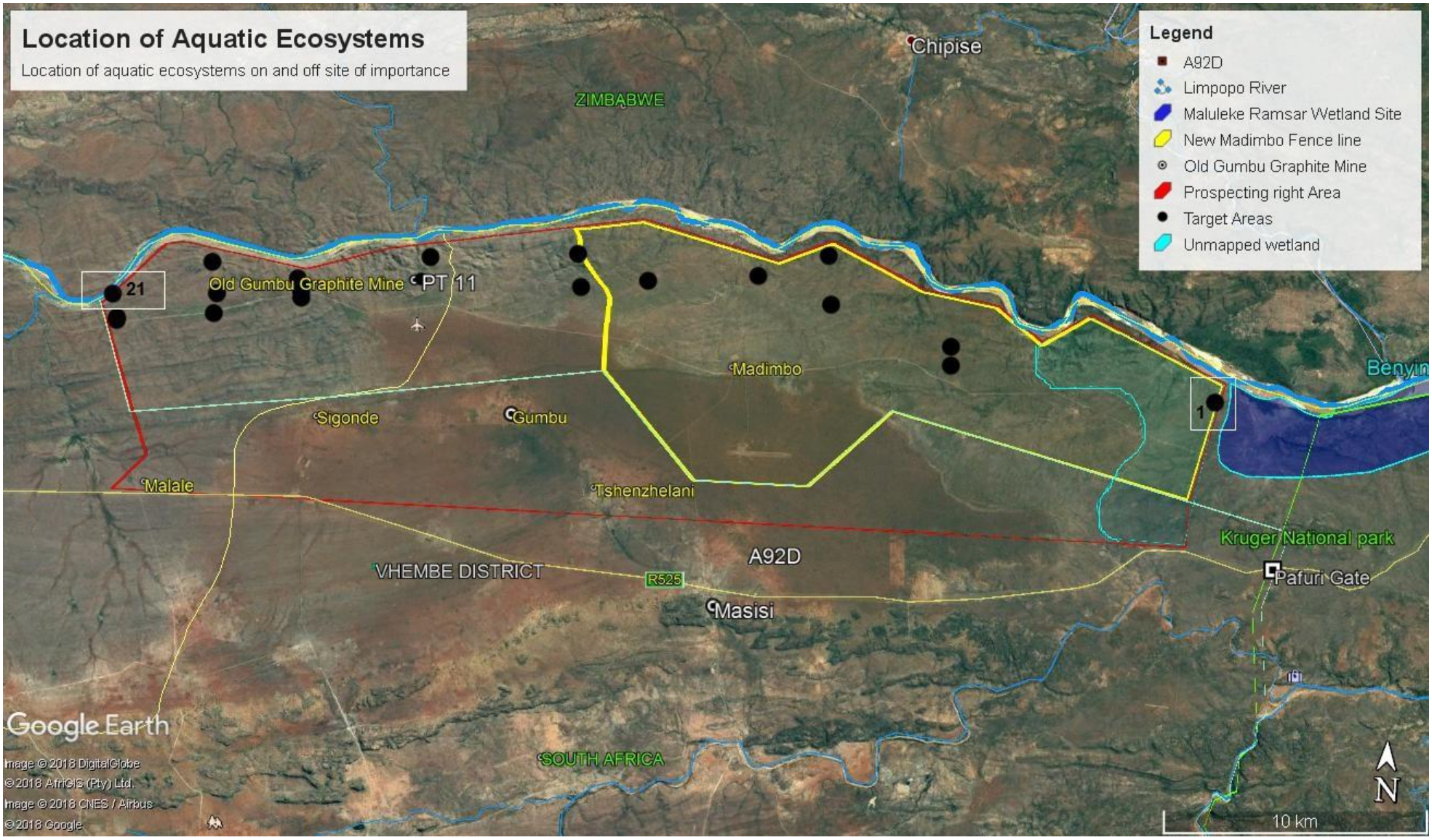


Figure 11: Target areas within the application area in relation to aquatic ecosystems. Note: smaller drainage lines of high sensitivity in lower sensitivity areas are not indicated on the map. The map indicates larger key sensitive aquatic ecosystems

7.1.6.2 ECOLOGICAL CHARACTERISTICS

FLORA: HABITAT AND VEGETATION CHARACTERISTICS

Habitat features present on site include:

- Rocky ridges and surface rock are sparse/absent on flatter areas;
- Plains and hilly areas with moderate to steep slopes at rigdes as well as some parts of flatter areas with gentle slopes;
- Riparian zones and active channels present at the Limpopo River and its tributaries in the study area
- Unique habitat with unmapped wetland to unmapped forests in the northeastern section of the project site

The site is in pristine condition covered in plains vegetation with a diversity of indigenous plant species. Rocky ridges and sandy riverbeds provide microhabitat diversity for variety of species to exist. The site is covered in Mopane trees with the Baobab trees as the most prominent tree in the landscape. The White Seringa stands out on the rocky outcrops. There are ecologically disturbed areas at the old graphite mine (diggings, ruins of homesteads, pipeline from river).

Vegetation units' present onsite include;

- Limpopo Ridge Bushveld,
- Musina Mopane Bushveld and;
- Subtropical Alluvial Vegetation in the northeastern portion of site.

Both the ridge and mopane bushveld are endemic to the district and least threatened. The alluvial vegetation is a unique habitat and should be conserved. None of the units are listed as nationally threatened. See Figure 13 below indicating site corresponding vegetation units.

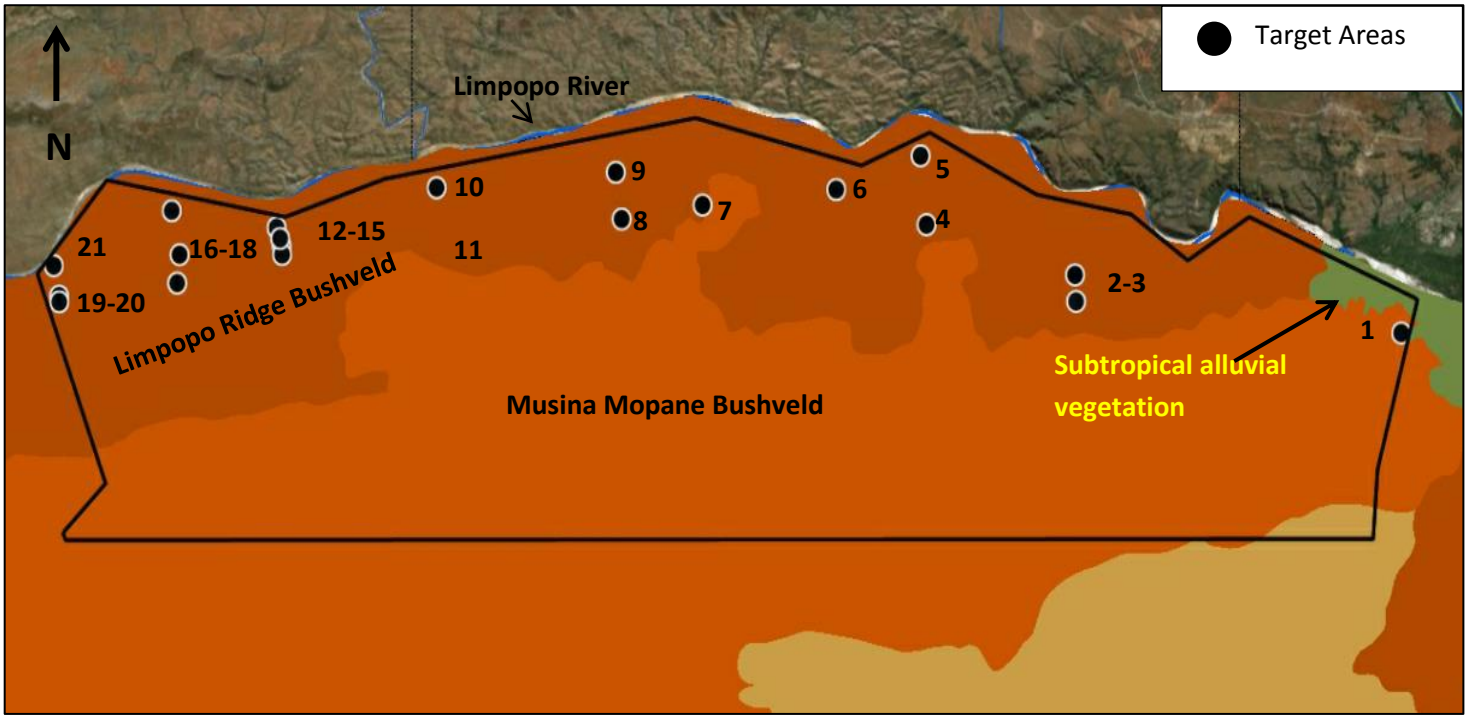


Figure 12: Vegetation units associated with the prospecting right area and identified target areas

Target areas 2-6 and 8-20 are located within the Limpopo Ridge Bushveld associated with the ridges, hills and open plains in the vicinity of the Limpopo River in the northern section of the site. Prominent tree canopies on the ridges include the White Syringa and Baobab.

A single target area, target 7, lies in Mopane Bushveld associated with the plains and hills layering the bulk of the site. It is dominated by Mopane trees in open woodland and open woodland to moderate closed shrubland with the Red Bushwillow prominent on hills.

A single target area, target 1, lies in the Subtropical alluvial vegetation associated with the broad river alluvia of the Limpopo River in the most northeastern section of the site. It is characterised by riparian thicket, reed beds, flooded grassland and herbland.

The northeastern section of the site also appears to comprise a unique habitat of unmapped wetland and possible forests that could host threatened plant, animal species, rare wetland animal and plant species and aquatic habitats which contain rare localised fish species.

Riparian zones onsite comprises high frequency of Mopane trees. A diversity of indigenous trees is found at riprian zones which include Knobthorn often found along sandy riverbeds. Riparian vegetation along parts of the banks of Limpopo River appears flooded at and near the active channel. Patches of indigenous reed Phragmites mauritianus occur on the banks. Riverine bush occurs at the less flooded banks of the river. Target area 21 appears to be located within the riparian zone of the Limpopo River.

Habitat Important Conservation Corridors (Connectivity on site and surroundings)
Numerous conservation corridors exist on site. Rocky ridges serve as stepping stone corridors or links corridors of conservation importance in the larger area. Streambeds and tributaries of the Limpopo River form a vital conservation corridor network of fundamental importance.

Based on the 2007 Land Use and Development Plan for Madimbo Corridor rehabilitation and self-generating potential of vegetation in the project area is low owed to the low nutrient status of the soils. Disturbance must be restricted to an utter minimum. Vegetation clearance at target areas will be kept to an absolute minimum and target area 1 and 21 will be omitted to avoid impact on the alluvial vegetation and riparian zone of Limpopo River. Strict management measures would be effected to conserve the vegetation.

ECOLOGICAL SENSITIVITY

The ecological sensitivity of the site increases from west to east and from south to north. The northeastern section of the site is the most ecologically sensitive as it comprises Subtropical alluvial vegetation, unmapped wetlands, possible forests and the Makuleke Wetland. It is considered of **Very-High sensitivity**. Target Area 1 corresponds to this area.

The Limpopo River and its riparian zone including the area surrounding the alluvial vegetation in the northeastern section of the site are considered of **High-very high sensitivity**. Target Area 21 corresponds to this area.

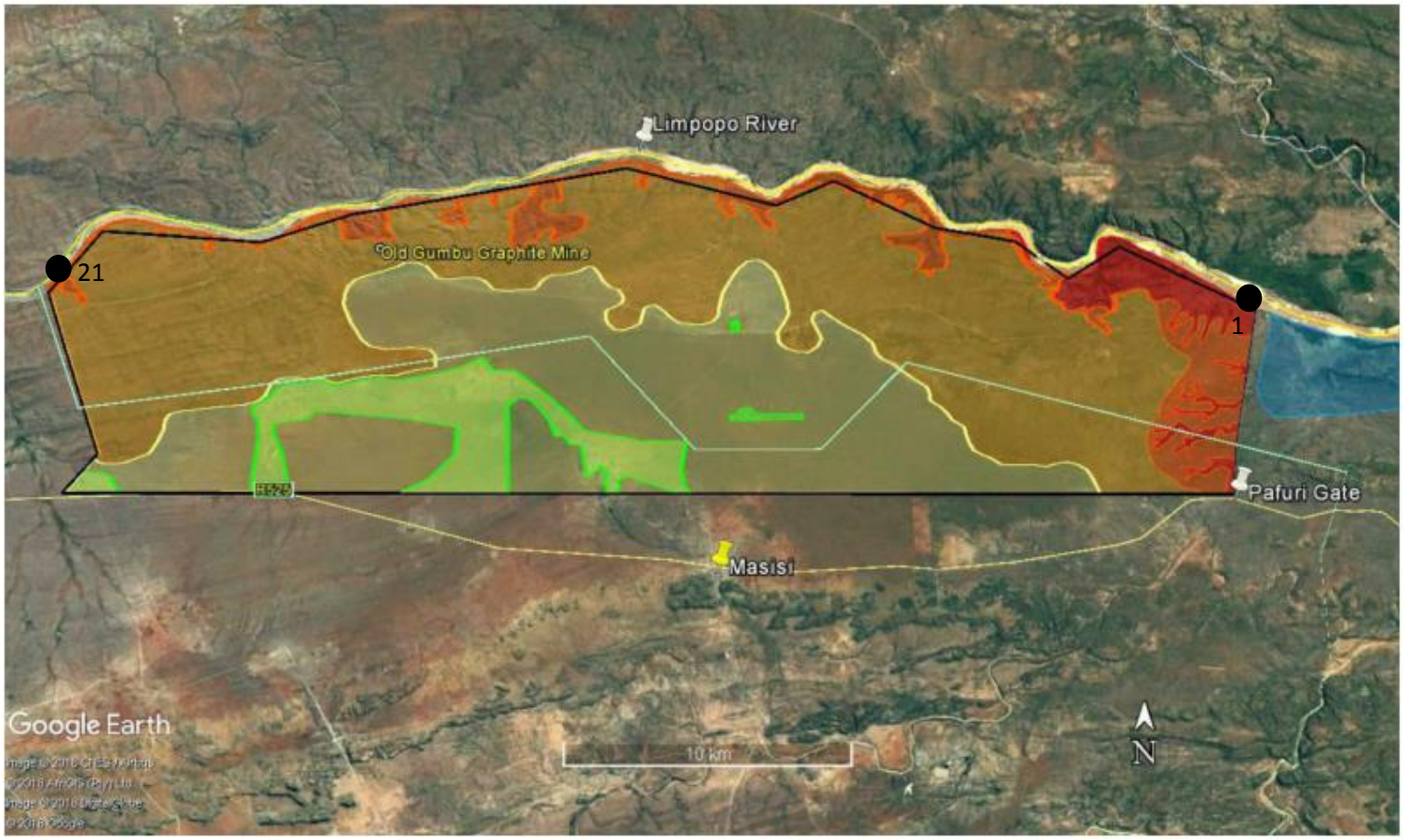
The Limpopo Ridge Bushveld located in the northern portion of the site is considered of **high sensitivity**. The bulk of the target areas are located within this area.

Areas of **medium sensitivity** include the flatter plains of the Mopane Bushveld towards the southern portion of the site and areas of low sensitivity include the villages and Madimo Airstrip. No target areas are located within areas of medium or low sensitivity.

From an ecological sensitivity point of view it is recommended that following areas be considered no-go zones for prospecting:

- Very High sensitivity
- High-very high sensitivity
- Riparian area of Limpopo River
- Smaller drainage lines of high sensitivity in lower sensitivity areas

As a result it is recommended that Target Area 1 and Target Area 21 be regarded as no-go zones for prospecting as they fall within these ecologically sensitive areas. A 50m buffer zone is to be upheld as no-go zones for prospecting to riparian zones (all streamlets on site).



Black outline	Boundaries of study area
Red outline and shading	Very high sensitivity
Orange-brown outline and shading	High-very high sensitivity
Yellow-brown outline and shading	High sensitivity
Light yellow outline and shading	Medium sensitivity
Green outline and shading	Low sensitivity
Light blue outline and shading	Makuleke Wetland Area (Ramsar site)

Figure 13: Ecological sensitivity at the entire study area. It indicates larger scale key sensitive ecological areas. (Smaller drainage lines of high sensitivity in low sensitivity areas are not indicated on the map.

SPECIES OF HIGH CONSERVATION CONCERN

Flora/Plant Species of Conservation Consern

Based on the survey no plant species of conservation concern are likely to be resident onsite. Protected tree species Baobab, Sherpard's Tree, Leadwood, Apple-Leaf and Marula were found at the study site. Presence/absence of these trees, particular Baobab, must be verified at each target footprint though. Prospecting activities would avoid removal of protected trees as far as possible, where it cannot be avoided, a permit for removal will be obtained from DAFF (under Section 15 of the National Forest Act no. 84 of 1998 (no Baobab's may be removed).

Other indigenous trees present at rocky slopes and summit include the Tall Common Corkwood, White-Stem Corkwood, Velvet-leafed Corkwood, Lowveld Cluster-Leaf, Umbrella Thorn, Shepards Tree, Red Bushwillow, Bushwillow, Large-leafed Rockfig, Star-Chestnut, Yellow Plum, Long-Tail Cassia and Gummy Gardenia

FAUNA

Avi-Fauna/Birds of Conservation Priority

Birds of high conservation concern of listed for Limpopo Province, likely to occur onsite as a result of favourable habitat includes:

Species	Threat Category
White Backed Vulture	Critically endangered
Hooded Vulture	Critically endangered
White Headed Vulture	Critically endangered
Pel's Fish Owl	Endangered
Lapped Faced Vulture	Endangered
Half Collard Kingfisher	Near Threatened
Marabou Stork	Near Threatened
Lemon Breasted Canary	Near Threatened
Bateleur	Vulnerable

Due to the vegetation, rocky ridges, riparian zones, active river channels and the Limpopo River the tabled vulture species could be regular/resident.

The Pel's Fisching Owl depends on subtropical riparian habitat such as at the extreme northeastern and eastern parts of the study area and is likely to occur.

The tabled species of Kingfisher, Canary and Marabou Stork would likely be resident at the site owed to the riparian zones. The latter two species depend on conservation areas in the extreme northwest parts of South Africa.

Mammals of Conservation Priority

The site position in relation to the Kruger National Park, presence of Limpopo River frontage and large area of natural vegetation, allows through movement of free ranging wildlife. Tracks of Elephant and Spotted Hyena were observed at site. Mammal species of high conservation concern listed as threatened according to IUCN, that could be present at site, include Elephant (vulnerable-tracks/skull onsite), Leopard (Rare), Spotted Hyena (tracks on site), Brown Hyena (near threatened) and possibly Lion (vulnerable). These species could be present at site from time to time although no tracks were observed in the Gumbu Valley during the survey.

Antelope such as Nyala, Kudu and Impala would also be present on site. According to the EMF for Limpopo the study area is also famous for large species diversity of bats.

Reptiles of Conservation Priority

Diversity of species is likely to occur at the site owed to numerous rupicolous habitats.The Muller's Velvet Gecko is known to occur in Mopane veld around Soutpansberg, yet could possible occur at the Limpopo Valley. The Nile crocodile would occur and is listed as Least Concern by the IUCN.

Amphibian of Conservation Priority

No threatened frog species / any other frog species of conservation priority appear to be present at the site.

Invertebrates of Conservation Priority

Butterflies (insect): Threatened bufferfly species are very habitat specific. The Lilac Tip is rare (regionally critically endangered) and low density specie confirmed to occur at the project site. It is present in Natal, Gauteng, Limpopo and Mpumalanga. The regionally critically endangered Blue-spangled Charaxes and Axehead Orange may also possibly occur on site. Yet their presence at site is possible if Brachystergia trees would be present.

Cicada and Beetles (insects): No fruit chafer beetles of particular conservation priority are expected to be resident at the site. No Cicada are likely to be found at site.

Rock Scorpion: Rock Scorpions of the genus Hadogenes are likely to be present at site owing to rocky habitat at rocky ridges in the study area. It's not a threatened specie but sensitive with high habitat specificity.

Baboon Spiders: Ceratogyrus bechuanicus could be present onsite. All Ceratogyrus species are on the TOPS list (threatened /protected species). Presence of notable populations of these baboon spiders of concervation concern are possibly at proposed footprints.

The invasive prospecting activities could result in a moderate risk of loss of habitat, loss of sensitive species, loss of connectivity and open space. The basic environmental management to be implemented to lower the risk would entail limiting prospecting footprint areas to a narrow strip to least possible edge effects on ecosystems, uphold 50m buffer zones to riparian zones and wetlands and to avoid prospecting on ridges and or limit the footprint areas on ridges. Most importantly to exclude the northeastern section of the site from prospecting activities and regard it as a no-go zone. Secondly inspect each target area for species of concern (nests in trees, baboon spiders) and avoid damage to protected trees specifically large trees.

7.1.7 CONSERVATION, IMPORTANT BIODIVERSITY AREAS & PROTECTED AREAS

Vhembe Bioregional Plan 2017: The application area applied for is located in the UNESCO proclaimed Vhembe Biosphere Reserve buffer zone which is also delineated as a potential area for expansion of the Kruger National Park (Vhembe District Bioregional Plan 2017). The buffer zone

is used for activities compatible with sound ecological practice and reinforces research, monitoring, training and education. Equally in terms of the National and Provincial Protected Areas Expansion Strategy (NPAES and LPAES) the project site corresponds to a priority focus and high priority focus area to be proclaimed and formally incorporated into the Protected Area Network.

Protected Areas: The project site is a declared nature reserve, Matshakatini Nature Reserve according to NEMPAA of 2003 (declared in 1983 and proclaimed in Government Gazette of 1 January 1992). The SANDF manages it as a conservation area and military training zone.

Rocky ridges onsite are aid corridors or directly linked corridors of conservation importance in the larger area. The Streambeds and tributaries of the Limpopo River form a vital conservation corridor network in the larger area. The Limpopo River is a conservation corridor of major and fundamental importance.

National Freshwater Ecosystem Priority Areas (NFEPA): The site is located in the sub catchment area of Luvuhu/Mutale. According to the NFEPA the site is part of a Fish Sanctuary and Fish Support Area & associated sub-quaternary catchment. Fish Santuaries are rivers essential for protecting high conservation concern indigenous species.

Ramsar sites: Ramsar site Makuleke wetland is found outside and east of the study area. Watercourses and wetlands from the eastern section of the site feed into the Makuleke wetland.

Limpopo Conservation Plan 2013: The plan indicates that the prospecting target areas correspond to priority biodiversity areas ranging from ‘Critical Biodiversity Area 1’(CBA1), ‘Critical Biodiversity Area 2’(CBA2), ‘Ecological Support Area 1’(ESA1), ‘Ecological Support Areas 2’(ESA2) and ‘No Other natural area’(ONA).

The majority of target areas correspond to CBA2 and include targets 2, 7, 9-17, 19, 20. Target areas 1, 4-6, 8 and 18 corrrespond to CBA1; target areas 3 and 21 correspond to ESA1. (See Figure 14 overleaf for the location of identified targets overlaying biodiversity priority areas).

Mining and Biodiversity Guideline of 2013: According to the Mining and Biodiversity Guideline 2013 (SANBI BGIS LUDS tool) Target areas 1 and 21 are located within areas of highest importance (highest risk for mining). The Limpopo Riverine Forest along the Limpopo River towards the KNP is of highest biodiversity importance and is to be protected from prospecting/mining.

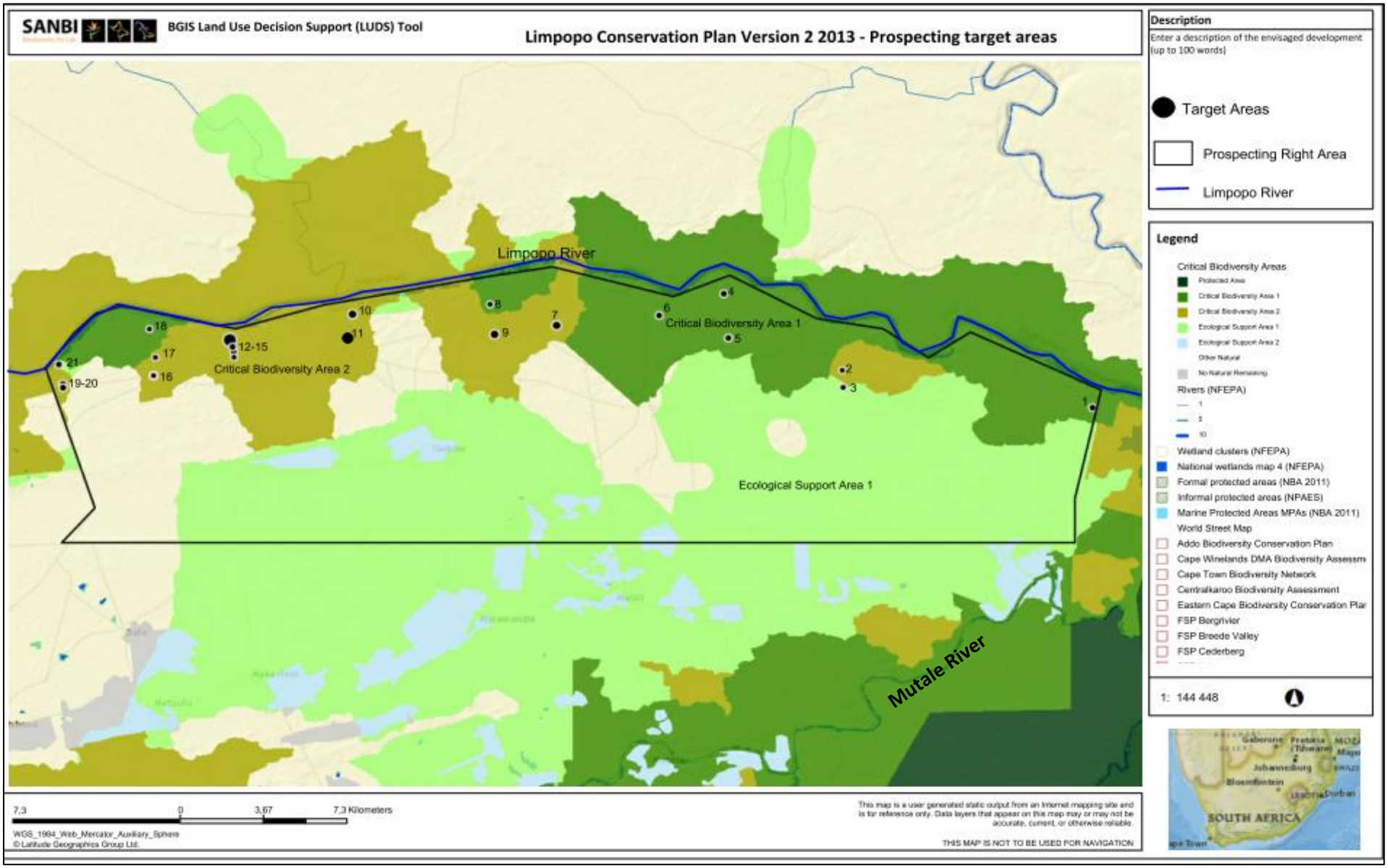


Figure 14: Project site corresponding to priority biodiversity areas as per the Limpopo Conservation Plan of 2013

7.1.8 SITES OF CULTURAL AND HERITAGE SIGNIFICANCE

During April 2018 Millenium Heritage Group Pty Ltd conducted a Heritage Impact Assessment (HIA) onsite to identify any sites of significance and potential impacts from prospecting. See **Appendix 4B for the HIA** Specialist Study. A site survey was undertaken by Archaeologist Mr. Eric Mathoho from 4-6 April 2018. Parts of the eastern section of the site was inaccessible.

Historical background of the site:

The late Iron Age after 1300 is relevant to the study site. Khami sites are known to the study area known by presence of band and panel pottery and drystone built terraces where houses were built. Khami period is associated with the formation and development of the Venda identify. It continued into the late 19th century and is associated with various Venda communities. In 20th century communities were resettled to give way to Europea farms, also state activities. These forced removals were not accompanied by digging up cultural remains. The military corridor was created after communities were forcibly removed. For more detail refer to the attached HIA Study.

Below is a recap of the recent known history of the area to validate the finds made by the archaeologist during the April 2018 field survey.

The project site was inhabited by Venda-Tsonga speaking people. Traditionally the land was used for cattle grazing, small farming, fishing and use of 6 sacred/religious sites. This was prior to the 1930's. Communities were then located closer to the Limpopo River. Forced removals in the 1930's to the 1980's saw communities moved back numerous times eventually to the boundary of the military area. The Gumbu village is now 10km from the Limpopo River.

In the 1940's, apartheid government turned the area into a military buffer zone between South Africa and Zimbabwe to prevent guerrillas crossing the border from Zimbabwe. In the 1970's the SANDF took control of the land as military training area and border security. Infrastructure include 2 bases, airfield and patrol roads. There are a number of live ammunication training areas (mortar rounds, missles up to 107mm).

In the 1942 - 1970 the Gumbu Graphite Mine was established and operated. Mining activities concluded due to outbreaks of Zimbabwean conflict of Liberation. Various old trenches, shafts and remanents of old mine infrastructure are visible onsite including old mine workings. The mine remains are now historical.

In 1992, the SANDF requested the corridor to be declared the Matshakatini Nature Reserve. This was effected through a proclamation in the Transvaal Conservation Ordinance of 1983 on 1 January 1992.

Heritage finds by the archaeologist within the application area in relation to target areas included (also refer to Table 6 for all heritage finds and geographic locations):

- Old graphite mine shafts, excavated trenches, associated building foundations dating to early 1942;
- Graves and Stone walled sites

- Historical homesteads identified by presence of stonewalls, stone foundations, and ash midden
- Intangable heritage sites presented by sacred Tshavhasikana river pools, Baobab tree where ritual dances were performed;
- Oral traditions & local community consultation revealed occurance of stonewalls and grave sites belonging to Ne-Madimbo and Tshenzhelani families on top of rocky outcrops within the military corridor; (couldn't access site due to restricted military area);
- Old army base ruins

Table 6: List of heritage finds and coordinates

No	SITE	DESCRIPTION	CO-ORDINATES	LOCATION
1	**Single grave**	Headman Nemadimbo, Ndinwana wa Liphadzi	S 22° 18.21.08" E 30° 52.47.06"	Lower lying area south of Limpopo river bank northern section of site.
2	**Cluster of x2 graves**	X2 graves & old house sturcture. Painted zinc marked Mia Vho Liphadzi and Makhulu Vho Liphadzi. Also ash midden & platforms associated with old house.	S 22° 18.24.01"E 30° 52.53.02" (graves) S 22° 18.24.01"E 30° 52.53.05" (old house structure)	Middle of a slope. North-eastern section of site
3	**Tshavhasikana Pool**	Sacred Pool	S 22° 18.32.01" E 30° 52.54.09"	Northern section of site. 4km north of Madimbo base, sandy channel south of Limpopo River
4	**Matshato Tree**	Large Baobab. Ne-Madimbo family used for ritual dance. There is graffiti on rock boulders below tree.	S 22° 18.21.08" E 30° 52.47.06"	On southern bank of Limpopo River, northern portion of site (eastern section)
5	**Single grave**	Only rectangular parked stone	S 22° 18.06.09" E 30° 52.19.07"	Underneath Mutshato Tree.Eastern section of site south bank of Limpopo River
6	**Old army base ruins**	Approximately 400mx400m. Dilapidated walls & structure foundations and cemented floors. Base abandoned 1979-1980 during Zimbabwe liberation. Was a possible liberation target.	S 22° 18.35.06" E 30° 52.21.03"	Northern portion of site 800m south of Limpopo River.
7	**Old Gumbu Graphite Mine site**	Ridge with shallow excavations (mine shaft, long trenches) Shaft 1 Shaft 2 (narrow trench) Shaft 3 Shaft 4 (main graphite shaft) Dilapidated mine buildings,	S 22° 19.26.03" E 30° 44.52.05" S 22° 19.25.05" E 30° 44.58.06" S 22° 19.22.08" E 30° 44.57.02" S 22° 19.16.03" E 30° 45.03.09"	Northern portion of site more to the western section of corridor. Old Gumbu mine

		cement floors, offices, conveyor belts. Buildings destroyed by SANDF training operation.		
8	**Collapsed stone wall**	Gumbu royal family ruins	S 22° 18.56.09" E 30° 45.48.06"	2km from mine shafts. Western section of site.
9	**Single grave**	Indicated by Parked cairn of stones	S 22° 18.56.06" E 30° 45.48.05"	Just below collapsed stone wall, 2km orth east of mine shaft.
10	**Possible grave**	Indicated circular parked stones	S 22° 18.55.07" E 30° 45.51.05"	South of collapsed stone wall and marked grave
11	**Graveyard**	Gumbu Royal Family Graveyard (16 graves)	S 22° 21.14.07" E 30° 47.04.02"	Directly north of Gumbu village within the central section of the site.
12	**Stone wall**	Concentric stone wall. Back of wall, a small circular wall covers a small carved in cave. Also was Segonde Royal Family headquarters. Ash midden with few ceramics that belong to Letaba traditions noted. Site 60x40m.	S 22° 22.12.09" E 30° 39.00.01"	Top of rocky outcrop facing Limpopo river many km from Limpopo River. Borders Popallin Ranch demarcated fence in most western section of site.
13	**Segonde Royal Family Graves (x10 graves)**	Cluster of graves Stone house structure of royal family and ceramics	S 22° 19.25.03"E 30° 39.04.08" S 22° 19.26.08"E 30° 39.08.06"	Bottom section of rocky outcrop ridge. North-western extreme section of site south bank of Limpopo River
14	**Graves, Stone wall,**	Collapsed stone wall Cluster of 2 graves (parked circular stones	S 22° 19.52.05"E 30° 38.53.03" S 22° 19.51.04"E 30° 38.51.05"	West of Segonde Royal Family graves, on top of rocky ridge. Graves below rocky ridge outcrop.

Refer to Figures 16-18 for location of heritage sites in relation to target areas. Based on the locations of heritage finds none of the identified target areas would impact any of the heritage sites. The identified heritage sites are located outside or further away from the identified prospecting target areas. The proposed prospecting activities will also focus on previsouly disturbed areas at the graphite mine. Planning of target areas and access roads will be designed and sited where possible to avoid heritage sites.

If the prospecting activities at the graphite mine are to impact on mineshafts (76 years old protected under NHRA of 199) the sites are to be documented and mapped and permits would be obtained for the heritage authority.

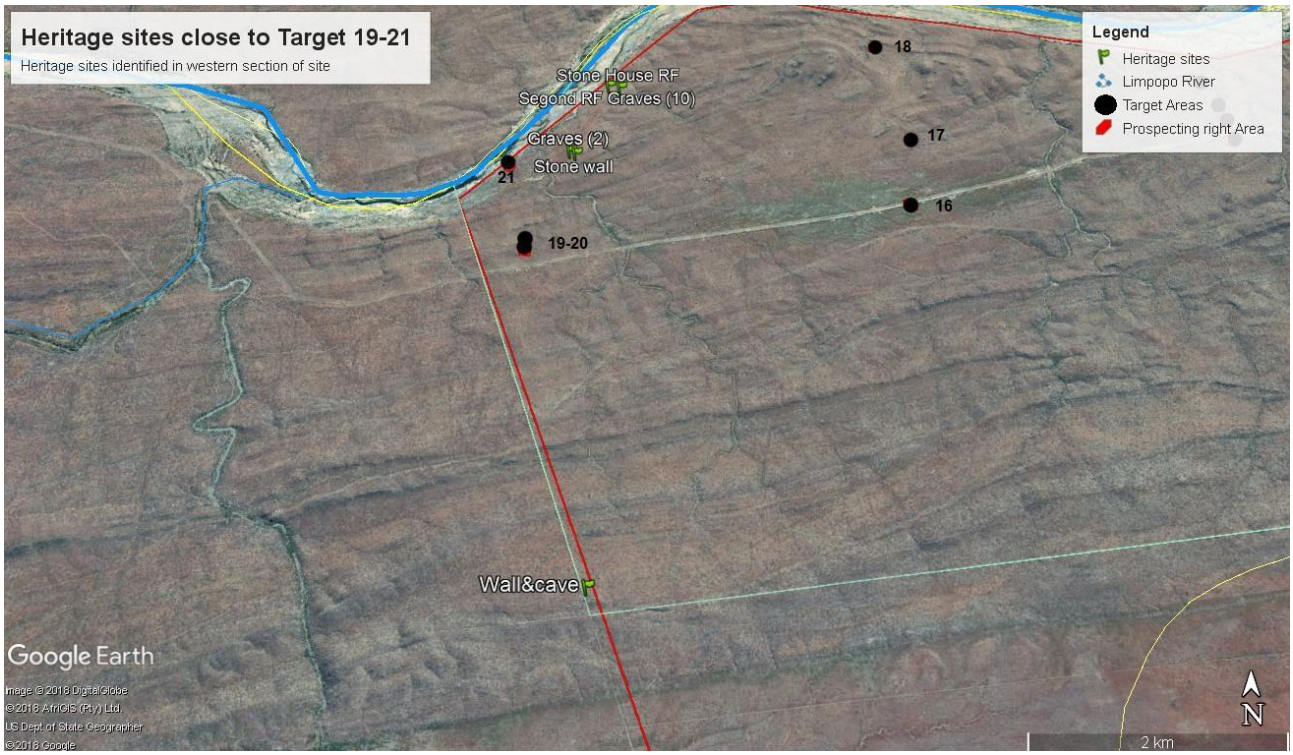


Figure 15: Heritage sites identified on project site in relation to target areas (in vicinity of Target area 21)

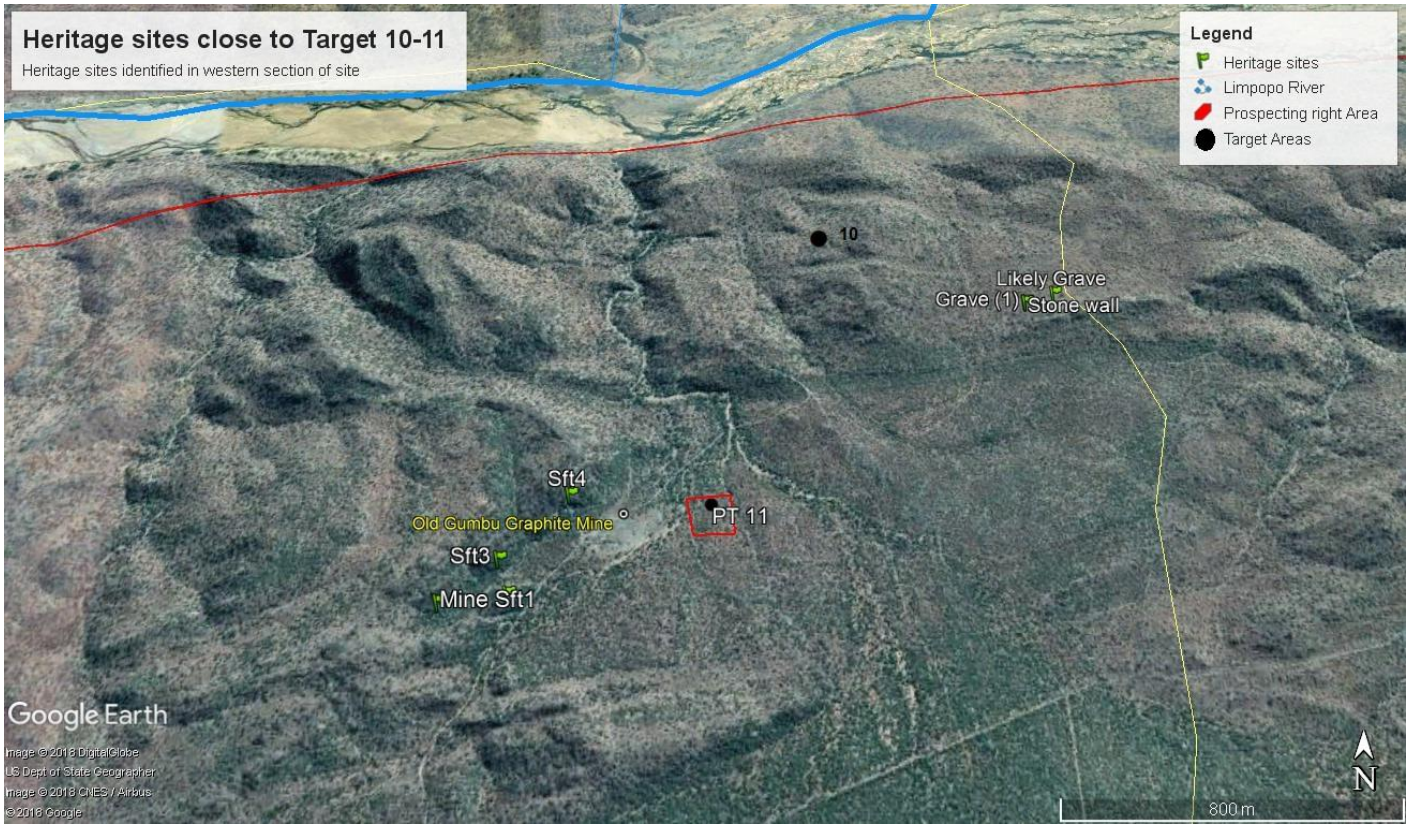


Figure 16: Heritage sites identified in the project area in relation to target areas (Target ara 10-11)

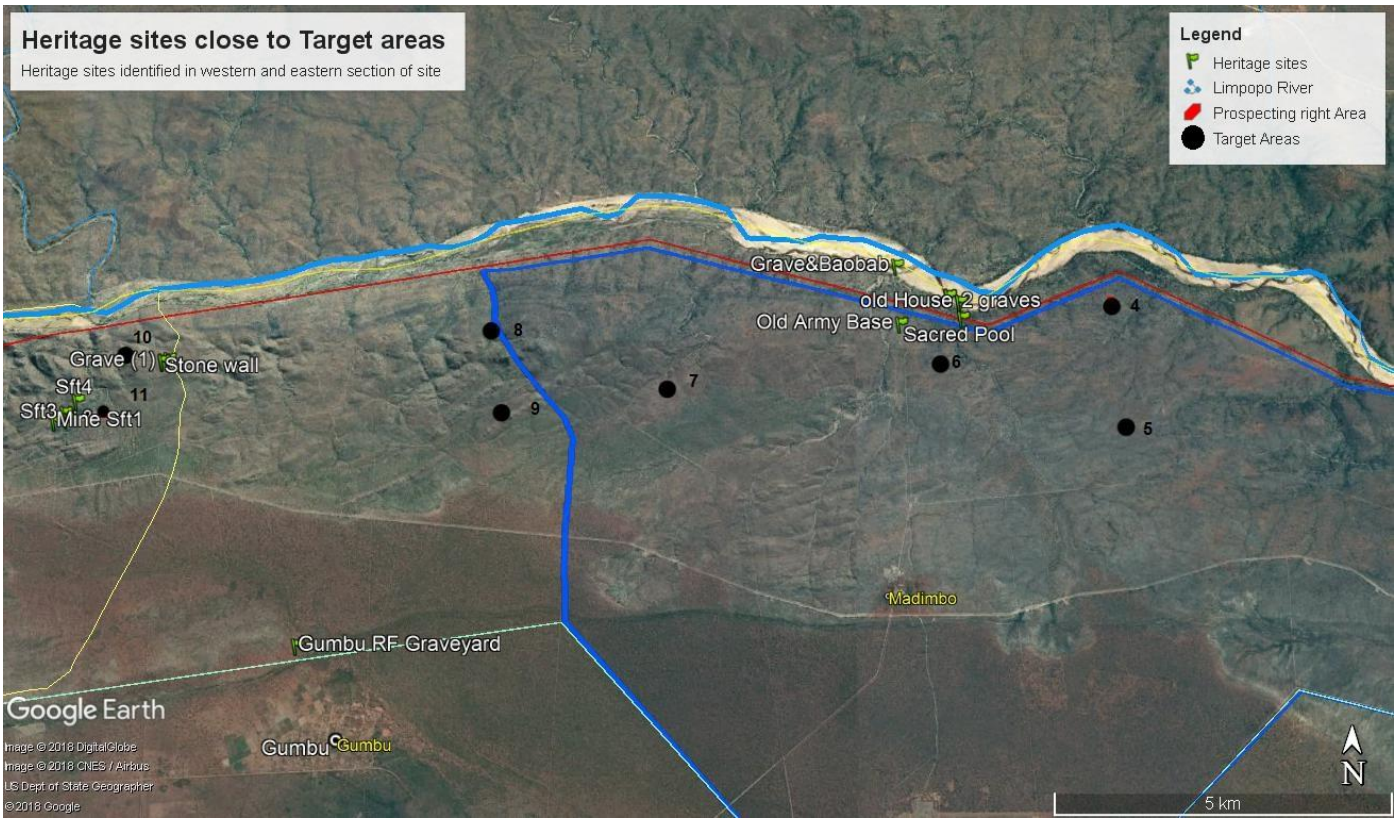


Figure 17: Heritage sites identified in the project area in relation to target areas (Target area 6)

7.1.9 SOCIO ECONOMIC ENVIRONMENT

The project site is located within the Musina Local Municipality (MLM). The closest town is Musina 91km east from site. The project area is located in Ward 12 and 9 of the municipality at Gumbu.

The profile for Gumbu was analysed in terms of the villages on site, gender and age using available information from the Land Use and Devleopment Plan of 2007 as the Census and municipal documents are not as specific to the area. There are seven villages within the application area with a populated of approximately 900 people.

Gender distribution

The total number of people per village and gender distirubitjon within each village was obtained from the Land Use and Development Plan for Madimbo Corridor dated 2007. The information is presented in Table 7 and Figure 19.

Table 7: Gender Distribution within the project site at seven villages

Village name	Number of people	Gender Distribution (%)	
		Male	Female
Gumbu	72	47.2	52.8
Madimbo	115	59.1	40.9
Masisi	168	43.5	56.5
Bende Mutale/Matabila	121	39.7	60.3
Sigonde	110	29.1	70.9

Tshenzhelani	66	36.4	63.6
Tshikunya	119	46.2	53.8

Across all the villages 47.3% of people were male and 52.7% were female.

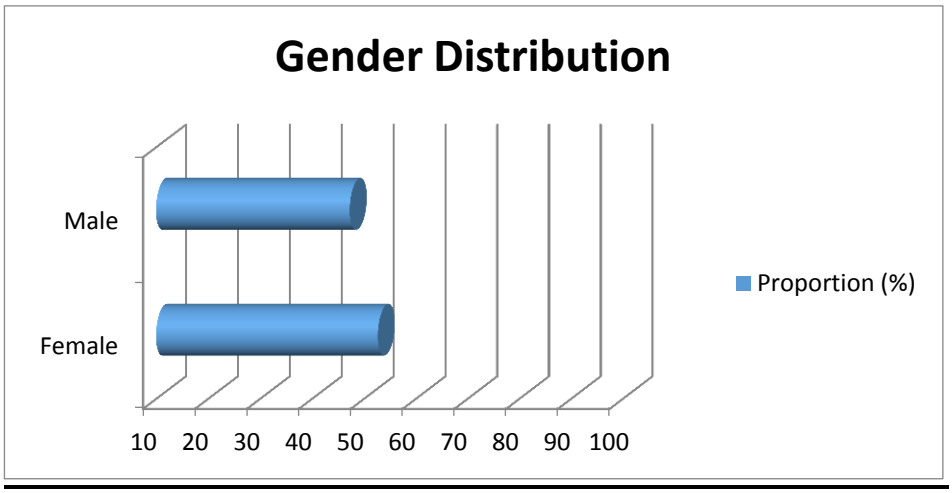


Figure 18: Chart indicating gender proportion across seven villages

Age Distribution

Table 8: Distribution of age within each village

Village name	Distribution by age group (%)								
	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Gumbu	72	47.2	52.8	17.1	14.3	10	7.1	7.1	1.4
Madimbo	115	59.1	40.9	29.1	5.8	2.9	1.0	1.9	0
Masisi	168	43.5	56.5	21.6	13.8	6.9	6.9	6.0	1.7
Bende Mutale/Matabila	121	39.7	60.3	20.2	10.5	6.1	1.8	8.8	3.5
Sigonde	110	29.1	70.9	20.0	13.7	4.2	11.6	3.2	1.1
Tshenzhelani	66	36.4	63.6	11.9	10.2	6.8	8.5	11.9	0
Tshikunya	119	46.2	53.8	23.1	3.4	9.4	1.3	5.1	2.6

From Table 8 it is evident that there is a wide distributionof age group in the villages ranging from 20 years to 100 years. Majority of the population are aged 30-50 years.

Economic activity at project site

According the Musina IDP the village of Gumbu/Mutale communities/villages are 5th order settlements, are small in population and function as residential areas with no economic base except for subsistence farming.

After the Gumbu/Mutale communities successfully claimed the project site, the community identified farming and mining as the core economic activity to be practised in the corridor/site. In 2007 a Land Use and Development Plan was prepared for the corridor / site for the Regional Land Claims Commission to assist the community to generate appropriate land-uses and plans for the corridor. The findings showed only 19% of the corridor is suitable for crop production.

The plan advised that sustainable economic activities for the area may focus on:

- Crop production
- Soybean as biodiesel crop
- Cattle, goat and kudu production
- Enclosed game farming and hunting
- Open game farming/hunting for Eco-tourism

It was stated that economic potential lies in the landscape and abundance of wild life and game and mining prospects on the land will need detailed investigation on economic viability.

However to date the land is managed and used by the SANDF as a military buffer and training zone.

7.2 Description of the current land uses

The current land use at the Madimbo Corridor and unsurveyed state land cover is settlements, nature reserve, subsistence farming and military training base and corridor.

A key long established land use is the Madimbo Corridor under control by SANDF as military buffer zone between Zimbabwe and South Africa and as a military training zone. The SANDF moved on the land in the 1970's. The land is protected as military area under the Defence Act. A vital point of the land is there are a number of unexploded ammunitions and visible dangerous excavations and terrains to be found in the military training area and are not safe for civilian activity.

There are settlements occupying the southern portion of the project site namely Gumbu community comprising seven clans, Gumbu, Sigonde, Bende Mutale, Tshenzhelani, Masisi, Tshikuyu and Mutale who also undertake subsistence farming. These communities previously occupied the corridor before forced removals and establishment of the military buffer zone. The communities conduct limited grazing and harvesting of fire wood on the western portion of land.

Graphite mining took place on the western section of the land from 1940-1970. It was abodoned due to outbreaks of Zimbabwean conflict of Liberation.

To restrict spread of foot and mouth disease (FMD) by free-roamining animals (buffalo, cattle), a fence was erected by Department of Agriculture ranging from 1.5 – 4km from the Limpopo River in east-west direction. There is a main road leading to the corridor which is not tarred but in good condition along the foot and mouth fence linked to several farm roads traversing the property.

The corridor was proclaimed a nature reserve in 1992 and has remained a protected area until now. It is managed as a conservation area by the SANDF.

7.3 Description of specific environmental features and infrastructure on the site

Environmental

- Unique Habitat on northeastern section of study site with very high ecological sensitivity

  The habitat has the likelihood of unmapped wetland, possible forests that could host smaller threatened plant & animal species, wetlands with rare wetland animal & plant species, aquatic habitats which could contain rare localized fish specie such as Killfish.

  These are to be regarded a no-go areas for prospecting.

- The Limpopo River and its riparian zones along the northern boundary of site (high- very high ecological sensitivity). All wetlands and riparian zones are regarded as riparian zones of high ecological sensitivity.

  The river, wetland and riparian zones are regarded as a no-go zone for prospecting.A 50m buffer zone is to be upheld from all riparian zones and wetlands.

- Hills and ridges within the Limpopo Ridge Bushveld (high ecological sensitivity)

  Footprints at rocky ridges must be limited to a minimum.

- Large protected trees (particular Baobab)

  Presence/absence of protected trees must be verified at each target site, removal must first be avoided particular Baobab.

- Off site: Ramsar site Makuleke east outside the study site;

  Ramsar site Makuleke Wetland is found outside and east of the study site. Watercourses and wetlands at the eastern section of the site feed into the adjacen Makuleke Wetlands (and another possible unmapped wetland). Watercourses and wetlands at the eastern section must remain in pristine condition for the Makuleke wetland to function as a Ramsar site and important conservation area.

Infrastructure

- FMD fence line along Limpopo River in east-west direction
- Old Graphite Mine and associated infrastructure in western section of study area
- Madimbo Military Corridor, Military Base, airstrip
- Settlements & subsistence farming

7.4 Environmental and current land use map

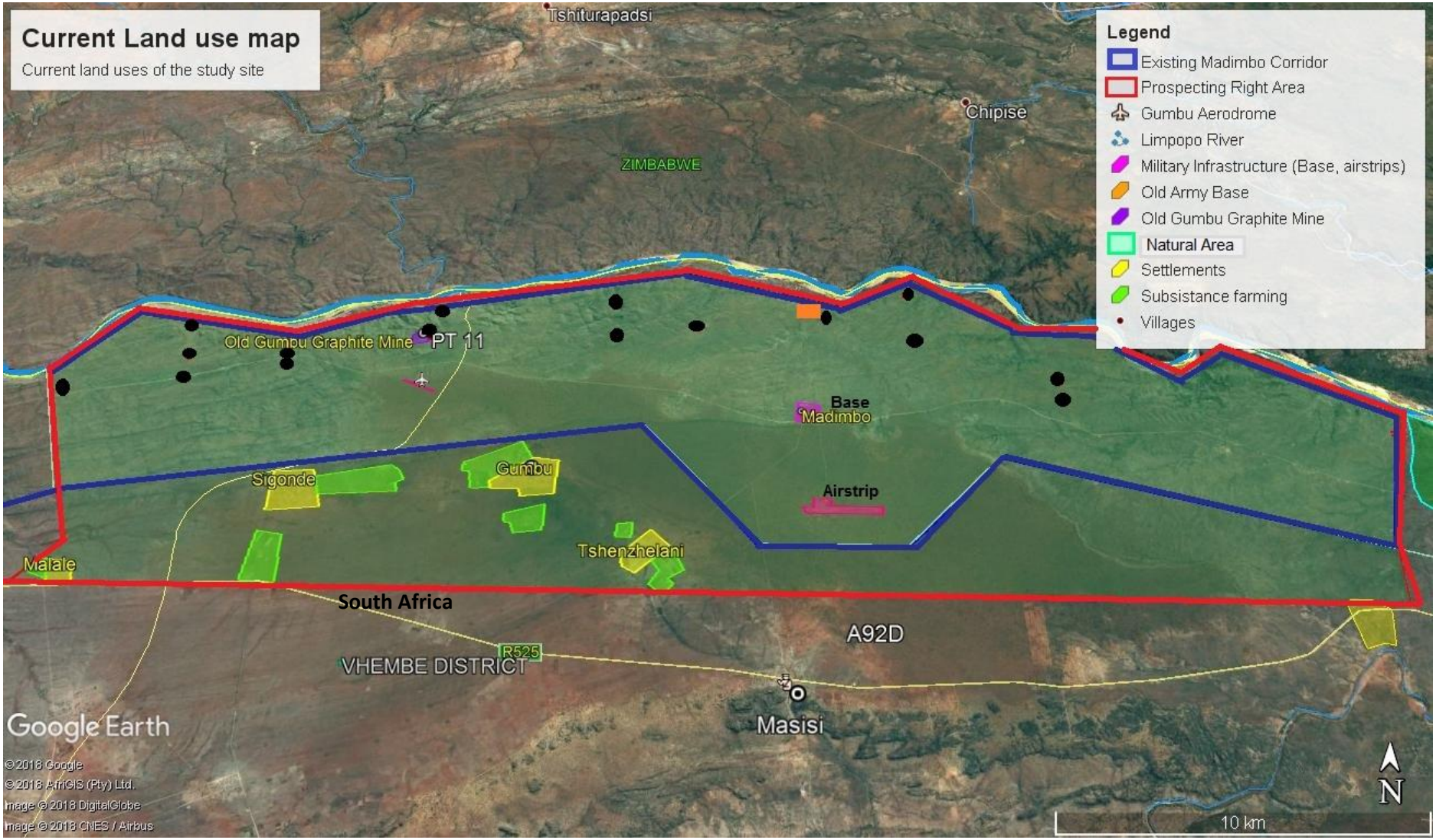


Figure 19: Current land use map corresponding to the study site (red polygon) - (note the natural area within the existing Madimbo Corridor delineates the nature reserve)

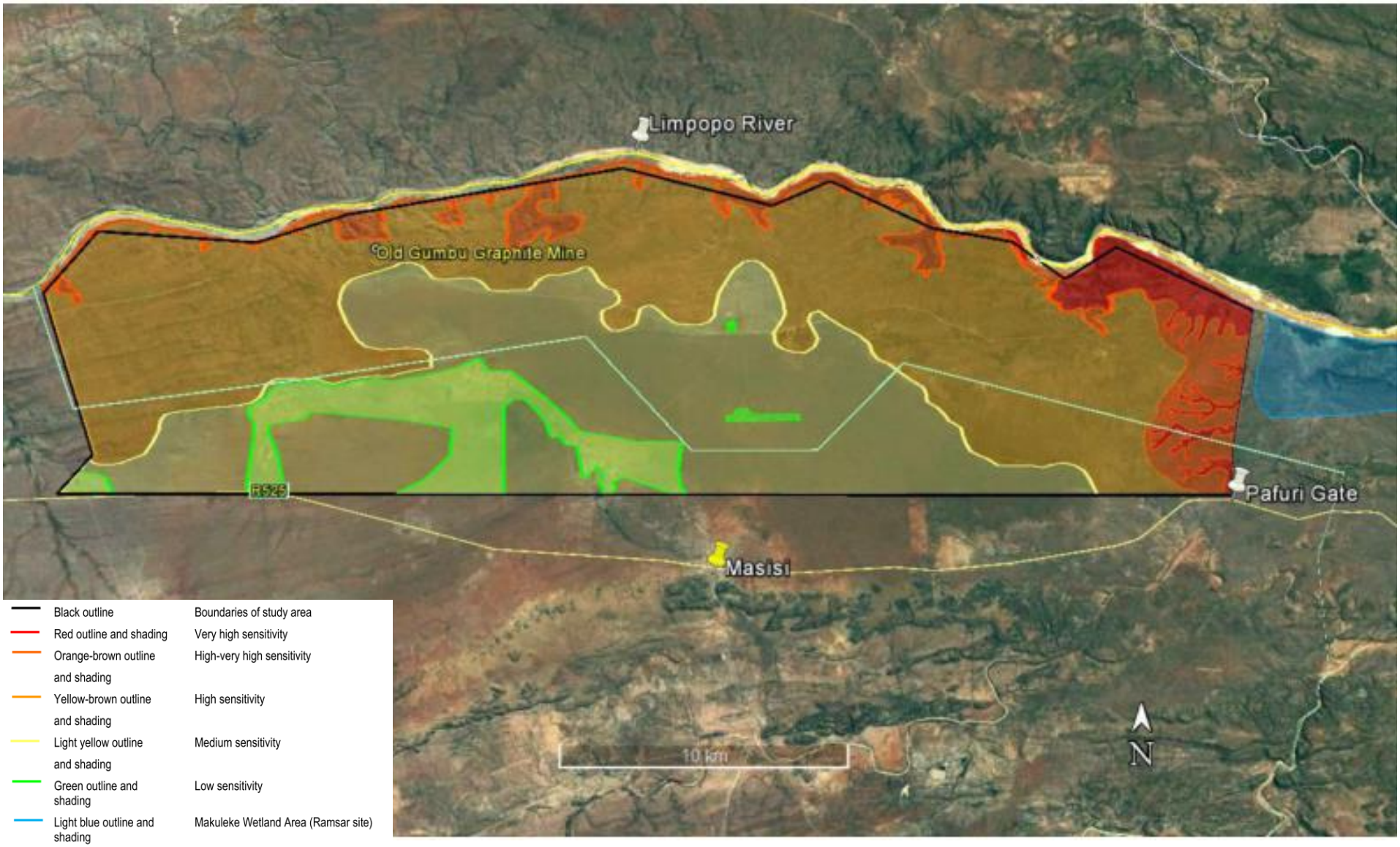


Figure 20: Environmental Features/sensitivity of study area (note smaller drainage lines of high sensitivity are not indicated on the map, it indicates larger key areas)

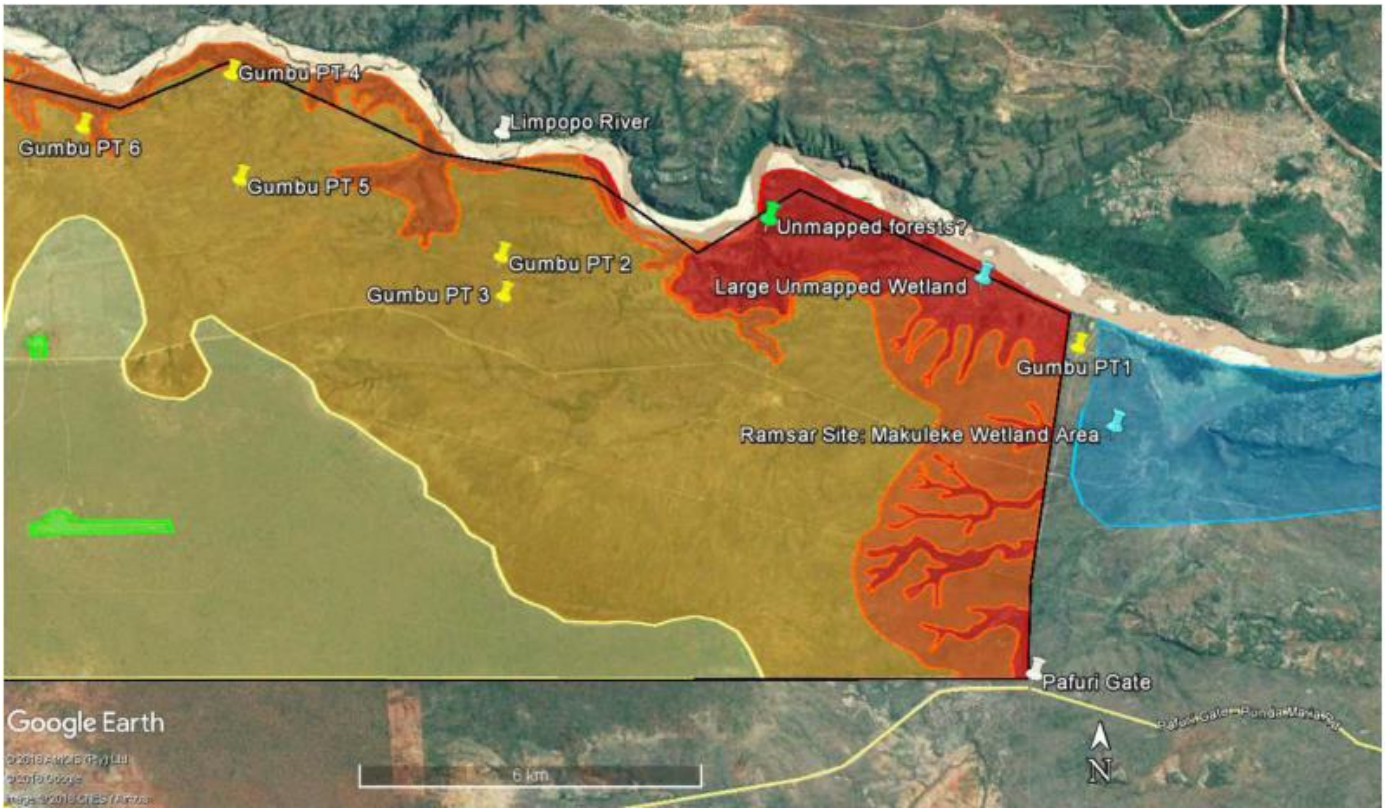


Figure 21: Ecological sensitivity in eastern parts of the study site

8 IMPACTS AND RISKS IDENTIFIED FOR THE PROJECT

8.1 Risk Assessment

This section summarises the potential impacts associated to the different phases of the proposed prospecting activities. Potential impacts and risks were explored by investigating each aspect asscoated with the proposed prospecting activities.

The different phases of the prospecting works include:

- **Site planning & preparation:** It involves, amongst others, site clearance to establish site camps and equipment onsitene works, channel sampling trenches and finalising identification of target areas for prospecting (non-invasive). Site clearance will follow and establishment of site camps and equipment on site (invasive).
- **Trenching, pitting, bulk sampling, drilling and logging** (invasive)
- **Decommissioning and Rehabilitation** of prospecting infrastructure, excavations and affected areas

Please refer to Table 9 and 10 which contain the Risk Assessment summary for the anticipated impacts during the site preparation and invasive prospecting as well as decommissioning and rehabilitation stage.

Mitigation measures proposed in the risk assessment only summarises the approach to be taken to manage identified risks. The full Risk Assessment with mitigation measures are attached under Appendix 5. Further a detailed mitigation plan forms part of Part B of this report.

	SIGNIFICANCE PRE-MITIGATION								SIGNIFICANCE POST MITIGATION							MITIGATION TYPE
Table 9: RISK ASSESSMENT TABLE FOR POTENTIAL IMPACTS RELATED TO INVASIVE PROSPECTING & BULK SAMPLING PHASE																
Aspect, Activity & Potential Impact	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**(Modify, Remedy, Control, Stop)**
Impact on Geology															
Removal of geological bulk samples for testing at a legal maximum volume of 500 000 tons/annum result in geology and soils	N	3	1	2	2	15	Moderate	N	3	1	2	2	15	Moderate	None
Impact on soils															
Stockpiling of topsoil following site preparation (excavation) may result in loss of topsoil resource	N	2	1	2	1	8	Low	N	1	1	2	1	4	Very Low	Control
Estalishment of prospecting sites, site camp, vehicle traffic, material storage may result in soil erosion, campaction of soils by heavy machinery, contamination of soils due to hydrocarbon spillages	N	2	1	2	2	10	Low	N	2	1	2	1	8	Low	Remedy
Generation, storage and disposal of waste can contaminate soil due to improper disposal	N	2	1	2	3	12	Low	N	1	1	2	2	5	Low	Control
Impact on Fauna and Flora (Ecological Impact)															
Clearing of vegetation and topsoil as site preparation for prospecting sites, site camp and bulk sampling will result in loss of habitat	N	2	1	3	6	20	Moderate	N	1	1	2	4	7	Low	Control
Loss of sensitive species due to site establishment for site camp and prospecting activities	N	2	1	5	6	24	Moderate	N	1	1	5	2	8	Low	Control
Site clearance for drill, sampling and camp site will impact on Habitat Connectivity and Open Space	N	2	2	4	6	24	Moderate	N	1	2	4	2	8	Low	Control

Estalishment of access tracks and driving off existing tracks may cause destruction and damage to flora & fauna	N	3	1	2	4	21	Moderate	N	1	1	2	2	5	Low	Control
Noise from drilling equipment, machinery, vehicle movement may disturb fauna (wild animals, birds, large mammals, livestock) and result in it to vacate the area	N	2	2	2	6	20	Moderate	N	1	1	2	2	5	Low	Control
Faunal fatalities from direct contact with prospecting equipment, supplies (vehicle, dozers, chemicals, waste)	N	1	1	5	8	14	Moderate	N	1	1	2	2	5	Low	Control
Overall impact from prospecting on ecologically	N	2	1	2	6	18	Moderate	N	1	1	2	4	7	Low	Control
Impact on Aquatic Ecosystems															
During establishment of site camp, drilling pads, excavations and bulk sampling may result in impact on aquatic ecosystems due to risk of contamination from to hydrocarbon spillages, oil and of fuel.	N	2	2	1	8	22	Moderate	N	1	2	1	8	11	Low	Remedy
Prospecting within unique habitat (wetland, possible forests) in northeastern section of site upstream of Makuleke Wetland may impact on ramsar wetland function	N	2	6	3	10	38	High	N	0	5	2	0	0	Very Low	Stop
Creation and clearing of target areas including vehicle movement may cause erosion and sediment deposition into aquatic ecosystems	N	2	1	2	6	18	Moderate	N	1	1	2	4	7	Low	Control
Heritage and Cultural Impact															
There is a potential to impact on heritage sites situated at the old Gumbu Graphite Mine due site preparation, site camp establishment and prospecting activites. Sites are 76 years old and protected by NHRA of 1999	N	2	2	5	4	22	Moderate	Neutral	1	1	5	2	8	Low	Control
Potential impact on graves, graveyards, stone walled sites, historic homesteads, sacred pools and trees due site preparation and prospecting activites.	N	1	1	5	3	9	Low	Neutral	1	1	1	1	3	Very Low	Control

Damage to cultural and or heritage sites during prospecting activities may result in conflict with local community	N	1	2	2	4	8	Low	Neutral	0	2	2	0	0	Very Low	Control
Potential unearthing of heritage resources during prospecting excavations	N	1	1	5	4	10	Low	N	1	1	2	2	5	Low	Remedy
Noise Impact															
During drilling, trenching an bulk sampling noise will be generated from use of drilling and excavation machinery and vehicles travelling in the project site causing a nuisance to communities, SANDF and may result in fauna to vacate the area	N	3	2	2	2	18	Moderate	N	2	2	2	1	10	Low	Control
Air Quality & Dust															
Site establishment and prospecting activities will result in wind blown dust from bare target area surfaces and entrained dust from vehicles/machinery travelling on gravel roads.	N	3	1	2	2	15	Moderate	N	3	1	2	1	12	Low	Control
Visual Impact															
Site clearance and prospecting activities will result in unsightly views due to exposed surfaces and presence of machinery on site	N	3	1	2	1	12	Low	N	2	1	2	1	8	Low	Remedy
Land use impact															
Prospecting proposed in military training and border control area. Prospecting activities within UXO contaminated area is a liability to SANDF also would impact on daily training activities within the corridor	N	3	1	2	8	33	High	N	2	1	2	6	18	Moderate	Control
Prospecting within protected area is prohibited and will impact on the nature reserve and biodiversity	N	2	1	2	6	18	Moderate	N	1	1	2	4	7	Low	Remedy
Groundwater Impact															
Groundwater contamination from fuel and hydrocarbons spillages from vehicles and storages which infiltrate groundwater	N	2	1	3	3	14	Moderate	N	2	1	1	2	8	Low	Remedy
Surface Water															

Quality of surface water may be impacted by poor storage of chemicals, fuel spills, unappropriate waste disposal	N	2	2	2	3	14	Moderate	N	1	1	2	2	5	Low	Remedy
Abstraction of raw water from the Limpopo River for drilling operations may impact on available water supply at Limpopo River	N	2	2	2	1	10	Low	N	1	2	2	1	5	Low	Control
Impact on Traffic															
Increased traffic due to prospecting vehicles, machinery using local gravel roads. Prospecting crew will set up site camp at the old graphite mine which the main focus for prospecting. This will restrict the need for excessive movement of vehicles and machinery in the study site	N	3	2	2	2	18	Moderate	Neutral	1	2	2	1	5	Low	Control
Safety and Crime															
Safety risk to prospecting crew when undertakening prospecting activity (excavations, pitting and drilling) in military zone contaminated with UXO's 1metre below ground level. Prospecting activities could detonate unexploded ammunition.	N	2	1	2	4	14	Moderate	Neutral	1	1	2	2	5	Low	Control
Risk of increased crime due to presence of machinery, batteries and fuel onsite which are resources that attract thieves.	N	1	1	2	3	6	Low	N	1	1	2	1	4	Very Low	Stop
External contractors may pose a risk for violent crimes against woman	N	2	1	2	2	10	Low	Neutral	1	1	2	1	4	Very Low	Stop
Socio-economic impacts															
Increased traffic and prospecting activities in livestock grazing areas may increase the livestock mortalities including livestock falling into pit areas directly affecting community member livelihoods	N	1	1	5	4	10	Low	Neutral	0	1	2	0	0	Very Low	Control

	SIGNIFICANCE PRE-MITIGATION							SIGNIFICANCE POST MITIGATION							MITIGATION TYPE
Table 10: RISK ASSESSMENT TABLE FOR POTENTIAL IMPACTS RELATED TO DECOMMISSION AND REHABILITATION ACTIVITIES															
Aspect, Activity & Potential Impact	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**(Modify, Remedy, Control, Stop)**
Impact on soils, surface and grounwater pollution															
Potential soil and pollution from hydrocarbon spillages, waste disposal practice and open boreholes	N	2	1	2	4	14	Moderate	N	1	1	2	2	5	Low	Control & Remedy
Soil erosion from respreading of topsoil before vegetation has re-established	N	3	1	2	2	15	Moderate	N	1	1	2	2	5	Low	Control & Remedy
Fauna and Flora Impact															
Destruction and or disturbance of on site fauna and flora at disturbed areas to rehabilitate sites and decommission prospecting activities which include removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	N	2	1	2	6	18	Moderate	N	1	1	2	4	7	Low	Remedy
Poor vegetation re growth post decommissioning and re habilitation of target areas could lead to degradation of the ecology	N	2	1	3	6	20	Moderate	N	1	1	2	4	7	Low	Control & Remedy
Establishment of alien vegetation during re-vegetation of disturbed areas	N	2	1	3	6	20	Moderate	N	1	1	2	2	5	Low	Control & Remedy
Noise Impact															
Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise which would impact on the ambient noise level. This may cause a nuisance to SANDF, communities	N	3	1	2	1	12	Low	N	2	1	2	1	8	Low	Control
Air Quality & Dust															

Dust emissions from decommissioning and rehabilitation activities removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas(vehicle entrained dust)	N	3	1	2	1	12	Low	N	2	1	2	1	8	Low	Control
Impact on Traffic																
Increased traffic along main gravel route during decommissioning and rehabiitation of prospecting sites and increased traffic on R525 Punda Maria road when equipment is removed and tranported off site	N	2	3	1	1	10	Low	Neutral	1	3	1	1	5	Low	Control

8.2 Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks

The aim of the EIA process is to predict the nature of the impact, rank and quantify it. From the rating system the impacts of most significance can be highlighted.

The list of identified impacts for the SAMIN project have been evaluated by considering several rating scales as listed below. These ratings include: extent, duration, intensity, significance, status of impact, probability. The significance of impacts were calculated as follows:

Significance = (Extent + Duration + Intensity) X Probability

The rating system is described below.

"Extent" defines the physical extent or spatial scale of the potential impact

Table 11: Assessment Methodology

Criteria: EXTENT		
"Extent" defines the physical extent or spatial scale of the potential impact		
RATING		**DESCRIPTION**
1	Site specific	Impacts extending only as far as the activity, limited to the site and its immediate surroundings
2	Local	Impacts extending within 5km from site boundary
3	Regional	Impacts extending to the district (20km from boundary of the site)
4	Provincial	Impacts extending to provincial scale eg. Limpopo Province
5	National	Impacts extending to within the country i.e. South Africa.
6	International	Impacts extending beyond international border / the borders of South Africa
Criteria: DURATION		
"Duration" defines the temporal scale		
RATING		**DESCRIPTION**
1	Immediate	Less than 1 year
2	Short term	1-5 years
3	Medium term	6-15 years
4	Long term	Between 16 – 30 years
5	Permanent	Over 30 years. Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

i)

Criteria: INTENSITY			
"Intensity" establishes whether the impact would be destructive or benign.			
Status	**RATING**		**DESCRIPTION**
Negative	0	Negligible	Where impacts do not really affect the environment and no mitigation is required
	1	Low	Where impacts will result in short term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have little real effect. (marginally affected)
	2	Medium	Where impacts will result in medium term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts are real but not substantial. Impacts are fairly easy to mitigate
	3	High	Whereby effects will be long term on social, economic and/or bio-physical environment. These will need to be considered as constituting usually long term change to the environment. Mitigation is considered challenging and expensive
	4	Very High	Where impacts should be considered as constituting major and usually permanent change to the environment, and usually result in severe to very severe effects. Mitigation would have little to now effect on irreversibility

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

Criteria: STATUS		
"Status of impact" - describes whether the impact would have a negative, neutral or positive effect on the affected environment		
RATING		**DESCRIPTION**
+	Positive	Benefit to the environment
=	Neutral	Standard / impartial
-	Negative	cause damage to the environment

Criteria: PROBABILITY		
"Probability" describes the likelihood of the impact occurring.		
RATING		**DESCRIPTION**
0	Improbable	Where the possibility of the impact occurring is low.
1	Probable	Where there is a distinct possibility that the impact will occur.
2	Highly probable	Where it is most likely that the impact will occur.
3	Definite	Where the impact will occur regardless of any prevention measures.

i) The proposed method of assessing duration significance

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

		development land regardless of mitigations implemented. Mitigation is however possible.
45	Very High	Whereby effects will be permanent on the social economic and or bio-physical environment. Such impacts cannot be mitigated.

8.3 Positive and negative impacts that the proposed activity (in terms of initial site layout) and alternatives will have on the environment and community affected

No alternative layout has been identified for the application as the prospecting target areas are specific as well as the method to be applied in terms of Section 16 and 20 of the MPRDA.

Target Areas 1 and 21 have been omitted from the list of identified targets as target area 1 falls within a unique habitat in the northeastern portion of the study site and target 21 falls within the Limpopo River riparian zone. Both target areas are located within areas of very high sensitivity considered no-go areas for prospecting.

Impacts associated with the proposed prospecting activities have been identified and included in the Risk Assessment attached under Appendix 5.

8.4 Possible mitigation measures that can be applied and the level of risk

Please refer to **Appendix 5** for the Risk Assessment indicating possible mitigations that can be applied and level of risk.

8.4.1 Motivate where no alternative sites where considered

No alternative application sites were considered due to the underlying geology of the current application area including its historic verified mineral deposit of graphite, surface exposure at the old Gumbu Mine, as well as a recognised potential for other minerals eg. Gold, diamonds, base metals and limestone. Two target areas, target area 1 and 21 have been omitted from the list of areas targeted for invasive prospecting activities as a result of their position within senstivie environments. This was applied based on the recommendations made by the Ecolgoical Specialist who prepared the Ecological Impact Assessment Report for the project site.

8.4.2 Statement motivating the preferred site

The site was selected based on the underlying geology. Historic information indicates the presence of graphite within the Gumbu formation. The deposit is hosted in the metamorphic rocks of Musina metamorphic belt. Geological series map number 2230 Messina shows occurrence of graphite within the application area. Furthermore, the mineral has been exploited earlier during 1942 – 1978 at the project site. There is an old Graphite mine at Gumbu with associated old shaft, existing mined areas, old mine lands and existing trenches on site. Based

on the historic data and physical evidence of historic exploitation non-invasive activities will be applied to the entire prospecting right area under application.

Samin wishes to prospect both the western and eastern side of the application area to verify the available mineral resource in the application area, with the exception of the no-go areas for prospecting.

8.5 Full description of process undertaken to identify, assess, rank impacts and risks the activity will pose on the preferred site (in respect of the final site layout plan) through the life of the activity

All the potential impacts and risks that have been identified for the prospecting activities are included/provided under Section 8 (subsection 8.1). A full Risk Assessment is included under Appendix 5. The methodology applied in assessing and ranking the impacts and risks of the preferred site is provided under Section 8 (subsection 8.2).

8.6 Assessment of each identified potentially significant impact and risk

Please refer to next page for a summary of each identified potentially significant impact and risk.

Table 12: Summary of identified significant impacts

ASPECT	ACTIVITY	IMPACT DESCRIPTION	PHASE	SIGNFICANCE without mitigation	MITIGATION TYPE	SIGNFICANCE with mitigation
Geology	Removal of geological bulk samples (maximum volume of 500 000 tons/annum)	Loss of geology and soils	Invasive Prospecting	Moderate	None	Moderate
Impact on Soils	Stockpiling of topsoil following site preparation (excavation)	Loss of topsoil resource	Invasive Prospecting	Low	Control	Very Low
Impact on Soils	Estalishment of prospecting sites, site camp, vehicle traffic, material storage	Result in soil erosion, campaction of soils by heavy machinery, contamination of soils due to hydrocarbon spillages	Invasive Prospecting Phase	Low	Control & Remedy	Low
Impact on soils	Generation, storage and disposal of waste	Contamination of soil due to improper disposal	Invasive prospecting Phase	Low	Control	Low
Fauna & Flora	Clearing of vegetation and topsoil as site preparation for prospecting sites, site camp and bulk sampling will result in loss of habitat	Loss of Habitat	Invasive prospecting Phase	Moderate	Control	Low
Fauna & Flora	site establishment for site camp and prospecting activities	Loss of sensitive species	Invasive prospecting Phase	Moderate	Control	Low
Fauna & Flora	Site clearance for drill, trench, sampling sites as well as camp site estalishment	Impact on Habitat Connectivity and Open Space	Invasive prospecting Phase	Moderate	Control	Low
Fauna & Flora	Estalishment of access tracks	Destruction and damage to fauna	Invasive	Moderate	Control	Low

	and driving off existing tracks	& Flora	prospecting Phase			
Fauna	Direct contact with prospecting equipment, supplies (vehicle, dozers, chemicals, waste)	Result in fauna fatalities	Invasive prospecting Phase	Moderate	Control	Low
Aquatic Ecosystem	Establishment of site camp, drilling pads, excavations and bulk sampling sites	Result in impact on aquatic ecosystems due to risk of contamination from hydrocarbon spillages, oil and of fuel.	Invasive prospecting Phase	Moderate	Remedy	Low
Aquatic Ecosystem	Prospecting within unique habitat (wetland, possible forests) in northeastern section of site upstream of Makuleke Wetland may	Impact on ramsar wetland function	Invasive prospecting Phase	High	Stop	Very Low risk
Aquatic Ecosystems	Creation and clearing of target areas including vehicle movement	May cause soils erosion and sediment deposition into aquatic ecosystems	Invasive prospecting Phase	Moderate	Control	Low
Heritage and Cultural Resources	Site preparation, site camp establishment and prospecting activites at old Gumbu Graphite Mine	Damage or destruction of heritage sites older than 70 years at Old Gumbu Graphite Mine which include: Ridge with shallow excavations (mine shaft, long trenches) Shaft 1 Shaft 2 (narrow trench) Shaft 3 Shaft 4 (main graphite shaft) Dilapidated mine buildings, cement floors, offices, conveyor belts. Buildings destroyed by	Invasive prospecting Phase	Moderate	Control	Low

		SANDF training operation.				
Heritage and Cultural Resources	Site preparation, vegetation clearing and prospecting activities.	Potential damage to heritage resources identified in the rest of the study site: • Graves and Stone walled sites • Historical homesteads identified by presence of stonewalls, stone foundations, and ash midden • Intangable heritage sites presented by sacred Tshavhasikana river pools, Baobab tree where ritual dances were performed; • Oral traditions & local community consultation revealed occurance of stonewalls and grave sites belonging to Ne-Madimbo and Tshenzhelani families on top of rocky outcrops within the military corridor; (couldn't access site due to restricted military area); • Old army base ruins	Invasive prospecting Phase	Low	Control	Very Low
Heritage and Cultural Resources	Site preparation, vegetation clearing and prospecting activities.	Damage to cultural and or heritage sites during prospecting activities may result in conflict with local community	Invasive prospecting Phase	Low	Control	Very Low
Heritage and Cultural Resources	Prospecting activities specifically excavations, bulk sampling, trenching	Potential unearthing of heritage resources resulting in damage to resources	Invasive prospecting Phase	Low	Remedy	Low

Noise	During drilling, trenching an bulk sampling noise will be generated from use of drilling and excavation machinery and vehicles travelling in the project site	Generation of noise by machinery, drilling, excavations and vehicle movement may cause a nuisance to communities, SANDF and may result in fauna to vacate the area	Invasive prospecting Phase	Moderate	Control	Low
Air Quality	Site establishment through vegetation clearance, drilling, prospecting activities including entrained dust from vehicle movement on gravel roads	Result in wind blown dust from bare target area surfaces and entrained dust from vehicles/machinery travelling on gravel roads	Invasive prospecting Phase	Moderate	Control	Low
Visual Impact	Site clearance, establishment of site camp and prospecting activities as well as presence of machinery	Result in unsightly views due to exposed soil surfaces and presene of machinery onsite	Invasive prospecting Phase	Low (due to remote nature of target sites to receptors)	Control & Remedy	Low
Impact on land use	Prospecting within military training and border control area. Prospecting activities within UXO contaminated area.	Liability to SANDF, also would impact on daily training activities within the corridor.	Invasive prospecting Phase	High	Control and Remedy	Moderate
Impact on land use	Prospecting activities within protected area	Impact on biodiversity and status of land	Invasive prospecting Phase	Moderate	Control and Remedy	Low
Groundwater	Use of fuel and hydrocarbons may result in spillages from vehicles and storages which infiltrate groundwater	Contamination of groundwater due to infiltration into groundwater system	Invasive prospecting Phase	Moderate	Remedy	Low
Surface water	Waste disposal, use of fuels, chemicals and hydrocarbons	Quality of surface water may be impacted by poor storage of	Invasive prospecting	Moderate	Remedy	Low

	during prospecting activities and at site camp	chemicals, fuel spills, unappropriate waste disposal	Phase			
Surface and Groundwater	Abstration of water for human consumption from existing boreholes and abstraction of raw water from Limpopo River for drill operations	Depletion of nature resource	Invasive prospecting Phase	Low	Control	Low
Traffic	Increased traffic due to prospecting vehicles, machinery using local gravel roads. Prospecting crew will set up site camp at the old graphite mine which the main focus for prospecting. This will restrict the need for excessive movement of vehicles and machinery in the study site	Result in increased traffic on main gravel road at study area (east-west direction along DAFF FMD fenceline)	Invasive prospecting Phase	Moderate	Control	Low
Safety	During prospecting activities (excavations, pitting and drilling) in military zone contaminated with unexploded ammunition.	Safety risk for prospecting crew due to potential detonation of unexploded ammunition duringe excavations.	Invasive prospecting Phase	Moderate	Control	Low
Crime	Risk of increased crime due to presence of machinery, batteries and fuel onsite which are resources that attract thieves.	Increased crime on study site	Invasive prospecting Phase	Low	Stop	Very Low
Crime& Safety	Presence of external contractors at site and within	Violent crimes against woman	Invasive prospecting	Low	Stop	Very Low

	local communities		Phase			
Socio-economic	Increased traffic and prospecting activities in livestock grazing areas may increase the livestock mortalities including livestock falling into pit areas directly affecting community member livelihoods	Livestock mortalities due to livestock falling into pits, excavated areas may affect community member livelihoods	Invasive prospecting Phase	Low	Stop	Very Low
Impact on soil, groundwater and surfacewater	Use of fuel, chemicals, hydrocarbons,disposal practice and open boreholes as well as erosion from respreading of topsoil before vegetation has re-established	Contamination of soil, groundwater and surface water including soil erosion	Decommission & Rehabilitation Phase	Moderate	Control & Remedy	Low
Fauna & Flora	Decommissioning and rehabilitation of prospecting target areas and infrastructure which include removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	Destruction and or disturbance of fauna and flora at disturbed target areas	Decommission & Rehabilitation Phase	Moderate	Remedy	Low
Fauna & Flora	Poor vegetation re growth post decommissioning and re habilitation of target areas. Establishment of alien vegetation during re-	Degradation of the ecology	Decommission & Rehabilitation Phase	Moderate	Control & Remedy	Low

	vegetation of disturbed areas.					
Noise	Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise	Impact on the ambient noise level and may cause a nuisance to SANDF, communities	Decommission & Rehabilitation Phase	Low	Control	Low
Air Quality & Dust	Dust emissions from decommissioning and rehabilitation activities such as removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas	Dust emissions from decommissioning and rehabilitation activities (vehicle entrained dust)	Decommission & Rehabilitation Phase	Low	Control	Low
Traffic	Increased traffic along main gravel route during decommissioning and rehabiitation of prospecting sites and increased traffic on R525 Punda Maria road when equipment is removed and tranported off site	Increase in traffic along main site gravel road and R525 Punda Maria Road	Decommission & Rehabilitation Phase	Low	Control	Low

9 SUMMARY OF SPECIALIST REPORTS

Table 13: Summary of Specialist Reports and recommendations

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Heritage Impact Assessment	• Sites of sites including design and siting of access routes are to avoide heritage sites • Graves must be avoided and protected insitu • Prospecting close to hut floors must be done with great caution as it was used as burial sites • Mineshafts are 16 years old and protected by NHRA of 1999. Sites must be documented and mapped in events it's affected by prospecting. Permits must be obtained if so. • A full Heritage Impact Assessment is required if the applicant proceeds to a mining license; • Chance finds must be immediately reported and work stopped	All recommendations have been included	Part A: EIR under: Section 3(i) (1) (viii) Sites of Cultural and Heritage Signficance Section 3 (v) & (vii) & (viii) Part B: EMPr
Ecological Impact Assessment	**<u>Loss of Habitat</u>** • The northeastern section of the study site should be viewed as a no-go area for prospecting due to existence of unique habitat; • Target Areas 1 and 21 should be regarded as no-go zones for prospecting as they correspond to unique habitat and the Limpopo River riparian zone; • Exotic and invasive plant species must not establish onsite; • Footprints at prospecting target areas need to be confined to a narrow strip to have the least possible edge effects on the ecosystem; • A 50 metre buffer zone must be upheld from wetland and riparian zones and regarded as no-go areas for any prospecting; also needs to be fenced off with appropriate material;	All recommendations have been included	Part A: EIR under; Section 3, (d) (ii) Section 3 (f) (i)(a) & (c) Section 3 (i) (1) Baseline Environment (a) (vi) Section 3 (v) & (vii) & (viii) Part B: EMPr

	Sensitive species • Remainer of target sites at point of impact must be inspected and likely absence of protected trees, localised plant species, nests of vultures&raptors, baboon spider colonies confirmed; • Footprints need to be kept to a minimum so larger mammals can roam freely; • Necessary caution must be adhered to due to large animals onsite to avoid conflict as a result of human activity (Elephants, Lion, Leopard); • Each target area needs to be inspected for nests in trees of raptors and vultures which are threatened and could be resident/visitors such as the White Backed Vulture (nationally critically endangered), Hooded Vulture (critically endangered) and Bateleur (vulnerable); • Removal of nests, if possible or practicle, in case of any removal of nests, should be done by qualified bird specialist; • Each target site should be inspected for baboon spiders (horned baboon). If there are burrows and resident spiders in area these are to be removed and translocated by a specialist; **Protected Trees** • Apply for protected tree permits from DAFF if any protected trees are to be damaged/removed; • Each target are must first consider avoiding damage/removal to protected trees (Baobab, Shepard's Tree, Leadwood, Apple-Leaf, Marula) • It is recommended that prospecting avoid removal of large protected species (Baobab in particular) **Habitat connectivity** • Exotic and invasive species of plants must not establish, so that quality and functionality of conservation corridors are		

	enhanced; • Rubble and waste must be removed during and after prospecting; • Confine footprint to narrow strip to have the least possible edge effects on ecosystems • A 50 metre buffer zone must be upheld from wetland and riparian zones and regarded as no-go areas for any prospecting; also needs to be fenced off with appropriate material; • Prospecting at rocky ridges should be avoided. If it cannot be avoided , footprints must be limited to a minimum on rocky ridges; **Overall prospecting activities** • A 50 metre buffer zone must be upheld from wetland and riparian zones and regarded as no-go areas for any prospecting; also needs to be fenced off with appropriate material; • No mammals species are to be disturbed, trapped, hunted or killed during prospecting; • Confine footprint areas • Avoid spills and infiltration of petroleum fuels, chemical pollutants into soils during prospecting.		

Refer **to Appendix 4A** for the **Ecological Impact Assessment Report** and **Appendix 4B** for the **Heritage Impact Assessment Report**.

10 ENVIRONMENTAL IMPACT STATEMENT

10.1 Summary of Key findings of EIA

This section summarises the findings of the EIA and provides a comparative assessment of the positive and negative implications of the proposed prospecting.

The study site is a vast tract of land comprising 42 628 hectares of semi arid Mopane Bushveld next to the Limpopo River. It is covered mostly by savannah vegetation in pristine condition with a noticeable diversity of indigenous plants. The Limpopo River forms the northern border of the site and runs from west-east. The landscape is host to rocky ridges, hillcrests, valley bottons, streamlets and sandy riverbeds. The northeastern section of the study site is the most sensitive due to the presence of a unique habitat (unmapped wetland, possible forests). The Limpopo River and its riparian zone is an important conservation corridor in the regional area.

The study site lies fallow and is a restricted military area and also a proclaimed nature reserve. There are seven villages in the southern portion of the site, who lay claim to ownership of the land in question. The main risk associated with prospecting within a military training area relates to presence of unexploded ammunition. The area has been swept in the past but only down to 1 metres below ground level making it suitable for agriculture. To use the land for prospecting the target sites need to be swept down to 4 metres below ground level.

The entire extent of the area will not be impacted by prospecting, as prospecting target areas have been identified and ground truthed. Disturbance would thus be limited to the identified target areas and access roads. Invasive prospecting activities would be focused to a 4000 hectare area. Each prospecting target site would require 1 hectare with the exception of the Gumbu Mine target which would require 1.5 hectares to cater for a site camp. Overall there would be 19 target areas with a total impact area of less than 20 hectares.

Several potential high and medium impacts have been identified associated with invasive prospecting and decommissioning of the activities. Based on the characteristics of the site, the associated risks include impacts on fauna and flora, aquatic ecosystems, heritage resources, land use, safety risk as well as surface and groundwater. After applying the mitigation measures as proposed in the Risk Assessment, majority of the impacts can either be controlled or remedied to low significance with the exception of the safety risk of unexploded ammunition onsite remaining of moderate significance.

Prospecting at the site is feasible from a biophysical and social perspective. The predicted negative impacts can be minimized by implementation of recommended mitigation measures. Mitigation measures are formalised in the EMPr. Strict control measures are also to be implemented to key environmentally sensitive areas delineated on site.

All of the above said, it is the considered view of the environmental assessment team that due to legal provisions in terms of the Protected Areas Act of 2003 and the Defence Act of 2002, it is not possible to prospect at the study site. Both these acts prohibit prospecting on the study site due to it being used by government for military training exercises and secondly for being proclaimed as a protected area. Should it be possible to alter the provisions as stated in the two pieces of legislation, and through mutual dicussions and agreements between all parties affected by the proposed activities, it could be possible to prospect.

10.2 Final Site Plan

Due to the vastness of the study site the Final Site Plan comprises a few sets of aerial maps to be able to superimpose the target areas in relation to environmental sensitivities, buffer zones and heritage sites. Refer to **Appendix 6** Final Site Plan Map set.

10.3 Summary of the positive and negative implications and risks of the proposed actvitiy and identified alternatives

Table 14: Summary of signficant environmental impacts with mitigation

ACTIVITY	IMPACT DESCRIPTION	SIGNFICANCE with mitigation
Phase: Invasive Prospecting		
Geology: Removal of geological bulk samples	Loss of geology and soils	Moderate
Soil: Stockpiling of topsoil following site preparation (excavation)	Loss of topsoil resource	Very Low
Soil: Estalishment of prospecting sites, site camp, vehicle traffic, material storage, generation, storage and disposal of waste	Soil erosion, soil campaction by heavy machinery, contamination of soils due to hydrocarbon spillages and improper waste disposal	Low
Fauna & Flora: Clearing of vegetation, topsoil as site preparation for site camp and prospecting target areas and activities.	Loss of Habitat Loss of sensitive species Impact on Habitat Connectivity and Open Space	Low
Fauna & Flora: Estalishment of access tracks and driving off existing tracks	Destruction and damage to fauna & flora	Low
Fauna: Direct contact with prospecting equipment, supplies (vehicle, dozers, chemicals, waste)	Result in fauna fatalities	Low
Aquatic Ecosystems:	Risk of contamination from hydrocarbon	Low

Establishment of site camp, drilling pads, excavations and bulk sampling sites	spillages, oil and of fuel.	
Aquatic Ecosystems: Prospecting within unique habitat	Impact on Ramsar Makuleke wetland function	Very Low risk
Aquatic Ecosystems: Creation and clearing of target areas including vehicle movement	Soil erosion and sediment deposition into aquatic ecosystems	Low
Heritage Sites: Site preparation, site camp establishment and prospecting activites	Damage or destruction of heritage sites which include: Ridge with shallow excavations (mine shaft, long trenches) Shaft 1 Shaft 2 (narrow trench) Shaft 3 Shaft 4 (main graphite shaft) Dilapidated mine buildings, cement floors, offices, conveyor belts. Buildings destroyed by SANDF training operation. • Graves and Stone walled sites • Historical homesteads identified by presence of stonewalls, stone foundations, and ash midden • Intangable heritage sites presented by sacred Tshavhasikana river pools, Baobab tree where ritual dances were performed; • Oral traditions & local community consultation revealed occurance of stonewalls and grave sites belonging to Ne-Madimbo and Tshenzhelani families on top of rocky outcrops within the military corridor; (couldn't access site due to restricted military area); Old army base ruins	Low
Heritage Sites: Site preparation, vegetation clearing and prospecting activities.	Damage to cultural and or heritage sites during prospecting activities may result in conflict with local community	Very Low
Heritage Sites: Prospecting activities specifically excavations, bulk sampling, trenching	Potential unearthing of heritage resources resulting in damage to resources	Low
Noise: Noise will be generated from use of drilling and excavation machinery and vehicles travelling in the project site	Generation of noise by machinery, drilling, excavations and vehicle movement may cause a nuisance to communities, SANDF and may result in fauna to vacate the area	Low
Air Quality & Dust: Site	Wind blown dust from bare target area	Low

establishment through vegetation clearance, drilling, prospecting activities including entrained dust from vehicle movement on gravel roads	surfaces and entrained dust from vehicles/machinery travelling on gravel roads	
Visual Impact: Site clearance, establishment of site camp and prospecting activities as well as presence of machinery	Unsightly views due to exposed soil surfaces and presene of machinery onsite	Low
Land Use: Prospecting within military training and border control area. Prospecting activities within UXO contaminated area.	Liability to SANDF, also would impact on daily training activities within the corridor.	Moderate
Land Use: Prospecting activities within protected area	Impact on biodiversity and status of land	Low
Surface & Groundwater: Improper waste disposal, use of fuel, oil and chemicals may result in spillages from vehicles and storages impact on water resources. Water consumption at site camp and water requirements for drilling operations.	Contamination of groundwater due to infiltration into groundwater system. Quality of surface water may be impacted by poor storage of chemicals, fuel spills, unappropriate waste disposal Depletion of natural resources and availability to other users	Low
Traffic: Increased traffic due to prospecting vehicles, machinery using local gravel roads and Punda Maria road R525.	Increased traffic on main gravel road and R 525 road	Low
Safety Risk: Prospecting activities (excavations, pitting and drilling) in military zone contaminated with unexploded ammunition.	Safety risk due to potential detonation of unexploded ammunition.	Low
Crime: Crime due to presence of machinery, batteries and fuel onsite which are resources that attract thieves. Presence of external contractors at site and within local communities	Increased crime on study site Violent crimes against woman	Very Low
Socio-economic: Increased traffic and prospecting activities in livestock grazing areas	Livestock mortalities due to livestock falling into pits, excavated areas may affect community member livelihoods	Very Low
Decommission & Rehabilitation Phase		
Soil,Surface and Groundwater: Use of fuel, chemicals,	Contamination of soil, groundwater and surface water including soil erosion	Low

hydrocarbons,disposal practice and open boreholes as well as erosion from respreading of topsoil before vegetation has re-established		
Fauna & Flora: Removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	Destruction and or disturbance of fauna and flora at disturbed target areas	Low
Flora: Poor vegetation re growth post decommissioning and re habilitation of target areas. Establishment of alien vegetation during re-vegetation of disturbed areas.	Degradation of the ecology	Low
Noise: Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise	Impact on the ambient noise level and may cause a nuisance to SANDF, communities	Low
Air Quality: Removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas	Dust emissions (vehicle entrained dust)	Low
Traffic: Prospecting vehicles & machinery making use of gravel road and R 525 Punda Maria road for transportation of equipment offsite and removal.	Increase in traffic along main site gravel road and R525 Punda Maria Road	Low

10.4 Impact management objectives and the impact management outcomes for inclusion in the EMPr

Table 15: Summary of management objectives and outcomes for inclusion in EMPR

ASPECT	OBJECTIVE	OUTCOME OF IMPACT MANAGEMENT
Fauna & Flora	Maintain Indigenous Floral and Faunal Biodiversity and conserve as much of the habitat and faunal structure as possible,	Appoint a qualitified specialist prior to removal of any fauna or flora, protected tree species.

	further conserve conservation important fauna & flora species and maintain habitat connectivity. Avoid spreading of alien invasive species and encroachment into indigenous vegetation.	Important ecological habitats are excluded from prospecting activities and protected to maintain biodiversity. Minimise activity on rocky ridges, if not possible minimise the prospecting sites to narrow strips. Disturbed areas are promptly rehabilitated and planted with indigenous vegetation. Also species flora and fauna) of conservation (concern are protected and or either relocated with necessary permits/permission. Adherence to the Closure and Rehabilitation Plan.
Aquatic Ecosystems (wetland, riparian zones, sandy riverbeds)	Ensure that prospecting and later decommission and rehabilitation activities do not result in pollution or damage to aquatic ecosystems. Further to limit significance of impacts on the functionality of drainage lines, wetlands (sandy riverbeds). Implement stormwater management, erosion protect, control sediment migration from prospecting sites to riparian zones, wetlands, sandy riverbeds.	To exclude unique habitat (unmapped forests, wetlands) including Limpopo River riparian zone and associated riparian zones and wetlands from prospecting activities, protect the aquatic ecosystems and avoid pollution thereof. Uphold a 50m buffer zone to wetland and riparian zones which are regarded as no-go zones for prospecting. Position or reposition all identified target areas accordingly. Protect water sources/aquatic ecosystems in line with National Water Act of 1998 and Mine Water Regulations of GN 704.
Surface and Groundwater	Avoid contamination of water resources. Prevent/reduce spillages from fuel, oil and or chemicals. Monitor and minimise water consumption/usage during drilling operations.	Control erosion, runoff from prospecting sites.Store fuel, oil and chemicals in designated areas. Implement proper waste disposal. Control water usage/consumption. Obtain Water Use License from DWS for abstraction of raw water from Limpopo River.

		Water management measures in compliance with NWA, 1998 and GN 704, 1999.
Soil Resources	Maintain good quality topsoil for successful rehabilitation. Ensure that topsoil / soil not colonised with alien species and result in further erosion of soils. Protection of soil resources. Effective rehabilitation for post prospecting land use of conservation/grazing.	Enough soil, of adequate quality is available for rehabilitation to support vegetation grown to ensure successful rehabilitation. Indigenous vegetation will be re-instated on disturbed areas to curb erosion of soil and maintain biodiversity. Biodiversity and alien invasive management in accordance with NEM: BA 2004.
Cultural & Heritage Resources	To protect and conserve identified heritage and cultural sites within the study area and to avoid damage/destruction of sites also prevent conflict with local community in this regard. Protect and record any chane find heritage and cultural resources.	Uphold a 50m buffer zone to identified heritage sites and position all target areas accordingly. Comply with the National Heritage Resources Act 25 of 1999 and follow procedures for chance finds. To avoid heritage sites during positioning of target sites and site camp. Document and map sites at the old Graphite Mine in event it's affected by prospecting. Obtain permits from the Provincial Heritage Authority if heritage sites at the graphite mine are affected.
Air Quality & Dust	Control and minimise dust emissions from prospecting activities including vehicle entrained dust	All prospecting activities must be within ambient air quality criteria: Comply with National Dust Control Regulations of 2013 (acceptable dustfall rate of <1200mg/m2/day).
Noise	Minimise noise levels to acceptable levels.	Maintain and implement a Complaint's register. Prospecting activities are restricted to day time periods from 07h00 – 17h00. Adherence to Closure and

		Rehabilitation Plan.
Traffic	Minimise traffic levels on main gravel road and R525 Punda Maria Road	Comply with 40km/hr speed limit along gravel road and with provincial road regulations.

10.5 Final proposed alternatives

The initial site plan catered for 21 target areas. The final site plan caters for 19 target areas. Two target areas, namaley 1 and 21 have been omitted due to its position within unique and sensitive habitat. The remaining 19 target areas would in general remain within its position with slight repositioning to adhere to the 50m riparian buffer zone requirement.

The Final Site Plan was therefore prepared based on the environmental sensitivities identified on the study site.The outcome is the northeastern portion of the site is the most environmentally sensitive comprising unmapped forests and wetlands. The Limpopo River riparian zone is also of high-very high sensitivity. Hence both the north eastern part of the site, the Limpopo riparian zone are regarded as no go areas for prospecting. Riparian zones, wetlands and sandy riverbeds associated with the Limpopo River area also being protected in the layout by application of a 50m buffer zone.

10.6 Aspect for inclusion as conditions of Authorisation

The granting of an authorisation for the prospecting and bulk sampling activities should be subject to the following:

- Consent must be obtained from the MEC of Limpopo Department of Economic Development Environment & Tourism in order to undertake prospecting within the declared Matshakatini Nature Reserve, protected under the National Environmental Management: Protected Areas Act 57 of 2003;
- Consent must be obtained from the Minister of Defence to prospected within a military restricted zone as protected by the Defence Act 42 of 2002;
- The study site is a military training zone for the South African National Defence Force. Unexploded ammunition exists within the study site. Prospecting target areas contaminated or suspected of being contaminated with unexploded ammunication first need to be inspected and made safe for prospecting.
- The north-eastern section of the study site corresponding to Subtropical alluvial vegetation, unmapped wetlands, possible forests is to be regarded as a no-go zone for prospecting activities;
- A 50 metre buffer zone is to be upheld to wetland and riparian zones to be regarded as no-go zones for prospecting activities and fenced off with appropriate material during the prospecting phase if nearby;
- Limit prospecting footprint areas to a narrow strip to have the least possible edge effects on ecosystems and limit footprint areas to a minimum at rocky ridges;
- The presence / absence of protected tree species (Baobab, Shepard's Tree, Leadwood, Apple-Leaf and Marula must be verified at each target area. Avoid removal of large individuals of protected tree species at any prospecting site, where

it cannot be avoided; a permit for removal needs to be obtained from DAFF under Section 15 (1) of the National Forest Act no 84 of 1998. No person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate in any manner acquire or dispose of any protected tree, except under a license granted by the Minister.

- Each prospecting site should be inspected by a qualified specialist for nests of birds in trees for any large raptures or vultures of conservation concern. Where removal of bird nests are required such should be done by a qualified ornithologist/bird specialist;
- Each prospecting site should be inspected for presence of baboon spiders ('horned-baboon spiders') which appear on the TOPS list. If there are clearly burrows and resident baboon spiders in an area where prospecting will take place, these should e removed and translocated by a specialist;
- Planning of prospecting sites including design and siting of access routes must avoid heritage sites.
- Graves must be avoided and protected insitu. Where not possible, they must be exhumed by qualified professionals;
- Mine shafts and remnants at the old Graphite Mine are older than 60 years and protected by the National Heritage Resources Act 25 of 1999. If these sites are to be affected, it is to be documented and mapped and permits for such work must be obtained from the competent heritage body.
- Any water abstracted from the Limpopo River or surface water bodies for the use in prospecting activities requires a General Authorisation/Water Use License in terms of the National Water Act 36 of 1998 from the Department of Water and Sanitaiton. The applicant must obtain an authorisation, either through a water use license or general authorisation, for the abstraction of water from a surface body for use in prospecting activities.
- The EMPr should be implemented by a senior qualified environmental practitioner credible to interpret the EIR & EMPr;
- The project must remain in full compliance with the requirements of the EMPR;
- Prospecting and bulk sampling may only commence on approval of the Prospecting Right;
- Stakeholder engagement must be maintained throughout site planning & preparation, invasive prospecting and closure & rehabilitation phase.

10.7 Description of any assumptions, uncertainties and gaps in knowledge

Appendix 3 of the EIA Regulations of 2014 (GNR 982) states that the EAP must provide a description of any assumptions, uncertainties and gaps in the knowledge upon which the impact assessment has been based. The assumptions and limitations applicable to the specialist assessments include:

Limitations:

- Most of the study site was inaccessible during the April 2018 for the Ecological Impact Assessment surveys;
- There is a considerable lack of knowledge of the eastern part of the study site. There judging from Google Earth images are unmapped wetlands and possibly forests. It is in particular at the eastern parts of the study area that visits to the prospecting footprint areas are imperative.
- A site survey was undertaken by Archaeologist Mr. Eric Mathoho from 4-6 April 2018. Parts of the eastern section of the site were inaccessible.
- Oral traditions and local community consultation revealed the occurance of stone walls and grave sites that belong to Ne-Madimbo and Tshenzhelani families on top of rugged rocky out crops within the Madimbo Military Corridor. This area could not be accessed due to its sensitive nature.

Assumptions:

- Nineteen (19) prospecting target areas will be persued as part of the prospecting programme inclusive of bulk sampling;
- The site camp will be established at the old Gumbu Graphite Mine;
- Existing roads will be used where possible to minimise the disturbance
- Costing for the Closure Plan was determined with the assumption that nineteen (19) target areas will be persued for prospecting with bulk sampling undertaken at the old Gumbu Graphite Mine site target area, target area 11. This may however change after completion of the site planning and finalisation of target areas.

10.8 Opinion as to whether the proposed activity should /should not be authorised

In terms of the Appendix 3 of the EIA Regulations of 2014 the EAP is to provide a reasoned opinion as to whether the activity should or should not be authorised. If it should be authorised state any conditions that should be made with respect of that authorisation.

Naledzi Environmental Consultants CC is of the submission that due process has been followed to form the findings of the EIA study in accordance with the EIA Regulations of 2014. The EIA process undertaken, includes an assessment of potential impacts identified, further analysed by specialists in their respective fields as part of the EIA team. Public Participation has been undertaken with interested and affected parties in accordance to the EIA Regulations of 2014 Regulations 40-44.

Potentially significant impacts have been identified, ranked and mitigation measures are proposed for its management and monitoring.

Several potential high and medium impacts have been identified associated with invasive prospecting and decommissioning of the activities. Based on the characteristics of the site risks of mention include impacts on fauna and flora, aquatic ecosystems, heritage resources, land use, safety risk as well as surface and groundwater. After applying the mitigation measures as proposed in the Risk Assessment majority of the impacts can either be controlled or remedied

to low significance with the exception of the safety risk of unexploded ammunition onsite remaining of moderate significance. The area needs to be made safe for prospecting purposes first before target areas can be persued.

Prospecting at the site is feasible from a biophysical and social perspective. The predicted negative impacts can be minimized by implementation of recommended mitigation measures. Mitigation measures are formalised in the EMPr. Strict control measures are also to be implemented to key environmentally sensitive areas delineated on site.

In terms of the collective impacts considered the economic development is justifiable, if the prospecting activities prove that the mineral deposit van be optimally mined, it becomes a viable land use option for the community and a new mine may/could be developed with the potential to contribute to the provincial and local economy as well as generate employment for the local communities. There is a lack of economic activity and job opportunities at Gumbu.

Nevertheless, legal provisions in terms of the Protected Areas Act of 2003 and the Defence Act 42 of 2002 prohibit prospecting activities at the study site due to its use by government as military area and secondly being a declared protected area. Consent to prospect the study site would need to be obtained from the Minister of Defence and MEC for LEDET to address these legal provisions.

10.8.1 Specific conditions to be included into the compilation and approval of EMPR

- The study site is a military training zone for the South African National Defence Force. Unexploded ammunition exists within the study site. Prospecting target areas contaminated or suspected of being contaminated with unexploded ammunication first need to be inspected and made safe for prospecting.
- The north-eastern section of the study site corresponding to Subtropical alluvial vegetation, unmapped wetlands, possible forests is to be regarded as a no-go zone for prospecting activities;
- A 50 metre buffer zone is to be upheld to wetland and riparian zones to be regarded as no-go zones for prospecting activities and fenced off with appropriate material during the prospecting phase if nearby;
- Limit prospecting footprint areas to a narrow strip to have the least possible edge effects on ecosystems and limit footprint areas to a minimum at rocky ridges;
- The presence / absence of protected tree species (Baobab, Shepard's Tree, Leadwood, Apple-Leaf and Marula must be verified at each target area. Avoid removal of large individuals of protected tree species at any prospecting site, where it cannot be avoided; a permit for removal needs to be obtained from DAFF under Section 15 (1) of the National Forest Act no 84 of 1998. No person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate in any manner acquire or dispose of any protected tree, except under a license granted by the Minister.
- Each prospecting site should be inspected by a qualified specialist for nests of birds in trees for any large raptures or vultures of conservation concern. Where removal of bird nests are required such should be done by a qualified ornithologist/bird specialist;

- Each prospecting site should be inspected for presence of baboon spiders ('horned-baboon spiders') which appear on the TOPS list. If there are clearly burrows and resident baboon spiders in an area where prospecting will take place, these should e removed and translocated by a specialist;
- Planning of prospecting sites including design and siting of access routes must avoid heritage sites.
- Graves must be avoided and protected insitu. Where not possible, they must be exhumed by qualified professionals;
- Mine shafts and remnants at the old Graphite Mine are older than 60 years and protected by the National Heritage Resources Act 25 of 1999. If these sites are to be affected, it is to be documented and mapped and permits for such work must be obtained from the competent heritage body.
- A Water Use License / General Authorisation needs to be obtained from the Department of Water and Sanitation for any Section 21 water uses which may be triggered by the proposed prospecting activities. In this case abstraction of raw water from the Limpopo River for drilling operations.
- The EMPr should be implemented by a senior qualified environmental practitioner credible to interpret the EIR & EMPr;
- The project must remain in full compliance with the requirements of the EMPR;
- Prospecting and bulk sampling may only commence on approval of the Prospecting Right;
- Stakeholder engagement must be maintained throughout site planning & preparation, invasive prospecting and closure & rehabilitation phase.

10.8.2 Rehabilitation requirements

Rehabilitation actions for the proposed prospecting activities would be undertaken in two fold namely concurrent rehabilitation and afterwards final decommissioning and rehabilitation. Concurrent rehabilitation would include:

- Drill holes will be sealed with cement and surface cap/covered;
- All sumps, pits, trenches, excavations will be backfilled with overburden and topsoil and re-vegetated
- All disturbed areas and its direct surroundings will be cleaned up from pollution and waste materials
- Contaminated soil by fuel or oil will be removed to a depth of contamination and disposed of at a registered landfill site.
- Overburden and topsoil will be spread evenly over disturbed areas and re-vegetate to finalise the rehabilitation
- Areas prone to erosion will be appropriately shaped to mimic the surrounding landscape
- Rehabilitated areas will be inspected to monitor re-vegetation rate and alien invader species that may have establish in the area will be removed;

Final decommissioning and rehabilitation:

- All temporary infrastructure will be removed from the study site;
- Any access tracks created during prospecting (if any) will be rehabilitated
- Disturbed areas will be ripped and seeded

- Grazers will be kept out of the rehabilitated areas until suitable vegetation cover has established
- Rehabilitated areas will be inspected to monitor re-vegetation rate as well as and alien invader species will be removed if any established;
- Areas where erosion has occurred soil will be sourced and replced and shaped to reduce the reoccurrence of erosion.

11 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The project will span over 36 months (3 years). Rehabilitation activities would be conducted concurrently where possible, but final rehabilitation and removal of prospecting infrastructure may require an additional period. The period for which the environmental authorisation should be valid is **5 years** allowing for unexpected rehabilitation and closure activities.

12 UNDERTAKING

The undertaking required to meet the requirements of the EIR & EMPr is included in Part B of this document under Section 2.

13 FINANCIAL PROVISION

A total of R 254 206 is required to both manage and rehabilitate the environment in respect of rehabilitation.

13.1 Explain how the aforesaid amount was derived

The DMR Guideline format makes use of a set template for which defined rates and multiplication factors are used. The multiplication and weighting factors which ultimately define the rate to be used are determined by amongst others the topography, classification of the mine according to the mineral mined, the risk class of the mine and its proximity to built-up or urban areas.

The calculations of closure cost issued by DMR in 2005 were used to support the calculation of the closure cost. The 2005 DMR Master Rates were updated and published by the DMR in 2012 however, due to inflation, these are no longer accurate. An average inflation of 6% was used to reflect 2018 costs.

The tarrifs used included:

- Sealing of shafts, adits and inclines (for borehole sealing and capping) at R 1700/unit
- General surface rehabilitation and grassing at R 118 923.51/hectare
- Fencing at R 135.65/ meter
- 2-3 years of maintenance and aftercare at R 15 826.32/hectare

13.2 Confirm if this amount can be provided for from operating expenditure

The financial provision will be made available to the DMR on the date on which the Prospecting Right is issued.

14 DEVIATIONS FROM THE APPROVED SCOPING REPORT AND PLAN OF STUDY

All the specialist studies proposed within the Scoping Report have been commissioned and completed during the Impact Phase. Findings and recommendations have been included in the EIR and EMPr.

15 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Compliance with the provisions of Section 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:

15.1 Impact on the socio-economic conditions of any directly affected person

The prospecting activities are not foreseen to have a negative socio-economic impact on the local communities. Currently the socio-economic impact felt in the local area is unemployment due to no economic base. If an economically viable resource is delineated it could have a significant positive socio-economic impact on the local area. Yet it would be subject to a mining right application and EIA Process.

Military training operations at Madimbo Corridor may be affected. The SANDF has incurred substantial costs to sweep the area for unexploded ammunition down to a depth of 1 meter to make the site safe for agricultural ventures by the community, but this is not suitable for prospecting activities. Substantial costs would need to be incurred to make the area safe for prospecting.

15.2 Impact any national estate referred to in Section 3 (2) of the National Heritage Resources Act

The heritage survey undertaken in April 2018 found several sites of cultural and heritage significance which include:

- Site 1 – Single grave of Headman Nemadimbo
- Site 2 – 2 graves and an old house structure (Mia Vho Liphadzi and Makhulu Vho Liphadzi)
- Site 3 – Tshavhasikana Sacred pool
- Site 4 – Matshato Tree (large Baobab used for ritual dance)

- Site 5 – Single grave
- Site 6 – old army base abandoned in 1980's
- Site 7 – Old Gumbu Graphite Mine containing old mine remnants and shafts from 1940's;
- Site 8 – Collapsed stone wall (Gumbu Royal family ruins)
- Site 9 – Single grave and possible grave
- Site 10 – Gumbu Royal Family Graveyard
- Site 11 – Stone wall (Segonde Royal family headquarters)
- Site 12 – Segonde Royal family graves (x10 graves)
- Site 13 – Collapsed stone wall, cluster of 2 graves

The Heritage Impact Assessment Report states that all identified sites of heritage significance should be avoided during prospecting activities. Identified sites were plotted in relation to identified target areas indicating only activities at the old Graphite Mine are located close to heritage finds and recommend that these be avoided. Hence it is not anticipated that any impact on national estate in Section 3 (2) of the NHRA are foreseen as a result of prospecting activities.

16 OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4) (A) AND (B) OF THE ACT

No further investigation or assessment of any environmental attributes of the study site is necessary. The significant identified impacts have been investigated by specialists who informed the EIR findings. The potential impacts from the proposed SAMIN project on the environment have been assessed and its significance rated. Mitigations for management and monitoring have been captured in the EMPR.

Any other potential impacts identified during the public participation period (by organs of state, public) of the Impact Phase, will be considered and the report would be updated accordingly.

PART B:

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

1 DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

1.1 DETAILS OF THE EAP

The requirements for the provision of details and expertise of the EAP are included in Part A, Section 1.1.

1.2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

The aspects of the activity that are covered by the EMPr are included in Part A, Section 8.1 and 8.5.

1.3 COMPOSITE MAP

Refer to **Appendix 6** for the Composite Map / Final Site Plan which super imposes the proposed activity on the environmental sensitivities of the preferred site, indicating any areas that should be avoided including buffer zones.

1.4 DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENT

1.4.1 Determination of closure objectives

The closure aims and objectives for the prospecting site is to minimise environmental disturbance and rehabilitate disturbed areas to ensure a safe and environmentally stable post-prospecting land use, in this case natural / conservation / grazing. These objectives include:

- Make all areas safe for humans, wild animals and livestock;
- Prevent soil, surface and groundwater contamination by managing water on site;
- Minimise negative impacts;
- Establish a sustainable cover to prevent erosion and enhance ecological succession;
- Maintain and restore biodiversity levels to provide appropriate habitat for fauna utilisation;
- Protected drainage lines and watercourses
- Not leave any infrastructure onsite;
- Use approved sites for safe disposal of all wastes
- Maintain Traditional Owners access to areas of cultural & heritage significance
- Monitor key environmental variables (i.e. soils, erosion, vegetation, ground and surface water) to demonstrate stability of rehabilitated areas
- Adhere to all statutory and other legal requirements

1.4.2 Volumes and rate of water use required for mining, trenching or bulk sampling operation

The water requirements for prospecting activities are estimated to include:

- **Domestic use**

The daily site camp water requirement is 1000 litre/day. This water will be obtained from existing boreholes in the Gumbu Villages.

- **Drilling operations**

A total of $10m^3$/day of drilling water will be required for drilling operations. Raw water will be abstracted from the Limpopo River and brought to site with a Waterbowser.

1.4.3 Has a water use license been applied for

The potable water requirements will be obtained from existing boreholes in the Gumbu Villages. The drilling operation water requirements will be obtained from the Limpopo River.

The abstraction of raw water from the Limpopo River for drilling constitutes a Section 21 water use under Section 21 (a) Abstracting water from a water source. The water use would either be generally authorised or require a water use license to the Departmnt of Water and Sanitation. Approval for the water use would be obtained from DWS.

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
Soil Resources	Stockpiling of topsoil following site preparation and excavations for drilling, trenching and bulk sampling	Site Preparation and Invasive Prospecting	- Topsoil is to be handled twice only-once to strip and stockpile, and once to replace and level; - Topsoil needs to be protected and returned for rehabilitation as soon as possible; - Implement good stockpiling practice and storm water control to avoid soil erosion - Ensure that topsoil is at no time buried, mixed with spoil or subjected to compaction by vehicles or machinery. - Eradicate alien vegetation which colonise on topsoil stockpiles	Rehabilitation of study site in terms of NEMA and MPRDA. Biodiversity and alien invasive management in accordance with the NEM: Biodiversity Act of 2004. Mine Water management in line with Mine Water Regulations- Regulation 7 of GNR 704 of 1999	Site Preparation and Invasive Prospecting
Soil Resources (soil erosion, compaction by heavy machiner	Estalishment of prospecting sites, site camp, vehicle traffic, material storage	Invasive Prospecting Phase	- Use existing access roads - Restrict vehicle access to designated areas - Provide drip trays for standing equipment - Clean up hydrocarbon spillages, contaminants must be properly disposed of using correct solid/hazardous waste facilities. - Contaminated soil must be removed and the affected area rehabilitated. - Do not place the site camp infrastructure where it can cause pollution to sensitive areas	Rehabilitation of study site in terms of NEMA and MPRDA.	Invasive Prospecting Phase (implement continuously)

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
y)			(drainage lines, steep slopes)		
Soil Resources (contamination of soil due to improper waste disposal	Generation, storage and disposal of waste	Invasive prospecting Phase	- Provide water proof waste receptacles for general and hazardous waste at the site camp/prospecting sites - Dispose hazardous and general waste at a registered waste site - No prospecting is to be undertaken within 50metres of riparian and wetland zones, no activity is to take place within the riparian zone of the Limpopo River and the north eastern section of the study site is regarded as a no-go zone	Rehabilitation of study site in terms of NEMA and MPRDA. NEM: WA 59 of 2008- Chapter 4, Section 16, Section 27 CARA Act 43 of 1983- Section 19. ECA Act 73 of 1989 – Section 20 Mine Water Regulations of GNR 704 of 1999	Invasive Prospecting Phase
Fauna & Flora (Habitat)	Clearing of vegetation and topsoil as site preparation for prospecting sites, site camp and bulk sampling will result	Invasive prospecting Phase	- The northeastern section of the study site should be regarded as a no-go area for prospecting due to existence of unique habitat; - Target Areas 1 and 21 should be regarded as no-go zones for prospecting as they correspond to unique habitat and the Limpopo River riparian zone; - Exotic and invasive plant species must not establish onsite;	An Ecologist / qualified specialist must be appointed before any site preparation or removal of vegetation. Permits must be	Invasive Prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
	in loss of habitat		- Footprints at prospecting target areas need to be confined to a narrow strip to have the least possible edge effects on the ecosystem; - A 50 metre buffer zone must be upheld from wetland and riparian zones and regarded as no-go areas for any prospecting; also needs to be fenced off with appropriate material;	obtained from DAFF and LEDET for removal/ destruction of any species of conservation concern. Comply with restrictions to sensitive areas as set out on Composite Map. Adherence to the Closure and Rehabilitation Plan. Biodiversity and alien invasive management in accordance with the NEM: Biodiversity Act of 2004, GN 78 of 2014 and GN 37886 of 2014, GNR 598 of 2014. Mining and Biodiversity	

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
				Guideline of 2013.	
Fauna & Flora (Loss of Sensitive Species)	Site establishment for site camp and prospecting activities	Invasive prospecting Phase	- Appoint a qualitified specialist prior to removal of any fauna or flora, protected tree species. - Remainer of target sites at point of impact must be inspected and likely absence of protected trees, localised plant species, nests of vultures&raptors, baboon spider colonies confirmed; - Footprints need to be kept to a minimum so larger mammals can roam freely; - Necessary caution must be adhered to due to large animals onsite to avoid conflict as a result of human activity (Elephants, Lion, Leopard); - Each target area needs to be inspected for nests in trees of raptors and vultures which are threatened and could be resident/visitors such as the White Backed Vulture (nationally critically endangered), Hooded Vulture (critically endangered) and Bateleur (vulnerable); - Removal of nests, if possible or practicle, in case of any removal of nests, should be done by qualified bird specialist; - Each target site should be inspected for baboon spiders (horned baboon). If there are burrows and resident spiders in area these are to be removed and translocated by a specialist; Protected Trees	Appoint a qualitified specialist prior to removal of any fauna or flora, protected tree species. Permits must be obtained from DAFF and LEDET for removal/ destruction of any species of conservation concern. Adherence to the Closure and Rehabilitation Plan. Section 15 (1) National Forest Act, (Act 84 of 1998) Biodiversity	Invasive prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			- Apply for protected tree permits from DAFF if any protected trees are to be damaged/removed; - Each target are must first consider avoiding damage/removal to protected trees (Baobab, Shepard's Tree, Leadwood, Apple-Leaf, Marula) - It is recommended that prospecting avoid removal of large protected species (Baobab in particular);	management in terms of NEMBA of 2004- Section 56 LEMA Act 7 of 2003 – Section 8, 11 & 12	
Fauna & Flora (habitat connectivity & Open Space)	Site clearance for drill, trench, sampling sites as well as camp site estalishment	Invasive prospecting Phase	- Exotic and invasive species of plants must not establish, so that quality and functionality of conservation corridors are enhanced; - Rubble and waste must be removed during and after prospecting; - Confine footprint to narrow strip to have the least possible edge effects on ecosystems - A 50 metre buffer zone must be upheld from wetland and riparian zones and regarded as no-go areas for any prospecting; also needs to be fenced off with appropriate material; - Prospecting at rocky ridges should be avoided. If it cannot be avoided , footprints must be limited to a minimum on rocky ridges;	Adherence to the Closure and Rehabilitation Plan. Biodiversity management in terms of NEMBA of 2004- Section 56 Mining and Biodiversity Guideline of 2013.	Invasive prospecting Phase
Fauna & Flora	Estalishment of access tracks and	Invasive prospecting	- Use existing access roads - Restrict vehicle access to designated areas	Adherence to the Closure and	Invasive prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
(Destruction & Damage to fauna & flora)	driving off existing tracks	Phase		Rehabilitation Plan. Rehabilitation in terms of MPRDA and NEMA.	
Fauna (noise result in animals to vacate area, possible faunal fatalities	Direct contact with prospecting equipment, supplies (vehicle, dozers, chemicals, waste)	Invasive prospecting Phase	- A 50 metre buffer zone must be upheld from wetland and riparian zones and regarded as no-go areas for any prospecting; also needs to be fenced off with appropriate material; - Implement concurrent rehabilitation - No mammals species are to be disturbed, trapped, hunted or killed during prospecting; - Confine footprint areas - Avoid spills and infiltration of petroleum fuels, chemical pollutants into soils during prospecting.	Adherence to Closure and Rehabilitation Plan. Water management requirements with NW GN 704 of 1999. Biodiversity management in terms of NEMBA of 2004	Invasive prospecting Phase
Aquatic Ecosystems (risk of contamination)	Establishment of site camp, drilling pads, excavations and bulk sampling sites as well as operation thereof.	Invasive prospecting Phase	- Proper storage and handling of hydrocarbons and chemicals need to be ensured. Fuel, oil and chemicals must be stored in designated areas outside wetland and riparian buffer zones - Storage containers for hydrocarbons and chemicals must be regularly inspected as to prevent leaks - Uphold a 50m buffer zone from riparian zones and wetlands; also needs to be fenced off with	Section 19 of NWA 36 of 1998 Water management in terms of GNR 704 of 1999 under NWA 36 of 1998.	Invasive prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			appropriate material; - Portable toilets must be placed on impervious level surfaces that are lipped to prevent spillages	Operational Control Procedures Regular Environmental Inspection, Incident reporting and handling.	
Aquatic Ecosystems	Prospecting within unique habitat (wetland, possible forests) in northeastern section of site upstream of Makuleke Wetland may	Invasive prospecting Phase	- Target Area 1 regarded as a no go zone for prospecting and is omitted from the prospecting target areas, - North-eastern section of the study site is considered a no-go zone for prospecting	Comply with no-go areas for prospecting as set out on Composite Map.	Invasive prospecting Phase
Aquatic Ecosystem (soil erosion, sediment deposition	Creation and clearing of target areas including vehicle movement	Invasive prospecting Phase	- Implement erosion, sediment and stormwater control, waste management from, site camps, drill pads and bulk sampling site (sandbags) - Concurrent rehabilitation of disturbed areas must be undertaken - Uphold a 50m buffer zone from riparian zones and wetlands; also needs to be fenced off with	Adherance to Closure and Rehabilitation Plan. Water management as per requirements of GN 704 of 1999.	Invasive prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
)			appropriate material;	NEM: WA 59 of 2008- Chapter 4, Section 16, Section 27.	
Heritage & Cultural Resources	Site preparation, site camp establishment and prospecting activites at old Gumbu Graphite Mine	Invasive prospecting Phase	- Planning of prospecting target sites, site camp including design and siting of access roads must avoid heritage sites - Sites at the old Graphite mine must be documented and mapped in event that its affected by prospecting; - Permits must be obtained from the Provincial Heritage Authority if heritage sites at the graphite mine are affected	A Heritage Specialist must be appointed to map and document heritage sites if they are to be affected by prospecting. Compliance with NHRA 25 of 1998.	Invasive prospecting Phase
Heritage & Cultural Resources	Site preparation, vegetation clearing and prospecting activities. (Potential damage to graves, stonewalls, historic homesteads, sacred pools and cultural ritual sites,	Invasive prospecting Phase	- Planning of prospecting target sites including design and siting of access roads must avoid heritage sites. Uphold a 50m buffer zone from any heritage sites - Graves must be avoided and protected insitu - Prospecting close to hut floors must be done with great caution as it was used as burial sites	Comply with Composite Map in terms of buffer zones applied to heritage sites (at 50m). Comply with Section 35 and 36 of NHRA 25 of 1998.	Invasive prospecting Phase
Heritage	Site preparation,	Invasive	- Planning of prospecting target sites including design and siting of access roads must avoid	Comply with Composite	

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
& Cultural Sites	vegetation clearing and prospecting activities within eastern section of study site (inaccessible during April 2018 survey) (damage to heritage sites in unexplored areas may result in conflict with local community)	prospecting Phase	heritage sites. Uphold a 50m buffer zone from any heritage sites - Graves must be avoided and protected insitu - Prospecting close to hut floors must be done with great caution as it was used as burial sites - There are further stone walls and grave sites on top of rocky outcrops within the military area which could not be accessed for survey. If prospecting extends to this area a full assessment of the target area is required before proceeding with prospecting	Map in terms of buffer zones applied to heritage sites (at 50m buffer area). Comply with Section 35 and 36 of NHRA 25 of 1998.	
Heritage & Cultural Resources (chance finds)	Prospecting activities specifically excavations, bulk sampling, trenching	Invasive prospecting Phase	- Cease work in the vicinity of the heritage feature find; - Demarcate the area with barrier tape/other visible means; - Report the find to the South African Heritage Resources Agency (SAHRA) and Limpopo Provincial Heritage Resources Agency (LIHRA) immediately; - Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures.	Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures. Compliance with NHRA 25 of 1999.	Invasive prospecting Phase
Noise	During drilling,	Invasive	- Limit invasive activities to day time from 07h00	Maintain a Complaints	Invasive prospecting

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
	trenching an bulk sampling noise will be generated from use of drilling and excavation machinery and vehicles travelling in the project site	prospecting Phase	to 17h30; - Ensure all machinery, drilling and excavation equipment are well maintained; - Comply with noise limits as set out in SANS 10103 of 2008 which set out noise level limits for rural districts at 45dBL (daytime) and 35dBL (nighttime); - Provide employees with earplugs to protect their ears (PPE); - Notify affected communities and SANDF where they can lodge a noise compliant prior to commencement of prospecting activities; - Generators must be switched off when not in use; - Regular maintenance of vehicles and equipment is required. Repair and attend to worn and broken equipment.	Register Comply with Section 34 of NEM: AQ 39 of 2004. Comply with Environmental Health and Safety Regulations (noise level guidelines) SANS 10103 of 2008 (noise levels).	Phase
Air Quality & Dust	Site establishment through vegetation clearance, drilling, prospecting activities including entrained dust from vehicle movement on gravel roads	Invasive prospecting Phase	- Do not undertake drilling, trenching and bulk sampling activities during high winds which can carry dust far offsite; - Ensure that drill equipment is equipped with appropriate dust suppression system; - Apply wet dust suppression where necessary to manage dust emissions from vehicle movement (avoid excessive wetting which can result in erosion) - Control vehicle speeds along unpaved roads	Main Complaints Register Comply with Section 32 of NEM: AQ 39 of 2004. Comply National Dust Control Regulations of 2013.	Invasive prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			40km/hour. - Comply with National Dust Control Regulations of 2013 (acceptable dustfall rate for rural area of < 1200mg/m2/day).		
Visual Impact (exposed soils, presence of machinery)	Site clearance, establishment of site camp and prospecting activities as well as presence of machinery	Invasive prospecting Phase	- Implement concurrent rehabilitation of drill, trench and bulk sampling sites - Implement good house keep rules at each drill and sampling site - Limit target site footprints to a narrow strip to minimise vegetation clearance and exposed areas	Adherence to Closure and Rehabilitation Plan.	
Land Use (impact daily military training activity)	Prospecting within military training and border control area. Prospecting activities within UXO contaminated area.	Invasive prospecting Phase	- Identified target sites must be made safe for prospecting activities due to existence of unexploded ordnance; (land clearance) - MOU between SANDF and SAMIN on method statement for prospecting within military zone - Alternatively request military aide when prospecting target areas within unsafe zones; - Alternatively reposition target areas outside the unsafe zones	Adherence to Defence Act 42 of 2002.	Site Planing (prior to establishment or invasive activities)
Land use impact (declared	Prospecting activities within protected area	Invasive prospecting	- Minimise removal of vegetation, where possible work on barren parts of site; - Rehabilitate and re-vegetate denuded areas as	Compliance with NEMPA 57 of 2003.	Site Planning & Invasive Prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
nature reserve)		Phase	soon as possible - The north-eastern section of the study site must be regarded as a no-go zone for prospecting activities due to its unique habitat; Implement all mitigation measures proposed for Aquatic Ecosystems and Ecological identified impacts to minimise the impact on biodiversity onsite - Obtain consent from the MEC of Limpopo Department of Economic Development, Environment & Tourism (LEDET) to prospect in declared nature reserve	Consent from the MEC of Limpopo Department of Economic Development, Environment & Tourism (LEDET) to prospect in declared nature reserve. Adherence to Closure and Rehabilitation Plan Comply with biodiversity management requirements in terms of NEM: BA 10 of 2004.	
Groundwater	Use of fuel and hydrocarbons during prospecting activities may result in spillages from vehicles and storages which infiltrate	Invasive prospecting Phase	- Storage fuel, oil and chemicals safely in designated areas - Provide drip trays for standing equipment - Clean up hydrocarbon spillages - Inspect vehicles and machinery on a daily basis for fuel and oil leakages.	Implement water management measures as per GNR 704 of 1999. Section 19, 20 of NWA 36 of 1998.	Invasiv Prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
	groundwater			Environmental Inpsection	
Surface Water	Waste disposal, use of fuels, chemicals and hydrocarbons during prospecting activities and at site camp	Invasive prospecting Phase	- Restrict bulk sampling to designated areas - Uphold the 50m buffer zone from wetland and riparian zones as no go zones for prospecting. Target area 21 must be omitted from the identified target areas; - Location ablution facilities outside buffer zones - Control run off and erosion from prospecting target areas - Collect and treat dirty water from prospecting operations - Storage fuel, oil and chemicals safely in designated areas - Provide drip trays for standing equipment - Clean up hydrocarbon spillages - Implement proper waste disposal - Implement concurrent rehabilitation and landscape rehabilitated target areas to mimic pre-prospecting contours	Compliance of prospecting footprint areas as per Composite Map. Implement water management measures as per GNR 704 of 1999. Section 19, 20 of NWA 36 of 1998. Environmental Inpsection Adherence to Closure and Rehabilitation Plan	Invasive prospecting Phase
Surface & Groundw	Abstration of water for human	Invasive prospecting	- No water may be abstracted from any surface water body unless permitted. A Water Use License needs to be obtained from DWS for the	Obtain a Water Use license from DWS for	Site Planning Invasive Prospecting

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
ater	consumption from existing boreholes and abstraction of raw water from Limpopo River for drill operations	Phase	raw water abstraction from Limpopo River - Monitor water consumption and ensure that all possible use is accounted for ; - Ensure water abstraction points do not degrade or erode	Section 21 (a) water use to abstract raw water from Limpopo River. Implement water management measures as per GNR 704 of 1999.	Phase
Traffic	Increased traffic due to prospecting vehicles, machinery using local gravel roads. Prospecting crew will set up site camp at the old graphite mine which the main focus for prospecting. This will restrict the need for excessive movement of vehicles and machinery in the	Invasive prospecting Phase	- Limit unnecessary vehicle movement - Reduce vehicle speeds in highly vegetated areas, 40km/hr speed limit; - Relocation of prospecting machinery must not be undertaken during peak traffic times along main gravel roads	Compliance with provincial road regulations, bylaws.	Invasive Prospecting Phase Decommissioning Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
	study site				
Safety Risk for prospecting crew (existence of unexploded ordnances)	During prospecting activities (excavations, pitting and drilling) in military zone contaminated with unexploded ammunition.	Invasive prospecting Phase	- Land Clearance: Sweep the specific areas targeted for prospecting including site camp for unexploded ordnance to make the area safe for prospecting activities; - Obtain consent from Minister of Defence Force to prospect in the restricted military zone - Restrict prospecting activities to declared safe areas, demarcated works area as per land clearance undertaken;	Comply with Defence Act 42 of 2002	Site Planning Invasive Prospecting Phasse
Crime	Risk of increased crime due to presence of machinery, batteries and fuel onsite which are resources that attract thieves.	Invasive prospecting Phase	- Establish a fenced off site camp at Gumbu Mine and establish temporary camps at trenching, drilling and sampling sites - Security lights can be installed at site camp and temporary camp sites with the addition of security guards;	Compliance with Mine Health and Safety Act 29 of 1996	Invasive prospecting Phase
Crime & Safety	Presence of external contractors at site and within local communities	Invasive prospecting Phase	- Contractors would be not be allowed near villages and would be accommodated within the prospecting crew site camp at the old Gumbu Mine; - Ensure that employment criterion for the prospecting crew be made public in advance to		Invasive prospecting Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			deter unqualified job seekers from moving into the area; - Employ as far as possible, local labour during the prospecting phase		
Socio-economic	Increased traffic and prospecting activities in livestock grazing areas may increase the livestock mortalities including livestock falling into pit areas directly affecting community member livelihoods	Invasive prospecting Phase	- Communicate with respective communities regarding grazing of livestock in prospecting target areas and request that these areas are avoided during invasive activities; - Fence off sampling sites/demarcate sampling sites to restrict access by public and livestock; - Implement concurrent rehabilitation	Adherence to Closure and Rehabilitation Plan. Continuous engagement with community/stakeholders; Comply with Mine Health and Safety Act 26 of 1996.	Invasive prospecting Phase
Soil, Groundwater and Surface Water (contamination of soil and erosion)	Use of fuel, chemicals, hydrocarbons,disposal practice and open boreholes as well as erosion from respreading of topsoil before vegetation has re-	Decommission & Rehabilitation Phase	- All fuel storage tanks will be emptied prior to removal; - Drill holes must be permanently capped as soon as possible to eliminate risk of groundwater contamination; - Wastes will be removed and disposed of at a licensed landfill site and recyclables will be taken to a licenced recycling facility; - No activities are to be undertaken neither within the north-eastern section of the project site nor	Adherence to Closure and Rehabilitation Plan. Comply with water management measures as per GNR 704 of 1999 under NWA 36 of 1998.	Decommissioning, Rehabilitation and Closure Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
	established		within 50m buffer zones upheld to wetland and riparian zones. These areas are regarded as no go zones for prospecting activities. - If erosion has occurred, usable soil should be sourced and replaced and shaped to reduce the recurrence of erosion; - Keep grazers out of rehabilitated areas, if possible, until suitable vegetation cover has established. - Progressive monitoring must take place rehabilitated areas must take place		
Fauna & Flora	Decommissioning and rehabilitation of prospecting target areas and infrastructure which include removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	Decommission & Rehabilitation Phase	- Limit bush clearing and conduct concurrent rehabilitation with follow-up inspections to decide effectiveness of rehabilitation steps undertaken - Use existing tracks and roads as far as possible; - Avoid damage to indigenous vegetation and species of conservation concern (large protected trees) whilst removing prospecting infrastructure; - Close drill holes, trenches as soon as possible after drilling and sampling activities have completed to avoid risk of fauna or livestock falling into open drill holes, trenches; - Drill holes must be permanently capped and trenches backfilled as soon as possible after	Adherence to Closure and Rehabilitation Plan.	Decommissioning, Rehabilitation and Closure Phase

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			sampling and testing is completed at prospecting sites		
Flora	Poor vegetation re growth post decommissioning and re habilitation of target areas. Establishment of alien vegetation during re-vegetation of disturbed areas.	Decommission & Rehabilitation Phase	- Rehabilitate pits, trenches and bulk sampling sites immediately after sampling, concurrent rehabilitation, do not wait until the end to rehabilitate; - Revegetation of disturbed areas will be undertaken immediately after prospecting activities; - Keep topsoil for rehabilitation to promote effective re vegetation - Keep topsoil separate from other materials (overburden or waste materials). Monitor re vegetated areas - Remove all alien vegetation from the site which has established on newly exposed soils; - Eradicate alien vegetation during the lifecycle of the project and monitor post-rehabiitation;	Adherence to Closure and Rehabilitation Plan.	Decommissioning, Rehabilitation and Closure Phase
Noise	Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise	Decommission & Rehabilitation Phase	- Activities are to take place during daytime period 07h00 to 17h00;	Adherence to Closure and Rehabilitation Plan	Decommissioning, Rehabilitation and Closure Phase
Air Quality &	Dust emissions from decommissioning	Decommission & Rehabilitation	- Wet dust suppression will be undertaken to manage entrained dust emissions from vehicle	Adherence to Closure and Rehabilitation Plan	Decommissioning, Rehabilitation and

1.5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ASPECT	ACTIVITY	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
Dust (vehicle entrained dust, from denuded areas)	and rehabilitation activities such as removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas	Phase	movement on gravel roads and at target areas when necessary; - Implement concurrent rehabilitation and revegetate disturbed areas.		Closure Phase
Traffic	Increased traffic along main gravel route during decommissioning and rehabiitation of prospecting sites and increased traffic on R525 Punda Maria road when equipment is removed and tranported off site	Decommission & Rehabilitation Phase	- Limit unnecessary vehicle movement - Relocation of prospecting machinery must not be undertaken during peak traffic times along main gravel roads and regional roads	Adherence to Closure and Rehabilitation Plan Provision road regulations and by-laws.	Decommissioning, Rehabilitation and Closure Phase

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
Stockpiling of topsoil following site preparation and excavations for drilling, trenching and bulk sampling	Loss of topsoil resource	Soil	Site Preparation and Invasive Prospecting	Control	Prevent loss of topsoil Enough soil, of adequate quality is available for rehabilitation to support vegetation growth to ensure successful rehabilitation.
Estalishment of prospecting sites, site camp, vehicle traffic, material storage	Soil erosion and soil compaction by heavy vehicles, contamination with oil, fuel and hydrocarbon spillages	Soil	Invasive Prospecting Phase	Remedy	Remedy impact on soils by remedying soil erosion and compaction. Indigenous vegetation will be re-instated on disturbed areas to curb erosion of soil and maintain biodiversity
Generation, storage and disposal of waste	Contaminate soil due to improper disposal	Soil Resources (contamination of soil due to improper waste disposal	Invasive prospecting Phase	Control	Control and minimise impact on soil resources
Clearing of vegetation and topsoil as site preparation for prospecting sites, site camp and bulk sampling	Loss of Habitat	Fauna & Flora	Invasive prospecting Phase	Control	Minimise and control impact on fauna & Flora
Site establishment for site camp and prospecting activities	Loss of sensitive species	Fauna & Flora	Invasive prospecting Phase	Control	Minimise the impact on conservation important species of fauna & flora
Site clearance for drill, trench, sampling sites as well as camp site	Impact on habitat connectivity and Open Space	Fauna & Flora	Invasive prospecting Phase	Control	Minimise the impact on habitat connectivity and open space and ecological important corridors

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
establishment					
Estalishment of access tracks and driving off existing tracks	Destruction & Damage to fauna & flora	Fauna & Flora	Invasive prospecting Phase	Control	Minimise destruction and damage on fauna and flora
Direct contact with prospecting equipment, supplies (vehicle, dozers, chemicals, waste)	noise result in animals to vacate area, possible faunal fatalities	Fauna	Invasive prospecting Phase	Control	Minimise disturbance of fauna
Establishment of site camp, drilling pads, excavations and bulk sampling sites as well as operation thereof.	Risk of contamination of aquatic ecosystems from hydrocarbon spillages, oil and fuel.	Aquatic Ecosystems	Invasive prospecting Phase	Remedy	Avoid, prevent/reduce, clean up of spillages from fuel, fuel and chemicals. Minimise the impact on aquatic ecosystems. Protect water sources/aquatic ecosystems in line with National Water Act of 1998 and Mine Water Regulations of GN 704.
Prospecting activities within unique habitat (wetland, possible forests) in northeastern section of site upstream of Makuleke Wetland	Impact on ramsar wetland function	Aquatic Ecosystems	Invasive prospecting Phase	Stop/Avoidance	Avoid and stop any potential impact on the Makuleke Wetland function. Protect water sources/aquatic ecosystems in line with National Water Act of 1998 and Mine Water Regulations of GN 704.
Creation and clearing of target areas including vehicle movement	Soil erosion and sediment deposition into aquatic ecosystems	Aquatic Ecosystem	Invasive prospecting Phase	Control	Control erosion and sedimentation into aquatic ecosystems and minimise impact on function of ecosystem
Site preparation, site camp establishment and	Impact on heritage sites older than 60 years	Heritage & Cultural Resources	Invasive prospecting Phase	Control	Prevent damage and loss of heritage resources

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
prospecting activites at old Gumbu Graphite Mine	(mine remnants)				
Site preparation, vegetation clearing and prospecting activities.	Potential damage to graves, stonewalls, historic homesteads, sacred pools and cultural ritual sites,	Heritage & Cultural Resources	Invasive prospecting Phase	Control	Prevent damage and loss of heritage resources
Site preparation, vegetation clearing and prospecting activities within eastern section of study site (inaccessible during April 2018 survey)	damage to heritage sites in unexplored areas may result in conflict with local community	Heritage & Cultural Sites	Invasive prospecting Phase	Control	Prevent damage and loss of heritage resources and avoid conflict with local community
Prospecting activities specifically excavations, bulk sampling, trenching	Damage to cultural and heritage features due to unearthing chance finds	Heritage & Cultural Resources	Invasive prospecting Phase	Remedy	Prevent any damage or loss to heritage resources, rectify removal/damage caused
During drilling, trenching an bulk sampling noise will be generated from use of drilling and excavation machinery and vehicles travelling in the project site	Increased noise levels may cause nuisance to communities, SANDF activities	Noise	Invasive prospecting Phase	Control	Minimise noise levels from invasive prospecting activities on receptors.
Site establishment through vegetation clearance, drilling, prospecting activities including	Wind blown dust from bare target areas, vehicle entrained dust may cause nuisance to	Air Quality & Dust	Invasive prospecting Phase	Control	Control and minimise dust emissions from prospecting activities including vehicle entrained dust on receptors

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
entrained dust from vehicle movement on gravel roads	community and SANDF.				
Site clearance, establishment of site camp and prospecting activities as well as presence of machinery	Unsightly views due to exposed soils and presence of machinery onsite	Visual Impact (exposed soils, presence of machinery)	Invasive prospecting Phase	Remedy	Reinstate the pre-prospecting land use and integrity of target areas to natural/conservation
Prospecting within military training and border control area. Prospecting activities within UXO contaminated area.	Impact on daily military training activities within Madimbo Corridor	Land Use	Invasive prospecting Phase	Control	Minimise the impact on land use
Prospecting activities within protected area	Impact on biodiversity	Land use impact	Invasive prospecting Phase	Remedy	Minimise the impact on the nature reserve and its biodiversity
Use of fuel and hydrocarbons during prospecting activities	Groundwater contamination from fuel and hydrocarbons spillages from vehicles and storages which infiltrate groundwater	Groundwater	Invasive prospecting Phase	Control and Remedy	Prevent, avoid, minimise impact on groundwater
Waste disposal, use of fuels, chemicals and hydrocarbons during prospecting activities and at site camp	Impact on surface water quality by poor storage of chemicals, fuel spills, unappropriate waste disposal	Surface Water	Invasive prospecting Phase	Remedy	Minimise the impact on surface water

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
Abstration of water for human consumption from existing boreholes and abstraction of raw water from Limpopo River for drill operations	Depletion of natural resource	Surface & Groundwater	Invasive prospecting Phase	Control	Minimise and control water consumption and reduce impact on natural resource
Increased traffic due to prospecting vehicles, machinery using local gravel roads.	Increased traffic on gravel roads and R525 Punda Maria Road	Traffic	Invasive prospecting Phase	Control	Minimise traffic volumes on gravel and local roads
During prospecting activities (excavations, pitting and drilling) in military zone with unexploded ammunition may be unearthed and detonated	Detonation of unexploded ordnance resulting in serious injury or death of prospecting crew	Safety Risk	Invasive prospecting Phase	Stop, Avoid	Stop, prevent safety risk
Risk of increased crime due to presence of machinery, batteries and fuel onsite which are resources that attract thieves.	Theft of prospecting equipment and resources, increased crime on study site	Crime	Invasive prospecting Phase	Stop/Avoid	Stop, avoid criminal incidents
Presence of external contractors at site and within local communities	Risk for violent crimes against woman	Crime & Safety	Invasive prospecting Phase	Stop/Avoid	Stop, avoid, prevent violent crimes against woman
Increased traffic and	Livestock mortalities	Socio-economic	Invasive	Stop/Avoid	Avoid, prevent any livestock mortalities

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
prospecting activities in livestock grazing areas	including livestock falling into pit areas directly affecting community member livelihoods		prospecting Phase		
Use of fuel, chemicals, hydrocarbons,disposal practice and open boreholes as well as erosion from respreading of topsoil before vegetation has re-established	Contamination of soils and soil erosion	Soil, Groundwater and Surface Water (contamination of soil and erosion)	Decommission & Rehabilitation Phase	Control & Remedy	Prevent and minimise impact on soil resources, ground and surface water
Decommissioning and rehabilitation of prospecting target areas and infrastructure which include removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	Destruction and or damage to Fauna & Flora	Fauna & Flora	Decommission & Rehabilitation Phase	Remedy	Minimise the impact on fauna & flora
Poor vegetation re growth post decommissioning and re habilitation of target	Degradation of ecology	Flora	Decommission & Rehabilitation	Control & Remedy	Minimise the impact on flora

1.6 IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECT AFFECTED	PHASE	MITIGATION TYPE	STANDARD ACHIEVED/ OUTCOME
areas. Establishment of alien vegetation during re-vegetation of disturbed areas.			Phase		
Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise	Increased noise levels causing a nuisance to SANDF and communities	Noise	Decommission & Rehabilitation Phase	Control	Minimise noise levels
Dust emissions from decommissioning and rehabilitation activities such as removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas	Nuisance impact to communities and SANDF due to entrained vehicle dust and wind blown dust from denuded areas	Air Quality & Dust	Decommission & Rehabilitation Phase	Control	Minimise the impact on air quality
Decommissioning and rehabiitation of prospecting sites and and removal of equipment when tranported off site	Increased traffic along main gravel route and R525 Punda Maria Road	Traffic	Decommission & Rehabilitation Phase	Control	Minimise traffic volumes on local gravel road and R525 Punda Maria Road

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
Stockpiling of topsoil following site preparation and excavations for drilling, trenching and bulk sampling	Loss of topsoil resource	Control	Site Preparation and Invasive Prospecting	Rehabilitation of study site in terms of NEMA and MPRDA. Biodiversity and alien invasive management in accordance with the NEM: Biodiversity Act of 2004. Mine Water management in line with Mine Water Regulations- Regulation 7 of GNR 704 of 1999
Estalishment of prospecting sites, site camp, vehicle traffic, material storage	Soil erosion and soil compaction by heavy vehicles, contamination with oil, fuel and hydrocarbon spillages	Remedy	Invasive Prospecting Phase	Rehabilitation of study site in terms of NEMA and MPRDA.
Generation, storage and disposal of waste	Contaminate soil due to improper disposal	Control	Invasive prospecting Phase	Rehabilitation of study site in terms of NEMA and MPRDA. NEM: WA 59 of 2008-Chapter 4, Section 16, Section 27 CARA Act 43 of 1983- Section 19. ECA Act 73 of 1989 – Section 20 Mine Water Regulations of GNR 704 of 1999
Clearing of vegetation and topsoil as site preparation for prospecting sites, site camp and bulk sampling	Loss of Habitat	Control	Invasive prospecting Phase	An Ecologist / qualified specialist must be appointed before any site preparation or removal of vegetation. Permits must be obtained from DAFF and LEDET for removal/ destruction of any species of conservation

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
				concern. Comply with restrictions to sensitive areas as set out on Composite Map. Adherence to the Closure and Rehabilitation Plan. Biodiversity and alien invasive management in accordance with the NEM: Biodiversity Act of 2004, GN 78 of 2014 and GN 37886 of 2014, GNR 598 of 2014. Mining and Biodiversity Guideline of 2013.
Site establishment for site camp and prospecting activities	Loss of sensitive species	Control	Invasive prospecting Phase	Appoint a qualitified specialist prior to removal of any fauna or flora, protected tree species. Permits must be obtained from DAFF and LEDET for removal/ destruction of any species of conservation concern. Adherence to the Closure and Rehabilitation Plan. Section 15 (1) National Forest Act, (Act 84 of 1998) Biodiversity management in terms of NEMBA of 2004-

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
				Section 56 LEMA Act 7 of 2003 –Section 8, 11 & 12
Site clearance for drill, trench, sampling sites as well as camp site estalishment	Impact on habitat connectivity and Open Space	Control	Invasive prospecting Phase	Adherence to the Closure and Rehabilitation Plan. Biodiversity management in terms of NEMBA of 2004- Section 56 Mining and Biodiversity Guideline of 2013.
Estalishment of access tracks and driving off existing tracks	Destruction & Damage to fauna & flora	Control	Invasive prospecting Phase	Adherence to the Closure and Rehabilitation Plan. Rehabilitation in terms of MPRDA and NEMA.
Direct contact with prospecting equipment, supplies (vehicle, dozers, chemicals, waste)	noise result in animals to vacate area, possible faunal fatalities	Control	Invasive prospecting Phase	Adherence to Closure and Rehabilitation Plan. Water management requirements with NW GN 704 of 1999. Biodiversity management in terms of NEMBA of 2004
Establishment of site camp, drilling pads, excavations and bulk sampling sites as well as operation thereof.	Risk of contamination of aquatic ecosystems from hydrocarbon spillages, oil and fuel.	Remedy	Invasive prospecting Phase	Section 19 of NWA 36 of 1998 Water management in terms of GNR 704 of 1999 under NWA 36 of 1998. Operational Control Procedures Regular Environmental Inspection,

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
				Incident reporting and handling.
Prospecting activities within unique habitat (wetland, possible forests) in northeastern section of site upstream of Makuleke Wetland	Impact on ramsar wetland function	Stop/Avoidance	Invasive prospecting Phase	Comply with no-go areas for prospecting as set out on Composite Map.
Creation and clearing of target areas including vehicle movement	Soil erosion and sediment deposition into aquatic ecosystems	Control	Invasive prospecting Phase	Adherance to Closure and Rehabilitation Plan. Water management as per requirements of GN 704 of 1999. NEM: WA 59 of 2008-Chapter 4, Section 16, Section 27.
Site preparation, site camp establishment and prospecting activites at old Gumbu Graphite Mine	Impact on heritage sites older than 60 years (mine remnants)	Control	Invasive prospecting Phase	A Heritage Specialist must be appointed to map and document heritage sites if they are to be affected by prospecting. Compliance with NHRA 25 of 1998.
Site preparation, vegetation clearing and prospecting activities.	Potential damage to graves, stonewalls, historic homesteads, sacred pools and cultural	Control	Invasive prospecting Phase	Comply with Composite Map in terms of buffer zones applied to heritage sites (at 50m). Comply with Section 35 and 36 of NHRA 25 of 1998.

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
	ritual sites,			
Site preparation, vegetation clearing and prospecting activities within eastern section of study site (inaccessible during April 2018 survey)	damage to heritage sites in unexplored areas may result in conflict with local community	Control	Invasive prospecting Phase	Comply with Composite Map in terms of buffer zones applied to heritage sites (at 50m buffer area). Comply with Section 35 and 36 of NHRA 25 of 1998.
Prospecting activities specifically excavations, bulk sampling, trenching	Damage to cultural and heritage features due to unearthing chance finds	Remedy	Invasive prospecting Phase	Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures. Compliance with NHRA 25 of 1999.
During drilling, trenching an bulk sampling noise will be generated from use of drilling and excavation machinery and vehicles travelling in the project site	Increased noise levels may cause nuisance to communities, SANDF activities	Control	Invasive prospecting Phase	Maintain a Complaints Register Comply with Section 34 of NEM: AQ 39 of 2004. Comply with Environmental Health and Safety Regulations (noise level guidelines) SANS 10103 of 2008 (noise levels).
Site establishment through vegetation clearance, drilling, prospecting activities including entrained dust from vehicle movement on gravel roads	Wind blown dust from bare target areas, vehicle entrained dust may cause nuisance to community and SANDF.	Control	Invasive prospecting Phase	Main Complaints Register Comply with Section 32 of NEM: AQ 39 of 2004. Comply National Dust Control Regulations of 2013.
Site clearance, establishment of	Unsightly views due to	Remedy	Invasive	Adherence to Closure and Rehabilitation Plan.

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
site camp and prospecting activities as well as presence of machinery	exposed soils and presence of machinery onsite		prospecting Phase	
Prospecting within military training and border control area. Prospecting activities within UXO contaminated area.	Impact on daily military training activities within Madimbo Corridor	Control	Invasive prospecting Phase	Adherence to Defence Act 42 of 2002.
Prospecting activities within protected area	Impact on biodiversity	Remedy	Invasive prospecting Phase	Compliance with NEMPA 57 of 2003. Consent from the MEC of Limpopo Department of Economic Development, Environment & Tourism (LEDET) to prospect in declared nature reserve. Adherence to Closure and Rehabilitation Plan Comply with biodiversity management requirements in terms of NEM: BA 10 of 2004.
Use of fuel and hydrocarbons during prospecting activities	Groundwater contamination from fuel and hydrocarbons spillages from vehicles and storages which infiltrate groundwater	Control and Remedy	Invasive prospecting Phase	Implement water management measures as per GNR 704 of 1999. Section 19, 20 of NWA 36 of 1998. Environmental Inpsection
Waste disposal, use of fuels, chemicals and hydrocarbons	Impact on surface water quality by poor storage of	Remedy	Invasive prospecting Phase	Compliance of prospecting footprint areas as per Composite Map.

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
during prospecting activities and at site camp	chemicals, fuel spills, unappropriate waste disposal			Implement water management measures as per GNR 704 of 1999. Section 19, 20 of NWA 36 of 1998. Environmental Inpsection Adherence to Closure and Rehabilitation Plan
Abstration of water for human consumption from existing boreholes and abstraction of raw water from Limpopo River for drill operations	Depletion of natural resource	Control	Invasive prospecting Phase	Obtain a Water Use license from DWS for Section 21 (a) water use to abstract raw water from Limpopo River. Implement water management measures as per GNR 704 of 1999.
Increased traffic due to prospecting vehicles, machinery using local gravel roads.	Increased traffic on gravel roads and R525 Punda Maria Road	Control	Invasive prospecting Phase	Compliance with provincial road regulations, bylaws.
During prospecting activities (excavations, pitting and drilling) in military zone with unexploded ammunition may be unearthed and detonated	Detonation of unexploded ordnance resulting in serious injury or death of prospecting crew	Stop, Avoid	Invasive prospecting Phase	Comply with Defence Act 42 of 2002
Risk of increased crime due to presence of machinery, batteries and fuel onsite which are	Theft of prospecting equipment and resources, increased crime on study	Stop/Avoid	Invasive prospecting Phase	Compliance with Mine Health and Safety Act 29 of 1996

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
resources that attract thieves.	site			
Presence of external contractors at site and within local communities	Risk for violent crimes against woman	Stop/Avoid	Invasive prospecting Phase	
Increased traffic and prospecting activities in livestock grazing areas	Livestock mortalities including livestock falling into pit areas directly affecting community member livelihoods	Stop/Avoid	Invasive prospecting Phase	Adherence to Closure and Rehabilitation Plan. Continuous engagement with community/stakeholders; Comply with Mine Health and Safety Act 26 of 1996.
Use of fuel, chemicals, hydrocarbons,disposal practice and open boreholes as well as erosion from respreading of topsoil before vegetation has re-established	Contamination of soils and soil erosion	Control & Remedy	Decommission & Rehabilitation Phase	Adherence to Closure and Rehabilitation Plan. Comply with water management measures as per GNR 704 of 1999 under NWA 36 of 1998.
Decommissioning and rehabilitation of prospecting target areas and infrastructure which include removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	Destruction and or damage to Fauna & Flora	Remedy	Decommission & Rehabilitation Phase	Adherence to Closure and Rehabilitation Plan.
Poor vegetation re growth post	Degradation of ecology	Control &	Decommission &	Adherence to Closure and Rehabilitation Plan.

1.7 IMPACT MANAGEMENT ACTIONS

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	PHASE	COMPLY WITH STANDARDS
decommissioning and re habilitation of target areas. Establishment of alien vegetation during re-vegetation of disturbed areas.		Remedy	Rehabilitation Phase	
Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise	Increased noise levels causing a nuisance to SANDF and communities	Control	Decommission & Rehabilitation Phase	Adherence to Closure and Rehabilitation Plan
Dust emissions from decommissioning and rehabilitation activities such as removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas	Nuisance impact to communities and SANDF due to entrained vehicle dust and wind blown dust from denuded areas	Control	Decommission & Rehabilitation Phase	Adherence to Closure and Rehabilitation Plan
Decommissioning and rehabiitation of prospecting sites and and removal of equipment when tranported off site	Increased traffic along main gravel route and R525 Punda Maria Road	Control	Decommission & Rehabilitation Phase	Adherence to Closure and Rehabilitation Plan Provision road regulations and by-laws.

2 FINANCIAL PROVISION

2.1 DETERMINATION OF THE AMOUNT OF FINANCIAL PROVISION

2.1.1 Describe the closure objectives and extent to which they have been aligned to the baseline environment

The current pre-prospecting state of the study site is natural with indigenous vegetation in pristine condition as summarised by the Ecological Impact Assessment Report for the study site under Appendix 4A. The area at the old Gumbu Graphite Mine on the western section of the study site is disturbed. The study site is also a declared nature reserve presently used by the SANDF as a military training zone. The community also use sections of the site for livestock grazing.

The aim would be to rehabilitate the disturbed prospecting target areas to their natural state for conservation/grazing. The closure objectives are described under Section 1.4.1 of this report as:

- Make all areas safe for humans, wild animals and livestock;
- Prevent soil, surface and groundwater contamination by managing water on site;
- Minimise negative impacts;
- Establish a sustainable cover to prevent erosion and enhance ecological succession;
- Maintain and restore biodiversity levels to provide appropriate habitat for fauna utilisation;
- Not leave any infrastructure onsite;
- Use approved sites for safe disposal of all wastes
- Maintain Traditional Owners access to areas of cultural & heritage significance
- Monitor key environmental variables (i.e. soils, erosion, vegetation, ground and surface water) to demonstrate stability of rehabilitated areas

Based on the 2007 Land Use and Development Plan for Madimbo Corridor rehabilitation and self-generating potential of vegetation in the project area is low owed to the low nutrient status of the soils. It would therefore be imperative to restrict disturbance to an utter minimum, and undertake concurrent rehabilitation as well as final decommissioning and rehabilitation to improve the success of rehabilitation to ensure a safe and stable land use after prospecting for humans and animals.

2.1.2 Confirm that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties

The Closure and Rehabilitation Plan is made available for public review and comment as part of the EIR & EMPr document.

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

A Closure and Rehabilitation Plan is attached under Appendix 7 and includes the Closure Cost.

2.1.4 Explain why it can be confirmed that the Rehabilitation Plan is compatible with the closure objectives

The aim would be to rehabilitate the disturbed prospecting target areas to their natural state for conservation/grazing. The closure objectives aim to achieve this through establishment of a sustainable cover to prevent erosion and enhance ecological succession as well as to maintain and restore biodiversity levels. The study site is also rich in faunal species and used for grazing activities it is therefore essential to make the target areas safe for humans and animals.

The Limpopo River is an important conservation corridor and all sandyriver beds and tributaries on the study site feed into the river. It is therefore essential to uphold the rivers present ecological state and that of the tributaries by preventing any soil, surface or groundwater contamination or ecological degradation.

2.1.5 Calculate and state the quantum of financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline

The project will span over 36 months (3 years). Rehabilitation activities would be conducted concurrently where possible, but final rehabilitation and removal of prospecting infrastructure may require an additional period. The period for which the environmental authorisation should be valid is **5 years** allowing for unexpected rehabilitation and closure activities.

A total of R 254 206 is required to both manage and rehabilitate the environment in respect of rehabilitation.

2.1.6 Confirm that the Financial Provision will be provided as determined

An undertaking will be signed by the applicant, as proof of funds, that finaincial provision will be provided as determined to the DMR.

3 MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE EMPR AND REPORTING THEREON

Regulation 34 of the NEMA EIA Reuglations of 2014 requires that an environmental authorisation, EMPr as well as the Closure Plan is audited and an Environmental Audit Report be submitted to the DMR.

Regulation 55 of the MPRD Regulations of 2004 requires that as part of a prospecting right to ensure compliance with an EMPr and to assess the continued appropriateness and adequacy of the EMPr, a holder of such right must conduct a Performance Assessment Report as stipulated in the approved EMPR or every two years to the DMR. The holder may appoint an independent persion to conduct the performance assessment and compile a performance assessment report.

Regulation 53 of the MPRDA Regultation of 2004 requires that a holder of a prospecting right must annually update and review the quantum of the financial provision and make provision for annual rehabilitation.

SOURCE ACTIVITY	**IMPACTS REQUIRING MONITORING**	**FUNCTIONAL REQUIREMENTS FOR MONITORING**	**ROLES AND RESPONSIBILITIES**	**MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT**
Environmental Audit	The Environmental Authorisation, EMPR as well as Closure Plan for the project must be audited as per Regulation 34 of the NEMA EIA Regulations of 2014. An Environmental Audit Report must be prepared in accordance to Appendix 7 of the same regulations.	An Environmental Audit Report will be submitted to the DMR	An independent person must conduct the audit (external audit). The holder of the prospecting right must appoint the independent EAP to conduct the audit.	Audits must be conducted annually
Annual Rehabilitation Progress Reporting	Regulation 53 of the MPRDA Regultation of 2004 requires that a holder of a prospecting right must annually update and review the quantum of the financial provision and make provision for annual rehabilitation.	An Annual Rehabilitation progress Report will be submitted to the DMR	Environmental Manager	Annually
EMPR Performance Assessment	To ensure compliance with and adequacy of the EMPr a holder must conduct a	An internal performance assessment would be conducted and	Environmental Manager	Every two years

Report	Performance Assessment Report	records kept.		
EMPr Performance Assessment Report	To ensure compliance with and adequacy of the EMPr an external Performance Assessment must be conducted and a Performance Assessment Report prepared as per Regulation 55 of the MPRDA Regulations of 2004.	A Performance Assessment EReport would be compiled by an indepedance consulants and submitted to the DMR	The holder of the prospecting right must appoint an independent EAP to conduct the performance assessment.	Every two years

3.1 INDICATE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT REPORT

The Performance Assessment Report must comply with Appendix 7 of the EIA Regulations of 2014. It is to report on the level of compliance with the conditions of rights/permits, the EMPr and closure plan; also the extent to which impact avoidance is achieved. It will evaluate the effectiveness of the EMPr, identify shortcomings and need for any changes to avoidance, management and mitigation measures provided.

Performance Assessment Reports will be conducted once every two years to measure the prospecting and bulk sampling activities against the approved EMPr.

3.2 ENVIRONMENTAL AWARENESS PLAN

3.2.1 Manner in which applicant intends to inform his/her employees of any environmental risk which may result from their work

Samin will perform environmental training to reduce exposure to liability for environmental degradation caused by errant employees.

Environmental Control Officer (ECO) / responsible person which are to ensure that environmental awareness is carried out at the proposed prospecting site and the environmental awareness plan's objectives are met on an ongoing basis.

The prospecting crew are not informed about the environment and need to be informed of key elements that the EMPr strives to manage:

- Description of the environment and sensitive features;
- Safety risk of prospecting within a military corridor where unexploded ordnance exists;
- Explain simple key concepts;

- Introduce the environment of proposed prospecting right area and adequate management thereof;
- Provide examples of environmental degradation and pollution sources
- Explain the roles and responsibilities of the contractors, employees in managing the environment;
- Devise basic principles to manage the environment
- Indicate laws applicable to the management and protection of the environment;
- Indicate day to day preventative measures to assist elimination of pollution and degradation (presentation is better than cure)

Particular training shall be provided in terms of the environmental features, sensitivities, heritage sites and safety risks present on the study site. The EMPr and Composite Map of the study site would be presented to employees to highlight specific requirements and senstivities.

The appointed person / ECO at the prospecting activities will be responsible to re-evaluate the need for environmental awareness training based on recorded incidents, developing issues and need to improve skills to manage environmental impacts.

3.2.2 Manner in which risks will be dealt with in order to avoid pollution / degradation of the environment

An environmental risk deals with the probability of an event causing a potentially undesirable effect on the environment. It can be defined as an accident causing adverse effects by effluents, emissions, wastes, veld fires, chemical spills and leaks which result from natural, technological or human-induced factors.

The manner in which risks will be dealt with include:

- Contain potential pollutants and contaminants;
- Ensure that handling of potential pollutants and contaminants are conducted in a bunded area on impermeable surfaces;
- Implement the waste management for all waste streams on site;

Where environmental emergencies arise, applicable emergency procedures must be followed. The name of responsible personnel and emergency services shall be available to staff and shall be clearly displayed at the prospecting site and site camp.

The Contractor shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Telephone numbers of emergency services shall be with the Site Officer at all times.

The responsibility of the ECO is;

- Identify problem areas and provide action plans to avoid further environmental damage;
- Review the proposals for pollution control measures and advise on its adequacy;
- Ensure that significant environmental incidents are reported to DWS and DMR.

The contractor is responsible for the practical implementation of the EMPr and will be responsible for reporting the environmental incident/risk to the ECO.

(a) Fire

The contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The mine manager shall ensure that his employees are aware of the procedures to be followed in the event of a fire.

(b) Accidental leaks and spillages

The contractor shall ensure that his employees are aware of the procedures to be followed for dealing with spills and leaks, which shall include notifying the ECO and the relevant authorities. The contractor shall ensure that all the necessary materials and equipment for dealing with spills and leaks are available on Site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the ECO.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated and the spillage contained. The area shall be cordoned off and secured. The contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. Any spills must be cleared and the contaminated soil/sludge disposed of in an appropriate manner, approved by the ECO, or at a licensed hazardous waste disposal site.

(c) Noncompliance with the EMPr or any applicable legislation

(d) Environmental incidents shall be investigated by the competent person and an environmental incident report shall be forwarded to the holder of the prospecting right. Incidents are to be reported to the DWS (relevant catchment management agency) and DMR. The incident report shall be filed within 5 working days.

3.3 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

- The Quantum of Financial Provision will be reviewed annually, updated and submitted to the DMR;
- An Environmental Performance Assessment/Audit Report will be submitted Biennially (every 2 years);
- Environmental Audit will be undertaken and submitted annually

4 UNDERTAKING BY EAP

The EAP confirms,

- The correctness of the information provided in the reports;
- The inclusion of comments and inputs from stakeholders and I&AP's;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and

- 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.

5 UNDERTAKING BY APPLICANT

I,_____, the undersigned and duly authorised hereto by Samin Group Pty Ltd understand the content of this EMPr and undertake to adhere to the conditions set out herein agreed to by the Limpopo Department of Mineral Resources: Regional Manager.

Signed_____on this day _____of 2018.

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