mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT

BASIC ASSESSMENT REPORT
and
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

Name of Applicant	Density Metals (Pty) Ltd
Project	Lagersdrift Prospecting Right Project
Tel No	011 268 5803
Fax No	
Postal Address	Unit 24, 247 Oxford Road Illovo, Gauteng
Physical Address	Unit 24, 247 Oxford Road Illovo, Gauteng
File Reference Numbers SAMRAD	LP 30/1/1/3/2/1/ (13356) EM

February 2019

1) IMPORTANT NOTICE

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

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

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

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

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

2) OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives of these aspects to determine:
  (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  (ii) the degree to which these impacts—
    (aa) can be reversed;
    (bb) may cause irreplaceable loss of resources; and
    (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
  (i) identify and motivate a preferred site, activity and technology alternative;
  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
  (ii) identify residual risks that need to be managed and monitored.

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PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3) CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of;

i) Details of the EAP

Name of the Practitioner:	Nicole Upton
Tel No.:	079 555 2433
Fax No.:	086 648 9734
Postal address:	P.O. Box 32677, Totiusdal, Pretoria, 0134
E-mail address:	nicole@redkiteconsulting.co.za

ii) Expertise of the EAP

(1) The qualifications of the EAP

Refer to Table 1 for a summary of the qualification and experience of the EAP. Refer to Appendix 1 and 2 for more details (CV).

(2) Summary of the EAP's past experience

Table 1: Details of EAP

Environmental Consultants:	Red Kite Environmental Solutions (Pty) Ltd
Postal address:	PO Box 32677, Totiusdal, Pretoria, 0134
Telephone:	079 555 2433
Author:	Nicole Upton
Qualifications:	B.Sc. (Hons) Animal Plant and Environmental Sciences
Professional affiliation(s):	None
Expertise of the EAP:	Ms. Upton has a qualification in B.Sc. (Hons) Animal, Plant and Environmental Sciences (Appendix 1) and has 8 years of applicable experience as a project manager on a number of Environmental Impact Assessments (EIAs) and environmental authorisations for predominately industrial and mining clients in the South African market. Nicole has extensive integrated environmental management experience, including, EIAs, implementation of environmental management programmes, environmental monitoring, compliance auditing and monitoring, project management and general environmental support. Refer to Appendix 2 for further details.
Experience	8 years

b) Location of the overall Activity

Farm Name:	Please refer to the table below for the list of affected properties
Application area (Ha)	9 756.504 ha
Magisterial district:	Middelburg Magisterial District (Sekhukhune District Municipality)
Distance and direction from nearest town	The application area is situated approximately 67 kilometres (km) southeast of Lydenburg in the Limpopo Province of South Africa

21 digit Surveyor General Code for each farm portion

Table 2: List of affected properties

Farm name	Portion	Surveyor general code
1. De Lagersdrift 177	2	T0JS00000000017700002
2. De Lagersdrift 177	3	T0JS00000000017700003
3. De Lagersdrift 177	4	T0JS00000000017700004
4. De Lagersdrift 177	6	T0JS00000000017700006
5. De Lagersdrift 177	9	T0JS00000000017700009
6. De Lagersdrift 177	10	T0JS00000000017700010
7. De Lagersdrift 177	11	T0JS00000000017700011
8. De Lagersdrift 177	12	T0JS00000000017700012
9. De Lagersdrift 178	RE	T0JS00000000017800000
10. De Lagersdrift 178	1	T0JS00000000017800001
11. De Lagersdrift 178	2	T0JS00000000017800002
12. De Lagersdrift 178	3	T0JS00000000017800003
13. De Lagersdrift 178	4	T0JS00000000017800004
14. De Lagersdrift 178	5	T0JS00000000017800005
15. De Lagersdrift 178	6	T0JS00000000017800006
16. De Lagersdrift 178	7	T0JS00000000017800007
17. De Lagersdrift 178	8	T0JS00000000017800008
18. De Lagersdrift 178	9	T0JS00000000017800009
19. De Lagersdrift 178	10	T0JS00000000017800010
20. De Lagersdrift 178	11	T0JS00000000017800011
21. De Lagersdrift 178	12	T0JS00000000017800012
22. De Lagersdrift 178	13	T0JS00000000017800013
23. De Lagersdrift 178	14	T0JS00000000017800014
24. De Lagersdrift 178	15	T0JS00000000017800015
25. De Lagersdrift 178	16	T0JS00000000017800016
26. De Lagersdrift 178	17	T0JS00000000017800017
27. De Lagersdrift 178	18	T0JS00000000017800018
28. De Lagersdrift 178	19	T0JS00000000017800019
29. De Lagersdrift 178	20	T0JS00000000017800020
30. De Lagersdrift 178	21	T0JS00000000017800021
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33. De Lagersdrift 178	24	T0JS00000000017800024
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37. De Lagersdrift 178	29	T0JS00000000017800029
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40. De Lagersdrift 178	32	T0JS00000000017800032
41. De Lagersdrift 178	33	T0JS00000000017800033
42. De Lagersdrift 178	34	T0JS00000000017800034
43. De Lagersdrift 178	35	T0JS00000000017800035
44. De Lagersdrift 178	37	T0JS00000000017800037
45. De Lagersdrift 178	38	T0JS00000000017800038

46. De Lagersdrift 178	39	T0JS00000000017800039	
47. De Lagersdrift 178	40	T0JS00000000017800040	
48. De Lagersdrift 178	41	T0JS00000000017800041	
49. De Lagersdrift 178	42	T0JS00000000017800042	
50. De Lagersdrift 178	43	T0JS00000000017800043	
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53. De Lagersdrift 178	RE/47	T0JS00000000017800047	
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		197. Blaauwbank 179	119	T0JS00000000018700119	
		198. Blaauwbank 179	120	T0JS00000000018700120	
		199. Blaauwbank 179	121	T0JS00000000018700121	
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		201. Swartkoppies 217	12	T0JS00000000021700012	
		202. Swartkoppies 217	22	T0JS00000000021700022	

c) Locality map

Refer to Appendix 3 for the Locality Maps for the project area.

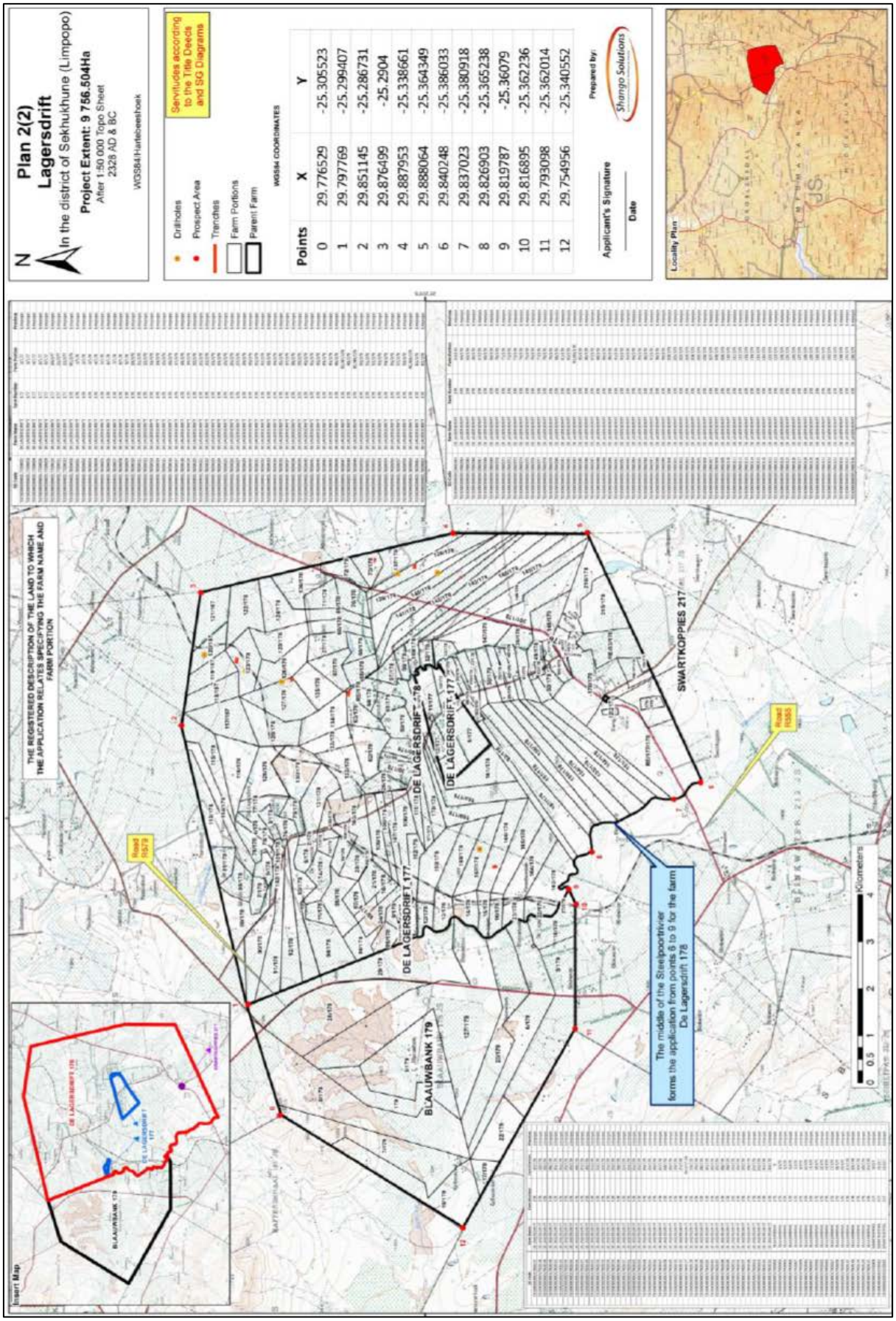


Figure 1: Map of farm portions

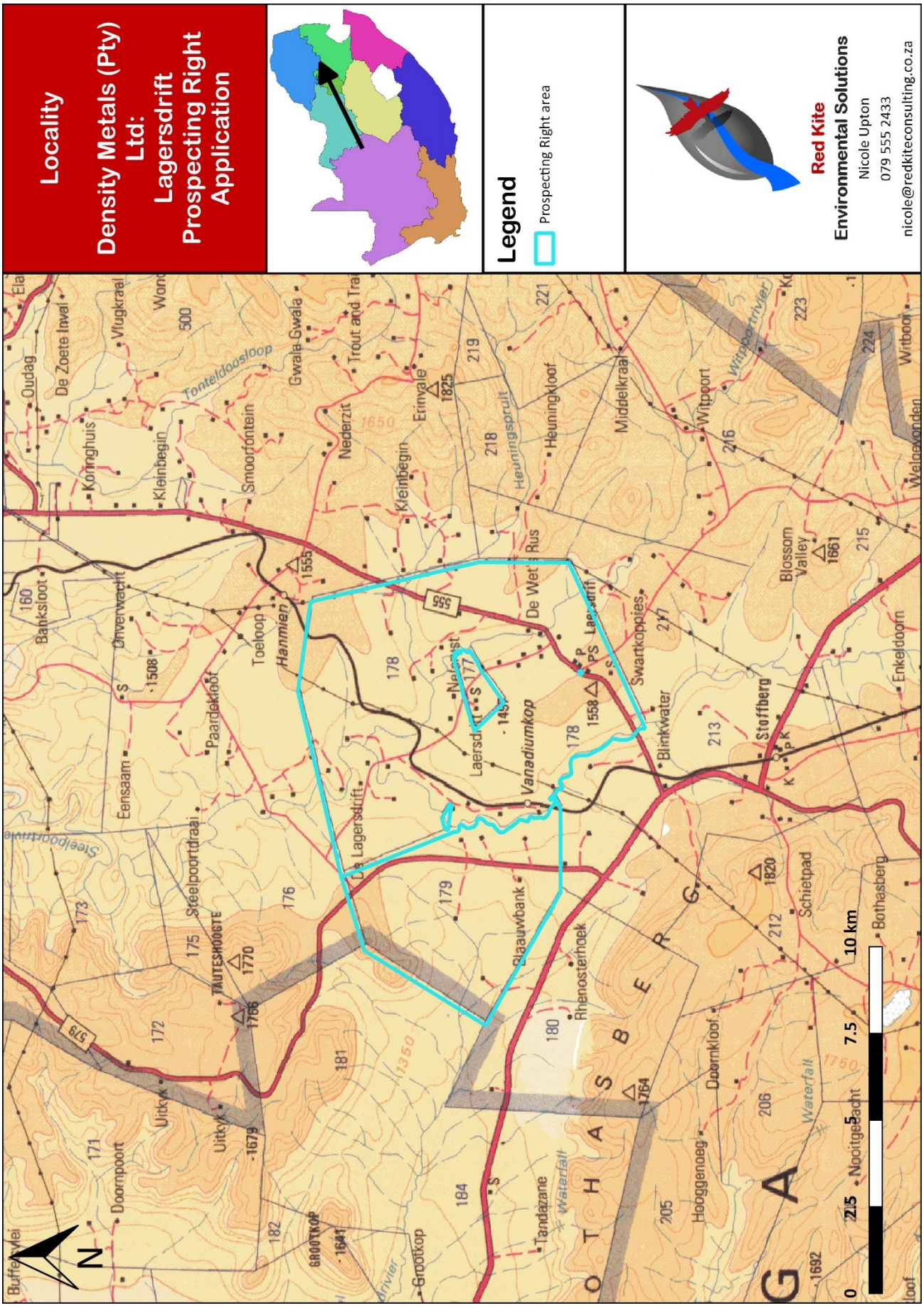


Figure 2: Locality map

d) Description of the scope of the proposed overall activity

Refer to Appendix 4 for the layout maps of the project area.

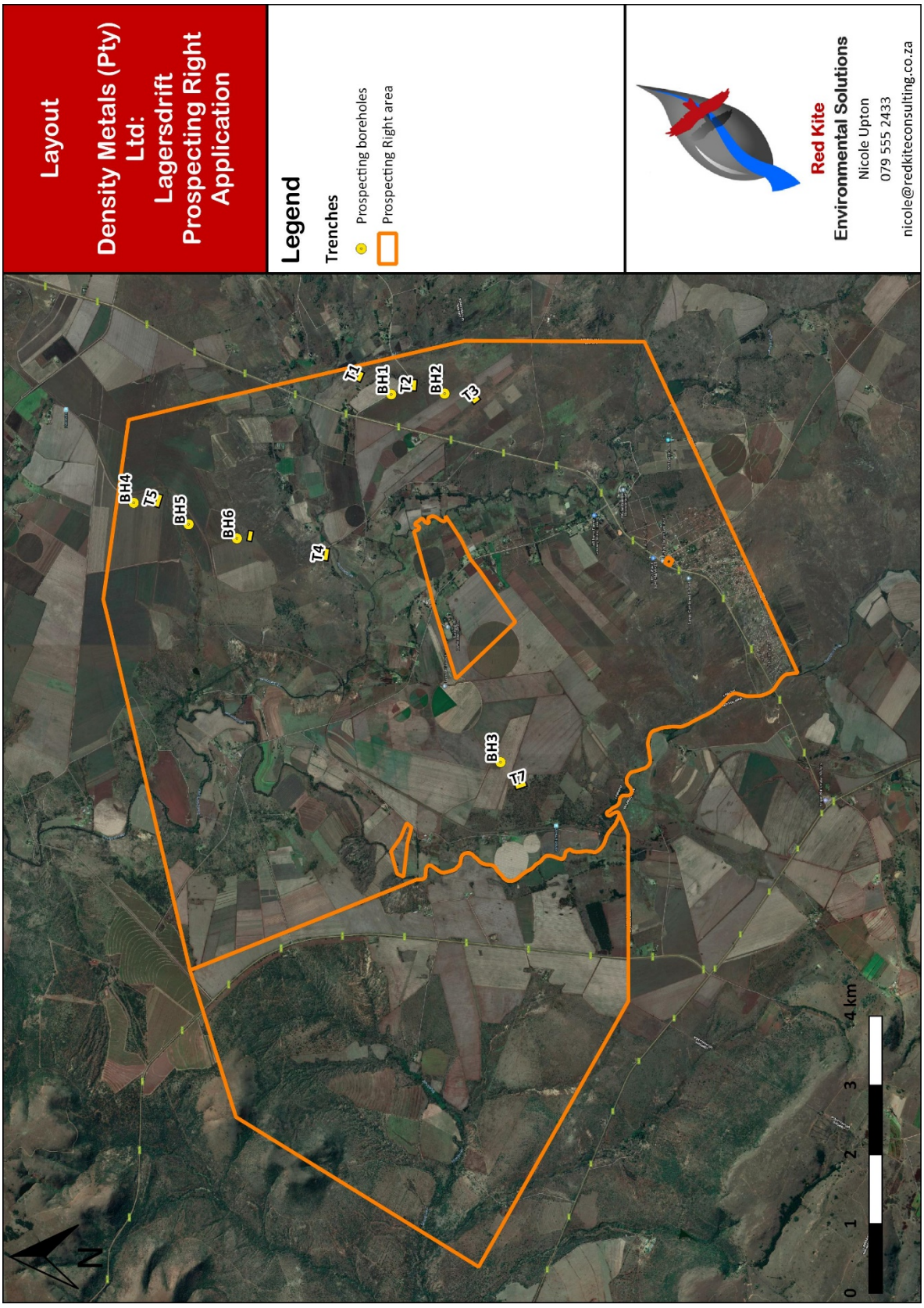


Figure 3: Satellite image of the Prospecting Right area

i) Listed and specified activities

Table 3 Listed and Specified Activities

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 324, GNR325 or GNR 327)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
GNR 327 (Activity No. 20) - Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	Extent of the application area: 9 756.504 ha	X	GNR 327 – Activity No. 20	N/A
GNR 327 (Activity No. 20) - Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	900 m^2	X	GNR 327 – Activity No. 20	N/A

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 324, GNR325 or GNR 327)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Establishment of site camp (30 m x 30 m). Including equipment storage area and ablution facility.				
GNR 327 (Activity No. 20) - Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies. **Excavate 7 trenches (each 50 m long, 2 m wide and 3 m deep). Each trench will disturb an area of 250 m²** **Drill 6 diamond core drillholes to a depth of 50 m each. Each drill site will disturb an area of 10 m x 10 m**	2 350 m²	X	GNR 327 – Activity No. 20	N/A
GNR 327 (Activity No. 22) - The decommissioning of any activity requiring – (i) a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or (ii) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period	3 250 m²	X	GNR 327 – Activity No. 22	N/A

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE *(GNR 324, GNR325 or GNR 327)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure; but excluding the decommissioning of an activity relating to the secondary processing of a – (a) mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource; or (b) petroleum resource, including the refining of gas, beneficiation, oil or petroleum products; – in which case activity 31 in this Notice applies. **Rehabilitation of drillholes, trenches and disturbed areas**				
GNR 327 (Activity No. 27) - The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. **Clearance of vegetation for establishment of drill sites, trenches, site camp, ablution facilities and equipment storage areas**	3 250 m²	N/A	GNR 327 – Activity No. 27	N/A
GN324 (Activity No. 12) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan e. Limpopo	3 250 m²	X	GN324 – Activity No. 12 (e) (ii)	N/A

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 324, GNR325 or GNR 327)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning. **The clearance of 300 m² or more of indigenous vegetation**				

ii) Description of the activities to be undertaken

Density Metals (Pty) Ltd has applied for a Prospecting Right for the following commodities: vanadium, titanium and iron, that may exist within the application area, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002, as amended) (MPRDA). The application area is located approximately 67 km southeast of Lydenburg in the Limpopo Province of South Africa. It covers an area of approximately 9 756.504 ha and includes 202 portions of the following farms:

- De Lagersdrift 177
- De Lagersdrift 178
- Blaauwbank 179
- Swartkoppies 217

The proposed prospecting programme will be completed within five (5) years. It is anticipated that invasive and non-invasive activities will be undertaken during prospecting, based on information presented in the accompanying Prospecting Work Programme.

Non-invasive prospecting activities:

- Locate and acquire all available historical data
- Data capture, QA/QC and database establishment
- Initial field visit
- Desktop study
- Field visit, mapping and surface sampling
- Interpretation of field mapping and sample analysis results
- Preliminary target generation exercise
- Interpretation of field and trench mapping as well as sample analysis results
- Development of a preliminary geological model
- Interpretation of data from drilling
- Final data synthesis and finalisation of geological model
- Estimation of a code-compliant resource
- Concept study

INVASIVE ACTIVITIES

- **Construction of seven trenches**, side wall mapping and sampling: [Year Three; Duration: 4 months] - Seven trenches are proposed for this phase of prospecting. Each trench will be excavated to a depth of 3 m and will be 50 m long and 2 m wide. Exposures will be mapped and sampled and rehabilitated immediately thereafter. Similar to grid sampling, this activity will be conducted under the direct control of a trained supervisor who will ensure all aspects of Safety and Environmental Management.

- **Drill six boreholes** to a depth of 50 m: [Year Four; Duration: 8 months] - Depending on the initial geological model established, a drilling programme comprising of approximately six boreholes will be undertaken. Diamond drilling will be considered for this phase. Drilling will be conducted in a competent and environmentally responsible manner including rehabilitation of the drill sites to their original state. Plastic lining will be placed underneath the rig motors to prevent oil seepage. It is noted that no drilling fluids other than water for dust suppression, will be utilised in the case of diamond drilling. Environmental rehabilitation measures will be included in the contract with the drilling company and environmental rehabilitation costs will be included in the drilling costs.

The drilling process will be managed in a competent manner and will include the following actions:

- Review the drilling company's approach to Mines, Health and Safety issues
- Obtain permission to access the property
- Forward special instructions to the drilling company regarding power, water, environmental, safety and security

- Preliminary analysis report on notifications e.g. Eskom, Telkom, etc
- Finalise the initial borehole positions
- Plan access roads, crew accommodation and site security
- Preparation of drilling sites
- Establish water source for drilling
- Environmental assessment of drill sites
- Monitor and control the drilling process
- Undertake site rehabilitation
- Take pictures before and after rehabilitation

As part of the prospecting operations a site camp will be setup and will consist of a caravan and a portable ablution facility (maximum 900 m^2). Each drill site will be a maximum of 100 m^2 in area. The total area to be cleared for the site camp, six drill sites and seven trenches equates to 3 250 m^2.

No construction of foundations will be necessary as all equipment and infrastructure is mobile. Site clearance and site camp set up will only require a day (24 hours). Similarly, deconstruction will also only require a day. Six employees will be onsite 24-hours a day during the invasive prospecting operations. Drilling and trenching will only be conducted during the day time. It is estimated that three full-time vehicles and two part time vehicles (visits by the geologist/manager/client etc.) would require access.

e) Policy and Legislative Context

Table 4: Policy and Legislation

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
Mineral and Petroleum Resources Development Act (No. 28 of 2002) The primary aim of the MPRDA is to recognise the sovereignty of the State over all the mineral and petroleum resources in South Africa and to promote equitable access to the Country's resources. The MPRDA has a number of objectives, including to: • Promote equitable access to the nation's mineral and petroleum resources to all the people of South Africa; • Substantially and meaningfully expand opportunities for historically disadvantaged persons, including women, to enter the mineral and petroleum industries and to benefit from the exploitation of the nation's mineral and petroleum resources; • Promote economic growth and mineral and petroleum resources development in the country; • Provide for security of tenure in respect of prospecting, exploration, mining and production operations; • Give effect to Section 24 of the Constitution of South Africa by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development; and • Ensure that holders of mining and production rights contribute towards the socio-economic development of the areas in which they are operating. The MPRDA concerns equitable access to, and sustainable development of, South Africa's mineral and petroleum resources. The MPRDA makes provision for sustainable mining and requires: • That every person who has applied for a mining right must conduct an EIA, determine the environmental baseline, and submit an EMPR to the DMR; • That every holder of a mining reconnaissance permit, prospecting right, mining right, mining permit or retention permit must assess and communicate the impacts of the activity on the environment; • The need to rehabilitate the environment affected by prospecting or mining operations to its natural or predetermined state; and • That the directors of the mining company are liable for unacceptable impacts on the environment.	In accordance with Section 16 of the MPRDA, Density Metals (Pty) Ltd is required to conduct a Basic Assessment and submit an EMP for approval to the Limpopo DMR. A Prospecting Work Programme has been developed and submitted to the DMR. Red Kite Environmental Solutions compiled the Basic Assessment Report in accordance with the MPRDA (and NEMA, where applicable).

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
National Environmental Management Act (No. 107 of 1998) The NEMA is South Africa's overarching environmental statute concerned with integrated environmental management (IEM) and the underlying principles by which environmental management must be undertaken. Its primary objective is to provide for co-operative governance, thus binding all organs of State by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of State and to provide for matters connected therewith (Government Gazette, 1998). The NEMA provides for the Constitutional right to an environment that is not harmful to the health and well-being of South African citizens, the equitable distribution of natural resources, sustainable development, environmental protection, and the formulation of environmental management frameworks (Government Gazette, 1998). Section 2 of NEMA sets out principles for sustainable integrated environmental governance; the principles are further detailed in subsequent sections of NEMA. Section 24(5), 24M and 44 of the NEMA enables the Minister to publish regulations pertaining to environmental impact assessments. The current Environmental Impact Assessment Regulations, GNR.326 (EIA Regulations), were published on 7 April 2017. Sections 24(2) and 24D of the NEMA make provision for the Minister to publish listed activities that would require environmental authorisation prior to commencement of that activity. The Minister published the following three Regulations in terms of Sections 24(2) and 24D of the NEMA on 4 December 2014: • Regulation GNR.327 of 2017 which sets out a list of identified activities which may not commence without environmental authorisation from the competent authority and which must follow the Basic Assessment (BA) procedure as provided for in Chapter 4, Part 2 of the EIA Regulations; • Regulation GNR.325 of 2017 which sets out a list of identified activities which may not commence without environmental authorisation from the competent authority and which must follow the scoping and EIA procedure as provided for in Chapter 4, Part 3 of the EIA Regulations; and • Regulation GNR.324 of 2017, which sets out a list of identified activities per geographical area, which may not commence without environmental authorisation from the competent authority and which	In terms of Section 24(2) and 24(D) of the NEMA, authorisation is required for the following listed activities identified in terms of the following, which is detailed in Section32(d)(i): • GNR 327 – Activity No. 20 • GNR 327 – Activity No. 22 • GNR 324 – Activity No. 12 (e) (ii) This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
must follow the BA procedure as, provided for in Chapter 4, Part 2 of the EIA Regulations.	
National Water Act (No. 36 of 1998) The NWA provides for fundamental reformation of legislation relating to water resources and use. The preamble to the Act recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The purpose of the Act is stated, in Section 2 as, inter alia: • Promoting the efficient, sustainable and beneficial use of water in the public interest; • Facilitating social and economic development; • Protecting aquatic and associated ecosystems and their biological diversity; • Reducing and preventing pollution and degradation of water resources; and • Meeting international obligations. The NWA presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. As this Act is founded on the principle that the government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, an industry (including mines) is only entitled to use water if the use is permissible under the NWA. Section 21 of the NWA provides a list of water uses which require a WULA prior to commencement, unless listed in Schedule 1 (of the NWA) as an existing lawful use. Applying for a WULA triggers NEMA listed activities as contemplated in terms of GNR.327 and GNR.325 of 2017. Water use includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. A water use must be	No water uses, in terms of Section 40 and 39 of the NWA, are applicable to the Project. However, should the final drillhole and trench positions require either a General Authorisation or Water Use Licence in terms of the NWA, the Applicant will consult with the Department of Water and Sanitation regarding authorisation of the water uses.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
licensed unless it is listed in Schedule 1 (of the NWA), is an existing lawful use, is permissible under a general authorisation, or if a responsible authority waives the need for a license. In terms of the NWA, a watercourse is defined as follows: • A river or spring; • A natural channel in which water flows regularly or intermittently; • A wetland, lake of dam into which the Minister may, by notice in the Gazette, declare to be a watercourse, and reference to a watercourse, which includes, where relevant, its beds and banks. Furthermore, in terms of the NWA, a wetland is defined as follows: Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.	
National Environmental Management: Biodiversity Act (Act No 10 of 2004) In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007. In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase. The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems,	As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard. An ecological walkthrough of the location of the boreholes and trenches must be undertaken to ensure that no species listed as a protected species within the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of Lists of Critically Endangered, Endangered, Vulnerable and Protected Species are identified within the development area. A permit will be required to be obtained should this species be impacted by the final borehole or trench footprints. A permit would only be required to move species listed in the ToPS Regulations and PNCO. Unless a Red Data species is included in this legislation, a permit is not required.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).	A desktop fauna and flora study was undertaken for the prospecting area and can be found in Appendix 6.
National Environmental Management Air Quality Act (No. 39 of 2004) The National Environmental Management Air Quality Act (No. 39 of 2004) (NEMAQA) allows for national, provincial and local air quality standards to be established as well as the declaration of priority areas. In addition, the NEMAQA requires that Air Quality Management Plans (AQMP) form part of the environmental implementation plan or environmental management plans to be prepared by national departments or the Province as required by Chapter 3 of the NEMA. Furthermore, the NEMAQA requires municipalities to include an AQMP into its integrated development plan (IDP). The NEMAQA requires the Minister of the DEA to publish a list of activities which results in atmospheric emissions which may have a detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions, ecological conditions or cultural heritage. The NEMAQA requires that an atmospheric emissions licence (AEL) be obtained for such listed activities. Such a list of activities was published in GNR.248 of 2010.	No activities requiring authorisation in terms of GNR.248 of 2010 of NEMAQA will be undertaken.
National Environmental Management Protected Areas Act (No. 57 of 2003) The National Environmental Management Protected Areas Act (No. 57 of 2003) (NEMPAA) concerns the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes, and includes inter alia: • The establishment of a national register of all national, provincial and local protected areas; • The management of those areas in accordance with national standards; and • Inter-governmental co-operation and public consultation in matters concerning protected areas. The NEMPAA defines various kinds of protected areas, namely: special nature reserves, national parks, nature reserves (including wilderness areas) and protected environments, world heritage sites, marine protected areas, specially protected forest areas, forest nature reserves and forest wilderness areas	Cognisance will be taken of existing and proposed protected environments.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
declared in terms of the National Forests Act (No. 84 of 1998), and mountain catchment areas declared in terms of the Mountain Catchment Areas Act (No. 63 of 1970). Part 4 of Chapter 4 of the NEMPAA (Sections 48 to 53) lists restrictions of activities that may not be conducted in a protected area (as described above). Activities that are restricted include: Prospecting and mining activities; - Activities that are restricted by: • Regulations made by the Minister; • Regulations made by the MEC, in the case of provincial and local protected areas; • By-laws of the relevant municipality, in the case of local protected areas; and Internal rules made by the managing authority of the area; - Commercial and community activities where the survival of any species is negatively affected, or the integrity of an ecosystem is significantly disrupted; and - Any development or other activity that is inappropriate for the area given the purpose for which the area was declared.	
National Heritage Resources Act (No. 25 of 1999) The National Heritage Resources Act (No. 25 of 1999) (NHRA) established the South African Heritage Resources Agency (SAHRA) in 1999. SAHRA is tasked with protecting heritage resources of national significance. With regard to heritage sites, sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, dolomitic land and ridges, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure. A heritage site means a place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority. Section 34 and 38 of the NHRA details specific activities that require a heritage impact assessment that will need to be approved by SAHRA. The following activities require a heritage impact assessment to be undertaken for the Proposed Project. The heritage specialist study has commenced, and the results will be provided in the EIA/ EMPR document.	A Phase 1 Heritage Impact Assessment has been undertaken for the project and can be found in Appendix 7.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
• Section 34(1): Structures older than 60 years may not be altered or demolished prior to permission from SAHRA; • Section 38(1a): The construction of a road, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length; • Section 38(1c): Any development or other activity which will change the character of a site (i) exceeding 5,000 m2 in extent, or (ii) involving three or more erven or subdivisions. Furthermore, section 48(2) requires a permit from a heritage resources authority to perform such actions at such time and subject to such terms, conditions and restrictions or directions as may be specified in the permit. This would include any development of the site where "development" means any physical intervention, excavation, or actions, other than those caused by natural forces, which results in a change to the nature, appearance or physical nature of a place, or influences its stability and future well-being, including: • Construction, alteration, demolition, removal or change of use of a place or a structure at a place; • Carrying out any works on or over or under a place; • Any change to the natural or existing condition or topography of land; and • Any removal or destruction of trees, or removal of vegetation or topsoil.	
Hazardous Substances Act (No. 15 of 1979) The object of the Act is inter alia to 'provide for the control of substances which may cause injury or ill health to, or death of, human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances; for the control of electronic products; for the division of such substances or products into groups in relation to the degree of danger; for the prohibition and control of such substances.' In terms of the Act, substances are divided into schedules, based on their relative degree of toxicity, and the Act provides for the control of importation, manufacture, sale, use, operation, application, modification, disposal and dumping of substances in each schedule.	Dangerous substances contained onsite during the construction, operation and closure phases of the Proposed Project will need to be management in accordance with the Act and safety data sheets (SDS) will need to accompany all dangerous goods (hydrocarbons, cleaning chemicals, paints, etc.).

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
Mine Health and Safety Act (No. 29 of 1996) The Mine Health and Safety Act (No. 29 of 1996) (MHSA) aims to protect and promote the health and safety of employees and persons that may be affected by the activities at a mine and outlines both the rights and responsibilities of an employer, as well as the obligations of employees working thereat. The MHSA was developed "to provide for protection of the health and safety of employees and other persons at mines". That said the Act also provides and/ or promotes the following: • A culture of health and safety; • The enforcement of health and safety measures; • For appropriate systems of employee, employer and State participation in health and safety matters; • The establishment of representative tripartite institutions to review legislation, promote health and enhance properly targeted research; • For effective monitoring systems and inspections, investigations and inquiries to improve health and safety; • Promotion of training and human resources development; • Regulation of employers' and employees' duties to identify hazards and eliminate, control and minimise the risk to health and safety; • Entrenchment of the right to refuse to work in dangerous conditions; • To give effect to the public international law obligations of the Republic relating to mining health and safety; and • To provide for matters connected therewith.	The following principles are considered applicable to the Proposed Project and are detailed below: • The primary responsibility for ensuring a health and safe working environment in the mining site is placed on the mine owner. The Act sets out in detail the steps that employers must take to identify, assess records and control health and safety hazards in the mine; • The right of workers to participate in health and safety decisions, the right to receive health and safety information, the right to training and the right to withdraw from the workplace in face of danger; • The Act requires the establishment of institutions to promote a culture of health and safety and develop policy, legislation and regulations; and • The responsibility for enforcing MHSA lies with the Mine Health and Safety Inspectorate. The Inspectorate's powers are recast and include the power to impose administrative fines upon employers who contravene the MHSA. The Act also contains innovative approaches to the investigation of accidents, diseases and other occurrences that threaten health and safety. Density Metals (South Africa) (Pty) Ltd will be required to comply with all obligations contained in the MSHA.
Occupational Health and Safety Act (No. 85 of 1993) The Occupational Health and Safety Act (No. 85 of 1993) (OHSA) provides a legislative framework for the provision of reasonably healthy and safe conditions in the workplace. It also places extensive legal duties on employees and users of machinery and makes major inroads on employers' and employees' common law	The OHSA is applicable and states that any person involved with construction, upgrades or developments for use at work or on any premises shall ensure as far as reasonably practicable that nothing about the manner in which it is installed, erected or constructed

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
rights. OHSA contains provisions that impose general obligations with regard to health and safety. More detailed and specific obligations can be found in the regulations published in terms of OHSA. These include environmental, general safety, electrical machinery, driven machinery, electrical installation, construction, asbestos, hazardous chemicals substances and noise. The OHSA addresses, amongst others: • Safety requirements for the operation of plant machinery; • Protection of persons other than persons at work against hazards to health and safety, arising out of, or in connection with, the activities of persons at work; • Establishment of an advisory council for occupational health and safety; and • Provisions for matters connected herewith.	makes it unsafe or creates a risk to health when properly used.

f) Need and desirability of the proposed activities

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

Assessment of the geological data available has determined that the area in question may have the proposed minerals: vanadium, titanium and iron.

In order to ascertain the above and determine the nature, location and extent of the subject minerals within the proposed prospecting area, it will be necessary that prospecting be undertaken. The prospecting will also determine if there are any features that may have an impact on the economic extraction of the subject minerals. As such, a prospecting right is required. A prospecting right is a permit which will allow Density Metals (Pty) Ltd to survey or investigate the area of land for the purpose of identifying an actual or probable mineral deposit.

The data that will be obtained from the prospecting of the subject minerals (if it is discovered) will be necessary to determine how and where the subject minerals will be extracted and how much economically viable mineral reserves are available within the proposed prospecting area. Should the subject minerals be found in the project area, Density Metals (Pty) Ltd will be able to use the available reserves to extend the life of mine.

Density Metals (Pty) Ltd expects that substantial benefits from the project (should the subject minerals be found) will accrue to the immediate project area, the sub-region and the Limpopo province. These benefits must be offset against the costs of the project, including the impacts to land owners and the environment.

The proposed prospecting activities require limited services such as water and diesel, both of which will be brought onto the sites. Water will be purchased from the local municipality or land owners and generators will be used for power. Therefore, the necessary services with appropriate capacity are currently available (at the time of application), and no additional capacity will need to be created to cater for the development.

The proposed prospecting activities will have a low impact on sensitive natural areas given the small footprint of the sites for boreholes and trenches and considering that the majority of the invasive activities are planned on agricultural land. According to the National Biodiversity Assessment (2011), sections within the relevant farms falls within the Rand Highveld Grassland, which is listed as Vulnerable (VU). None of the invasive activities are located on this vegetation type. From the Limpopo Conservation Plan, the applicable areas are shown to be delineated as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). Although, it is important to note that the majority of the invasive activities fall on land currently or recently used for agriculture.

Given the nature of the proposed invasive prospecting activities, all impacts identified and discussed further below, will be limited to the footprint of the drill sites, site camps and trenches. In this regard, prospecting activities should be planned away from homesteads/ villages so that people's health and wellbeing (in terms of noise, odours, visual character and sense of place) will not be impacted. Density Metals (Pty) Ltd must adhere to mitigation measures proposed in the EMPr to ensure that the impact of its proposed prospecting activities is avoided or minimised.

The proposed prospecting activities will not result in unacceptable cumulative impacts. All drill sites and trenches will be rehabilitated to its current state or better, if possible, once invasive prospecting activities (drilling and trenching) have been completed.

Consultation with interested and affected parties for the project has been on-going, with Red Kite Environmental Solutions. The process was conducted to provide all interested and affected parties with an opportunity to comment on the project. Density Metals (Pty) Ltd further commits to ensure their contribution to environmental education and to their employees during the project life.

All issues raised, to-date, by interested and affected parties have been recorded and addressed in this BAR and EMPr as well as the Consultation Report attached as Appendix 5.

g) Motivation for the overall preferred site, activities and technology alternative

The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires the applicant to identify alternatives for projects applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Density Metals (Pty) Ltd proposes to undertake prospecting to determine whether or not the project area consist of the subject minerals. If the proposed prospecting development delivers a positive outcome, the economic viability of the mineral (size, quantity, grade, etc.). The proposed activity will include the drilling of exploration boreholes and the excavation of trenches. The associated activities/infrastructure will include: access to the drill and trench sites and a campsites set up at each drill site only for the duration of drilling operations.

- **Location Alternatives:** No location alternatives were identified as the location of the proposed activities are determined on initial assessment of the geological data available which has determined that the area in question may have the proposed minerals. The location of the drilling sites and trenches may be varied once the non-invasive activities have been completed and can be used to inform more appropriate locations for the invasive prospecting activities. Other than existing geological data, the current locations of the drill sites and trenches were chosen where they are at least 100 m from the nearest dwelling, 100 m away from any watercourses or wetlands, access roads are available and not on sites considered to have a high sensitivity.

- **Access Route Alternatives:** No alternatives were considered for the access roads as the intention is to use existing roads where possible as well as private farm roads. This will ultimately reduce the impact/ environmental footprint of the proposed project.

- **Design/Layout Alternatives:** Since the drill sites are relatively small (10 m x 10 m) and the site infrastructure is very basic and standard for the type of operations, no design and layout alternatives for the proposed project were determined. The dimension and location of the trenches may be refined once the non-invasive activities have been completed and more information is available. However, the position of the boreholes have been changed due to inputs from specialist studies and landowners, to ensure that all sites are outside of the 100 m buffer of watercourses and not in close proximity to houses, livestock pens or within game enclosures.

- **Technology Alternatives:** Based on the policies of the Department of Water and Sanitation, the local municipalities and the property itself, it was determined that the only feasible technological way of undertaking the proposed activities would be to use energy currently available to the applicant (diesel and petrol), water from the local municipality or land owners and existing waste management facilities for the operation of the proposed project. In view of the above, no technology alternatives were considered for this project.

- **Input Material Alternatives:** As mentioned above, water will be purchased from the local municipality or land owners and mobile generators will be used for the operation of the proposed project. In view of the above, no other input material alternatives were considered for this project. Note that no building facilities will be constructed at the project site since existing or movable facilities in town will be used for the proposed project.

- **Operational Alternatives:** Exploration Drilling Methods is used to determine the depth, amount and thickness of the minerals at any point across a prospecting area. Drilling can either be done by non-core drilling or core drilling techniques.
  - Non-Core Drilling Methods - Non-core drilling techniques mostly uses the rotary drilling methods. In this technique, a string of metal rods is rotated axially and a bit at the base of the string is forced downward, under controlled pressure, breaking up the ground and advancing the depth of the hole. Cuttings are swept away from the bit and lifted to the surface either by means of pumped circulating water or by jets of compressed air. Logging of the hole drilled by non-core drilling methods is mainly based on the cuttings obtained as the drill progresses. In view for the difficulty and error bound logging, this method of drilling was discarded and may be used only for infill drilling wherever necessary.
  - Core-Drilling Methods - Core drilling techniques uses diamond drilling methods. In this technique, a hollow cylindrical drill bit impregnated with industrial diamonds is attached to a series of metal drill rods and rotated under controlled downward pressure. A circle of rock is ground away, the cutting removed by water flushing and a cylindrical core remains in the hollow centre of the drill string. Core drilling is the only satisfactory means of obtaining representative samples of seams at depth for quality determination. In view of the above, the preferred drilling methods is the core drilling technique using the diamond drill.

- **No-Go Option:** The 'no-go' alternative is the option of not undertaking prospecting activities on the project site. The no-go option assumes the site remains in its current state. The no-go alternative would result in no impacts on the social and biophysical environment. The main current land uses on the project site consist of cattle grazing, agriculture, residential and natural/wilderness areas. The prospecting consists of a phased series of short-term activities and will not affect the current land use. Only after the prospecting work has been completed will it be possible to analyse the data in order to decide if an application for a mining right should be submitted or not. A mining application would require a further comprehensive Scoping and EIA process, including assessments of alternative land uses.

  Density Metals (Pty) Ltd intends on exploring the proposed area in order to determine availability of the subject minerals. Should the minerals be found at the prospecting area, Density Metals (Pty) Ltd will achieve its long-term objective of owning and operating its own mine to benefit the local community where the operation takes place. Accordingly, the consequences of not proceeding with the proposed project will have a detrimental impact on the potential positive impact this project may have on the future labour force. The no-go alternative is therefore not considered desirable at a local, regional and national scale, in terms of job creation and positive economic impacts.

h) Full description of the process followed to reach the proposed preferred alternatives within the site.

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

i) Details of the development footprint alternatives considered

Refer to Section 3(g) above.

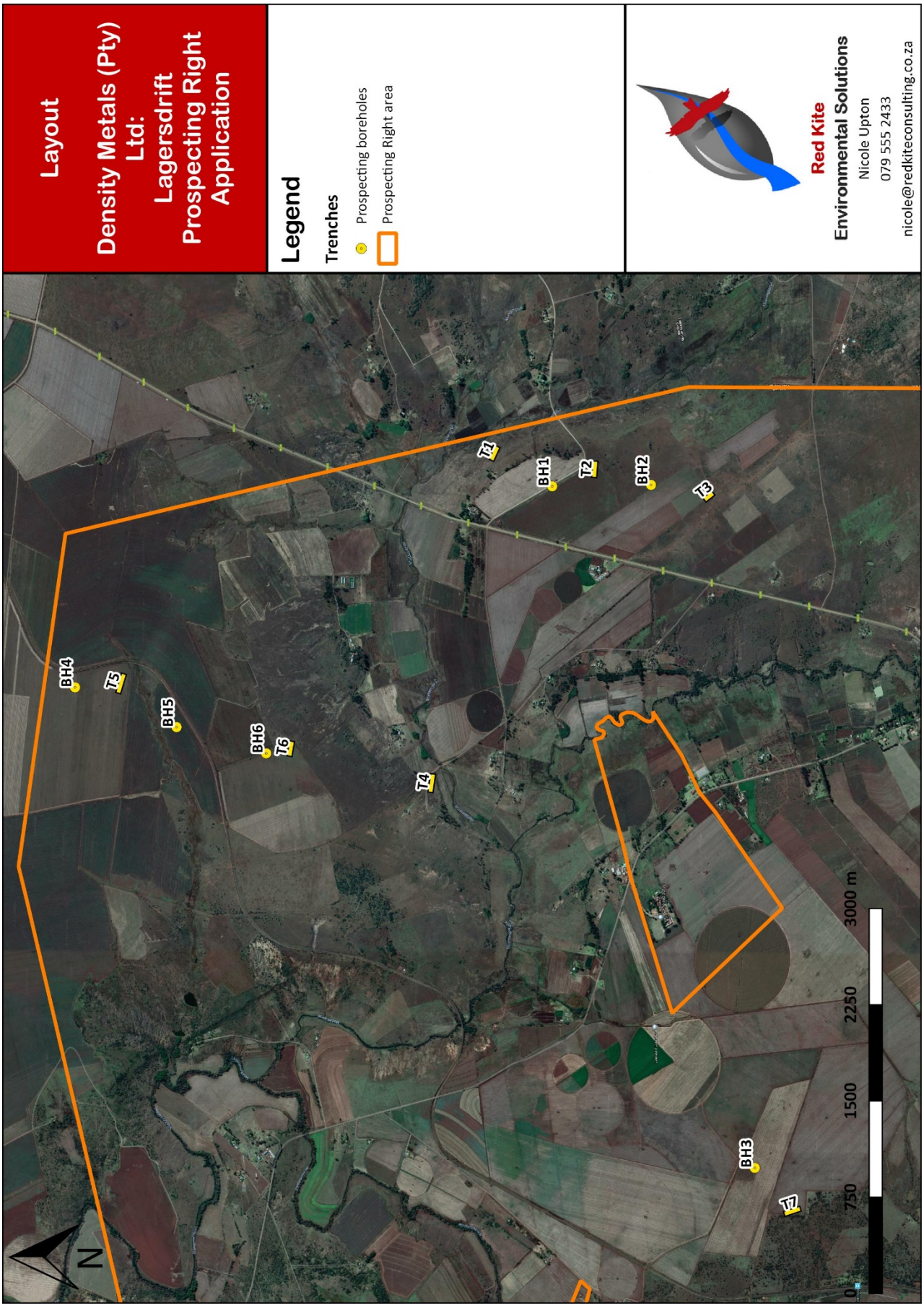


Figure 4: Preferred layout of the prospecting activities (trenches and boreholes)

ii) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

Objectives of Public Participation

The purpose of this Public Participation Process is:

- To provide Background Information to the proposed activity;
- To provide a locality map indicating the locality of the proposed activity;
- To notify potential Interested and Affected Parties of the Environmental Process to be followed in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002);
- To notify potential Interested and Affected Parties of the Environmental Process to be followed in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended; and
- To obtain issues and concerns from potential Interested and Affected Parties regarding the Environmental Process to be followed and the proposed activity, which will be addressed as part of the Public Participation Process.

Public Participation is important for the following reasons:

- It provides an opportunity for Interested & Affected Parties (I&APs), Environmental Assessment Practitioners (EAPs) and the competent authority (CA) to obtain clear, accurate and understandable information about the environmental impacts of the proposed activity or implications of a decision;
- It provides I&APs with an opportunity to voice their support, concerns and questions regarding the project application or decision;
- It provides I&APs with the opportunity of suggesting ways for reducing or mitigating any negative impacts of the project and for enhancing its positive impacts;
- It enables an applicant to incorporate the needs, preferences and values of affected parties into its application;
- It provides opportunities for clearing up misunderstandings about technical issues, resolving disputes and reconciling conflicting interests;
- It is an important aspect of securing transparency and accountability in decision-making; and
- It contributes toward maintaining a healthy, vibrant democracy.

Identification of I&APs

The following groups were identified as potential Interested and Affected Parties (I&APs):

- Community Representatives;
- Relevant Government Departments;
- Relevant Institutional/Organisational Representatives;
- Relevant Municipal Representatives, including the Ward Councillor;
- Landowners/Occupiers;
- Surrounding Landowners/Occupiers; and
- Non-Government Organisations and Agencies

It should be noted that following the project initiation, correspondence will only be directed to registered I&APs and no further public advertisements (i.e. in newspapers) will be undertaken. Accordingly, to ensure that all potential I&APs were made aware of the project and had the opportunity to register, the initial notification process was as thorough as possible. For the list of identified I&APs refer to Appendix 1 of the PP Report.

Notification of I&APs

a. Site Notices

To inform surrounding and immediate communities, landowners and farm workers of the proposed project, six A2 notices were erected at visible and accessible locations. Photographic evidence of the site notices erected throughout the study area along the corridors of properties earmarked for prospecting, on 29 and 30 January 2019, is attached as Appendix 2 of the PP Report.

b. Newspaper Advertisements

To inform a broad base of individuals who might want to register as I&APs, newspaper advertisements were placed in one local newspaper and one regional newspaper. For proof of advertisements placed, refer to Error! Reference source not found.. Advertisements were placed in the following newspapers:

- Wednesday, 30 January 2019: Page 14 of The Capricorn Voice (Regional).
- Friday, 1 February 2019: Page 20 of The Middelburg Observer (Local).

c. Written Notifications

Identified I&APs were directly informed of the application processes by means of email and hand delivery of Background Information Documents (BIDs), as well as by SMS. The notification process commenced in January 2019 with the email of BIDs to identified I&APs (5 February 2019) and hand delivery of BIDs to Stakeholders (29, 30 and 31 January 2019).

The BID (in both English and Afrikaans) has been attached as Appendix 4 of the PP Report. Proof of written notifications sent is attached as follows:

- Appendix 5 of the PP Report – I&APs were notified by means of hand delivered BIDs. Where access to properties was not possible, BIDs were positioned at the entrance gates.Error! Reference source not found. Appendix 6 of the PP Report – I&APs were notified by means of email.Error! Reference source not found. Appendix 7 of the PP Report – I&APs were notified by means of SMS. Additionally, with the help of the Chairman of the Stoffberg Farmer's Union, a notification was also placed on the Farmer's Union WhatsApp Group. This was done in order to give a greater number of potential I&APs residing in the immediate area the opportunity to register as I&APs and receive further information regarding the proposed project.

Notification of I&APs of Reports Availability

The Basic Assessment Report for Public Viewing and Commenting is in the process of being compiled. As soon as the Report is finalised all Registered I&APs will be notified of its locality for Public Viewing along with the timeframes for commenting.

Access and Commenting Opportunity

As mentioned above, Interested and Affected Parties will be provided the opportunity to comment on the Basic Assessment Report during a 30-day commenting period. This commenting opportunity has been preceded by an initial registration period during which commenting was also allowed for. The initial registration period commenced on 29 January 2019 and will end on 27 February 2019. The entire process will be transparent and will allow I&APs to register and comment throughout.

Registrations and Comments Received

Identified I&APs were encouraged to submit their Registration and Comment sheets to Red Kite Environmental Solutions in order for them to receive further correspondence regarding the proposed De Lagersdrift Prospecting Right Application. For all correspondence received throughout the Public Participation Process thus far, inclusive of Registration and Comment Sheets and Emails, refer to Appendix 8 of the PP Report.

Addressing Comments and Concerns

An Issues and Response Report will be compiled as part of the Public Participation Process for the proposed De Lagersdrift Prospecting Right Application. This document records the issues of concern, questions and suggestions contributed by stakeholders during the course of the Environmental Authorisation Process. This report also includes the responses provided by relevant parties. The Issues and Response Report is attached as Appendix 9 of the PP Report.

It should be noted that the Issues and Response Report is an active document and will be updated throughout the process as comments and concerns are received. However, following submission of all final documents to the Department of Mineral Resources, all additional comments should be directed directly to the Department.

Notifying I&APs of the Decision

Following the verdict by the Department of Mineral Resources on whether to grant or reject the application all registered I&APs will be informed of the decision as well as the appeal process and its timeframes for submission.

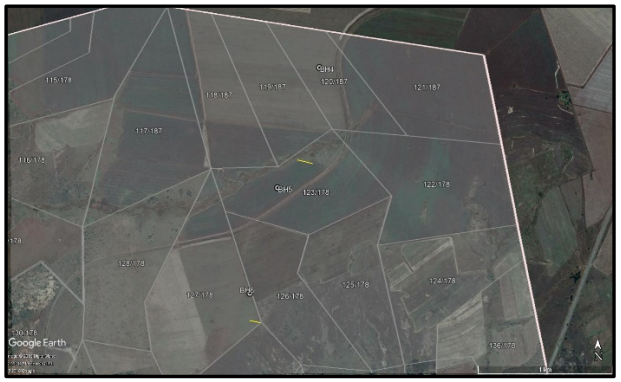
iii) Summary of issues raised by I&APs

For details of all communication between Red Kite and the AIPs refer to Appendix 9 of the PPP Report (Appendix 5 of the BAR).

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
AFFECTED PARTIES					
Landowner/s and lawful occupiers					
Nederduitse Gereformeerde Kerk van Transvaal	X				
Cyberwatch 2 CC	X				
Johan Scheepers	X				
Maryn & Martin Pieterse	X				
Sandile Nene	X				
Maria Helena Gertruida De Bruin	X				
Angelique Michau	X	13 February 2019	*To Whom It May Concern,* *In light of my Constitutional right to just administrative action, this correspondence serves as to object to the proposed prospecting right by Density Metals (Pty) Ltd as stated above.* *Firstly, I have a serious concern for the interests of the people who own or occupy the mentioned land on which the proposed prospecting will take place.*	Good day Angelique, Thank you for your comments. Your objection is noted and will form part of the Public Participation Report which will be submitted to the relevant Departments for their consideration. The Public Participation Process has been as thorough as possible, to ensure that individuals owning or residing on properties in and around the study area are provided with the opportunity to provide their comments and suggest ways for reducing or mitigating any negative impacts of the project and for enhancing its positive impacts. All comments and concerns submitted by I&APs as well as responses to these will be included in the Basic Assessment Report which will be made available for Public Commenting, thus allowing	PP Report **Table 1: Details of EAP**

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
			Prospecting is a serious invasion on other people's right to use and enjoy land.	these individuals to see how their contributions have been taken into account. It should be noted that prospecting is considered a low impact activity, which will, in this case, equate to 0.33 ha of the total study area of 9 756.5 ha. The right to use and enjoy land will be therefore not be affected. Furthermore, consultations have and will continue to be held with individuals on who's property the specific invasive activities are proposed.	
			Secondly, I don't believe that this community has received enough information from Density Metals (Pty) Ltd about their plans for this community to be able to judge how it will affect them. To date I don't have a specific idea where holes will be drilled and trenches excavated; how close to houses the drilling & excavating machines will be located; whether machines & equipment will be operating for 24 hours a day; will these machineries generate significant noise & dust; stress impact on the area's wildlife; what area has been identified as a "site camp" – will this result in deforestation;	Note that the Basic Assessment Report (BAR) for Public Commenting is in the process of being compiled. As soon as the Report is finalised all Registered I&APs will be notified of its locality for Public Viewing along with the timeframes for commenting. You will thus be provided with an opportunity to peruse all information pertaining to the Application. Since initiation of the project, preliminary drill hole and trench localities have been made available to Red Kite Consulting, and maps indicating these are attached below. Owners of farm portions where invasive activities are preliminarily planned have been consulted and specialist studies (Biodiversity and Heritage Impact Assessments) have been conducted on their properties to form part of the BAR for public commenting. Invasive activities will only occur during the daytime hours (06:00 am to 18:00 pm). Drilling will not occur outside of stipulated working hours Sundays or Public Holidays. Drilling will not occur at distances closer than 100 m from dwellings – the noise of drill rigs at such a distance is negligible and pose no harm to local residents. Furthermore, there will be no dust during drilling due to the drilling method (diamond drilling with water).	This report and PP Report Figure 2: Locality map Figure 3: Satellite image of the Prospecting Right area Table 8: List of identified impacts and proposed mitigations measures Page 15 of the BAR

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
				The site camp will only consist of a caravan, portable ablution facility, and storage area of which the locality will still be determined. The total 0.33 ha to be cleared will include the site camp. No deforestation is planned, and clearance will as far as possible be kept to already disturbed areas.  Borehole 1 and 2 & Trench 1 and 2  Drill Hole 2 & Trench 3	

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
				 Drill Hole 3 & Trench 7  Drill Hole 4 and 5 & Trench 5 and 6	

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
				 Trench 4	
			will roads used be maintained & new roads created;	Existing roads will be utilized by contractors tasked with the prospecting project for a number of vehicles which will be used. These include a tractor to collect water, a truck which will pull the drill rig and the fore-man's vehicle (Bakkie) which will require access to the sites. It is estimated that 3 fulltime vehicles and 2 part time vehicles (visits by the geologist/manager/client etc.) would require access. If any damages to gravel roads occur as result of prospecting related activities the Applicant will compensate for the damage.	This report and PP Report Table 8: List of identified impacts and proposed mitigations measures
			will graves be disturbed;	A Heritage Impact Assessment has been conducted to ensure that proposed invasive prospecting activities are conducted away from graves and culturally significant areas/buildings.	Appendix 7
			will prospecting involve the use of water - will a Water Use Licence apply; whether rivers & streams used by all the communities in the catchment be polluted;	Approximately 6000 litres of water per day will be used in the drilling process. Possible sources for the water required will be considered and access will be negotiated with land owners or the municipality. A Water Use License will not be required as all invasive activities will be conducted sufficiently outside of surface water and wetland buffer zones. Prospecting is considered a low-impact activity, and the diamond core drilling method which will be used has no negative impact on ground or other water sources.	PP Report Table 8: List of identified impacts and proposed mitigations measures Section B: 1)d)ii)

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
				No pollution of water sources is expected to occur as a result of prospecting activities. Kindly see the following email response regarding the potential impact of prospecting on groundwater was obtained from a qualified Hydrogeochemist at Geo Pollution Technologies, an ISO accredited Geohydrological Company, in May 2018: **From:** Altus Huisamen <Altus@gptglobal.com> **Sent:** Tuesday, 15 May, 2018 12:52 PM **To:** nicole@redkiteconsulting.co.za **Subject:** RE: Geohydrologist Opinion Hi Nicole, As discussed, a professional opinion on the influence of exploration drilling on hydrogeology: Drilling for exploration purposes often entails either diamond core drilling or rotary air percussion drilling. In unstable rock formations, core drilling occasionally uses drilling mud or fluid to stabilise the formation. However, in South Africa's hard rock aquifers, this is often not required. Therefore, a low risk to groundwater quality exists during exploration with the exception of chemical spills on site such as hydrocarbons. Drilling also does not influence aquifer mechanics on any notable scale. Groundwater is transported through rock formations in fractures and fissures in a hard rock aquifer. This process occurs over km scales within which the width of a drill rod is negligible. Therefore, the rock acts like a sponge and not a plumbing system which can be "severed" as often thought. It merely forms an additional cavity in the rock in the form of the drill hole and cannot inhibit flow. The only way to inhibit flow through rock is to seal off fractures with grout, a type of engineering cement which is designed for this specific purpose. Another cause could be over-utilising groundwater in which case water bearing fractures could collapse and the specific borehole can no longer be utilised. However, this does not mean that other boreholes in the area which are not connected to the collapsed fracture can no longer be utilised. Regards, **Altus Huisamen** Ph.D., Pr.Sci.Nat. (No 400677/15) Unit Manager Hydrogeochemist Email: altus@gptglobal.com Cell. +27 83 352 0223 Tel. +27 12 804 8120 81 Rauch Avenue, Georgeville, 0184 P. O. Box 38384, Garsfontein East, 0060 www.gptglobal.com ISO 9001 Certified Company Disclaimer This message is confidential and intended for the sole attention of the addressee and should be deleted if wrongly received. Although all GPT outgoing messages are scanned for viruses using reputable software, no liability can be accepted for any viruses and it is the recipient's prerogative to scan incoming messages	Section A: 1)a)i)(1)
			will prospecting involve other activities that will affect the environment – will these activities require Environmental Authorisation?	Yes, the proposed prospecting activities will require Environmental Authorisation by means of a Basic Assessment Report (BAR) Process. The specific activities which are applied for in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended,	This report Table 3 Listed and Specified Activities

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
				are detailed in the Application for Environmental Authorisation, which will be included in the BAR for Public Commenting.	
			Will the proposed prospecting be conducted on fertile agricultural land to the detriment of agricultural production – mining and farming make uncomfortable neighbours for a whole list of reasons. For one, miners perceive and tend to treat soil as dead material that can be left in heaps until needed for rehabilitation, which to them is a form of engineering and beautifying landscape. A farmer recognise that soil is a living ecosystem. Soil take thousands of years to form and contains a quarter of the biodiversity on earth – what is the inevitable loss of soil potential as a result of excavated trenches? Will Density Metals (Pty) Ltd return the soil to its original form – retain the soil's integrity; how will induced low soil water holding capacity and drainage be managed; as well as machine induced compaction? The soil proposed for prospecting is highly susceptible to wind erosion in the dry season. *A characteristic of most South African soils is that they are extremely vulnerable to degradation and have low*	It is important to note that the current application process is not for a Mining Right or Permit, but only for a Prospecting Right. Any future decision regarding mining in the area will be dependent on the outcome of the proposed prospecting project. Furthermore, topsoil excavated from affected areas will be stockpiled separately from other materials and in such a manner that it is protected from adverse weather conditions and its integrity is maintained. This soil will then be used in the rehabilitation of affected areas, ensuring that land can be restored to its prior land use. These conditions will be included in the Environmental Management Programme (EMPr). In addition to this the applicant will ensure that all employees on site are provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks are to be dealt with to avoid pollution or the degradation of the environment. Environmental awareness training includes, but is not limited to the following: • Sustainability; • Environmental goals and manner of achieving them; • Rehabilitation; • Dealing with soil contamination and spillages; and • Solutions to environmental risks The EMPr will also place specific emphasis on the monitoring of potential soil erosion and soil pollution. This EMPr will be required to be audited on a quarterly basis by an Environmental Control Officer (ECO) to ensure compliance.	Table 8: List of identified impacts and proposed mitigations measures Section B: 1)i)

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
			recovery potential. Thus, even small mistakes in land management can be devastating, with little chance of recovery.		
			Insufficient information pertaining to Density Metals (Pty) Ltd – I have no background information or track record for this company.	<u>As received from the Applicant:</u> Density Metals is a vehicle set up specifically for the acquisition and exploration of projects in South Africa. Mr Heath Bell is the only shareholder of the company. Our other company Destiny Prospecting has been involved with numerous projects in Africa including, but not limited to the West Wits Mining rehabilitation project on the former DRD ground near Sol Plaatjies community. Prior to that we operated the South African arm of an ASX listed diamond mining company called County Diamonds Ltd. That company mined alluvial diamonds in Bloemhof in the NW Province and at Sydney on Vaal outside Kimberly. Most of our other companies have dealt with Uganda, Kenya or Zimbabwe with a few entries into DRC, Zambia and a quick look at both Burkina Faso and Angola. Density is being funded from a consortium group of mining people based in West Australia.	PP Report
			According to my knowledge the mentioned land proposed for prospecting has been zoned as agricultural land and not as mining or industrial areas. Shouldn't mining and related activities take place in specific areas zoned for mining, usually not close to where people live in order to adhere to environmental justice?	Upon approval of the proposed project, the relevant departments/authorities will be consulted to determine if any rezoning will be required in affected areas prior to the commencement of prospecting activities.	PP Report

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
			I strongly believe that prospecting operations will have a negative impact on our community and that a mining project will result in permanent and significant changes to our traditional way of life. I urge the DMR to take into account the fact that Density Metals (Pty) Ltd is applying for a prospecting right in a high potential & sustainable agricultural production and commercially utilised farming area that contribute towards food security due to the good & fertile soils and higher rainfall.	It is important to differentiate between prospecting and mining and the levels of impact each has its surroundings, with prospecting being considered a relatively low impact activity. A Biodiversity Impact Assessment has been conducted and will form part of the BAR which will be submitted to the Department of Mineral Resources for their consideration. This report will also be made available to all registered I&APs, and they will be granted the opportunity to study it and provide their input. As stated above, site clearance for invasive prospecting activities and associated site camp will equate to a total of 0.33 ha of the 9 756.5 ha which makes up the study area. Strategic placement of these invasive activities will mean that the impact on agricultural land is kept to a minimum, if not negated completely.	Table 3 Listed and Specified Activities Table 8: List of identified impacts and proposed mitigations measures Table 9: Potential social related impacts and mitigation measures Table 10: Significance statements and rating of the identified environmental impacts, before and after mitigation Table 11: Significance statements and rating of the identified cultural/heritage socio-economic impacts, before and after mitigation Appendix 6 of the BAR: Desktop

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
					Biodiversity Assessment
			Section 24 of the Constitution of the RSA, 1996 states: "Everyone has the right to an environment 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 reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development". Plus, I believe that the days that farmers are second fiddle to the mining industry are coming to an end and that the power dynamics are shifting with reverence to the following Constitutional Court ruling: Itereleng Bakgatla Mineral Resources & Pilanesberg Platinum Mines vs Lesetlheng Community, 2018. Communities have the right to say no to mining and that mining companies cannot remove land owners or occupiers from their land, even if they have been awarded mining rights to mine. South Africa's population is growing at almost 2% per year and is expected to grow to	At this time only a five-year Prospecting Right is being applied for. Any future Mining Right Application will be dependent on the outcome of the proposed prospecting activities. Should a Mining Right then be applied for, it will be subjected to a comprehensive Environmental Impact Assessment (EIA) Process.	PP Report

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
			82 million by the year 2035 – food production or imports must more than double to feed the expanding population and production needs to increase using the same or fewer natural resources. Water availability is the single most important factor that limits agricultural production in South Africa - mines use a substantial amount of water and is responsible for the most pollution. Southern Africa is the second region in the world to be confronted by a debilitating water deficit. Within the region, South Africa stands out as one of the most water scarce countries – characterised by extremely variable rainfall, both geographically and over time. Furthermore, South Africa has no surplus water.		
			I hereby request to be informed via Red Kite Environmental Solutions when a decision regarding prospecting & the environmental management plan has been taken.	Following the verdict by the Department of Mineral Resources on whether to grant or reject the application all registered I&APs will be informed of the decision as well as the appeal process and its timeframes for submission.	PP Report
			Lastly, where relevant I hereby request copies of the following: ➢ *Environmental Management Plan & Environmental Impact Assessment Report;* ➢ *Water Use Licence Application & Licence;*	All relevant reports will be included in the BAR will be made available for Public Commenting. Hard copies of this document will be made available at public localities and an electronic version will also be made available upon request. This document will include, among others, the following: ➢ Environmental Management Programme (EMPr) ➢ Application for Environmental Authorisation	PP Report

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
			➢ *Environmental Authorisation Application;* ➢ *Prospecting Works Programme – explaining the when, how & where prospecting will take place;* ➢ *Copy of the Prospecting Right Application;* ➢ *All Scientific Reports, including but not limited to:* • *Groundwater & Surface Water Reports* • *Biodiversity Reports* • *Noise Reports* • *Heritage Impact Assessments* • *Air Quality Reports and* • *Social Impact Reports* ➢ *Any Social Impact Assessment;* ➢ *List of Interested & Affected Parties;* ➢ *Basic Assessment Report – describing the proposed mining and its impacts, as well as what will be done to manage impacts and protect* ➢ *the environment;* ➢ *Any Consultation Reports.* *Thank you for your assistance,* *Angélique Michau*	➢ Prospecting Work Programme ➢ Biodiversity Impact Assessment ➢ Heritage Impact Assessment ➢ Public Participation Report As soon as the Report is finalised all Registered I&APs will be notified of its locality for Public Viewing along with the timeframes for commenting.	
Ockert Viljoen	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Variable Farming CC					
Rose Mantonto Mohlala	X				
Johannes Petrus Swart	X				
J. Oberholzer	X				
Salmon Inatius Brits	X				
Hannes van Niekerk	X				
Susanna Sophia Bothma	X				
Jozi Petrus Masombuka	X				
Tsipana David Ntsodi	X				
Gysbertus Johannes Stoltz	X				
Johanna Antoinetta Maria Joubert	X	13 February 2019	Goeie middag, Graag verlang ons net meer besonderhede omtrent: Density Metals (PTY) LTD. Wie is die aandeelhouers, is hulle Suid Afrikaanse maatskappy ens. Net 'n profiel van hulle asb. Ons kry hulle nie op die net opgespoor nie. Baie dankie Pieter Joubert	As received from the Applicant: Via email on 15 February 2019: Density Metals is a vehicle set up specifically for the acquisition and exploration of projects in South Africa. Mr Heath Bell is the only shareholder of the company. Our other company Destiny Prospecting has been involved with numerous projects in Africa including, but not limited to the West Wits Mining rehabilitation project on the former DRD ground near Sol Plaatjies community. Prior to that we operated the South African arm of an ASX listed diamond mining company called County Diamonds Ltd. That company mined alluvial diamonds in Bloemhof in the NW Province and at Sydney on Vaal	

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
				outside Kimberly. Most of our other companies have dealt with Uganda, Kenya or Zimbabwe with a few entries into DRC, Zambia and a quick look at both Burkina Faso and Angola. Density is being funded from a consortium group of mining people based in West Australia.	
Pieter Williams	X				
Isaac Mashoke Choma	X				
Hajira Abed	X				
Mabune Alpheus Puane	X				
Eugene Calitz	X				
Stevens Stanley Mkhabela	X				
Witswart Boerdery (Pty) Ltd	X				
Nelly & Lazarus Maibelo	X				
George Willem Annandale	X				
Barend Jacobus van Wyk	X				
Jan Hendrik Beetge	X				
Johannes Petrus Bekker Rianda Bekker JP Bekker Trust	X				
Nederduitsch Hervormde Kerk	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
van Afrika - Roossenekal					
Mr. LR Lubisi	X				
Elliot Mathebula	X				
Jannie Jacobs	X				
Jan Lourens van den Berg	X				
Esmari Smit	X				
Werner Jacobs	X				
Izak Hermanus Potgieter	X				
Lukas Viljoen	X				
Teekla Paulina van der Merwe	X				
Malete Farming CC James Malete	X				
Moditi Johannes Chego	X				
Cobus van Heerden	X				
Gerhardus Jozua Boschoff	X				
Fakazi Malindzisa	X				
GT De Lange Trust	X				
Petro Ferreira	X				
Brenda Voster	X				
Jimmy Lethamaga	X				
Danie Oosthuysen	X				
Hendrik Stephanus van der Merwe	X				
Hans-Jurgens Du	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Toit					
Japie Du Toit	X				
Anna Maria van Niekerk	X				
Izak Potgieter	X				
Jacobus Frederik Phillipus Roux	X				
Mokganyeng Abram & Sina Magale	X				
Phela-O-Fe Farm CC	X				
Phela-O-Age Farm CC	X				
Phela-O-Gole Farm CC	X				
Motlana Afrika & Damaris Modipa	X				
Fritz Erasmus	X				
Frederik Johannes & Rounel Annelies Calitz	X				
Petrus Wilhelmus Viljoen	X				
Altus A Nel	X				
RSA Government	X				
Christina Janse van Rensburg	X				
Conrad van Wyk Cumacor 104 (Pty) Ltd	X				
Charl Eugene Du	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Plessis					
Chanye Delport	X				
De Lagersdrift CC	X				
Afrikaanse Protestante Kerk Laersdrif	X				
Chris Myburg Fransien Myburg Mellow Stream Farm	X				
Carel Willem & Anna Beetge	X				
R Oosthuysen	X				
Kgadile, Mapphodi & Madilete Mohlala	X				
Mokhawane William Moshia	X				
Ntune Petrus Radingwana	X				
Kwasibangwe Community Trust	X				
Danie Oosthuysen	X				
Landowners or lawful occupiers on adjacent properties					
Kwanare Trading (Pty) Ltd	X				
RSA Government	X				
Hans-Jurgens Du	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Toit Japie Richards Du Toit					
John Stephen Curlewis	X				
Unity is Power Communal Property Association	X				
Ndzundza Mabhoko Communal Property Association	X				
Zane Gilchrist Bianca Gilchrist	X				
Dirk Nicolaas van den Berg	X				
Marius Cornelius Vosloo Dorathia Johanna Vosloo	X				
Rose Mantonto Mohlala	X				
De Wet Kruger	X				
Allegria Inv 17 (Pty) Ltd	X				
Crescent Farms CC	X				
Martha Maria Magdalena Kuhn	X				
Veronica Mohlala Family Trust	X				
Neels Greyling Familie Trust	X				
Rooibut	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Eiendomme CC					
Martin Phaahla	X				
Steven Makhua	X				
Vell Alfred Malaza	X				
Salome Moselebane Buwane	X				
Municipal councillor:	X				
Municipality	**X**				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA					
TransNet Ltd					
Eskom					
Roads Agency Limpopo (RAL)					
Road Infrastructure Limpopo Department of Roads and Transport					
Dept. Land Affairs	X				
Limpopo Department of	X				

Interested and Affected Parties		Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Economic Development, Environment and Tourism					
Department of Rural Development and Land Reform					
Dept. Environmental Affairs	X				
Department of Environmental Affairs	X				
Limpopo Department of Economic Development, Environment and Tourism					
Other Competent Authorities affected	X				
Department of Water and Sanitation	X				
Department of Mineral Resources Limpopo: Regional Manager	X				
OTHER AFFECTED PARTIES					

Interested and Affected Parties	Date Received	Issues raised	EAPs response to issues as mandated by the applicant	Reference in this report
Please refer to AIP Register as part of PP Report				
INTERESTED PARTIES				

iv) The Environmental attributes associated with the alternatives.

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

Figure 5: Photos of landscape surrounding borehole BH1 (road and cropland)

Figure 6: Photos of landscape surrounding borehole BH2 (natural grassland)

Figure 7: Photos of landscape surrounding trench T1 (grassland previously disturbed)

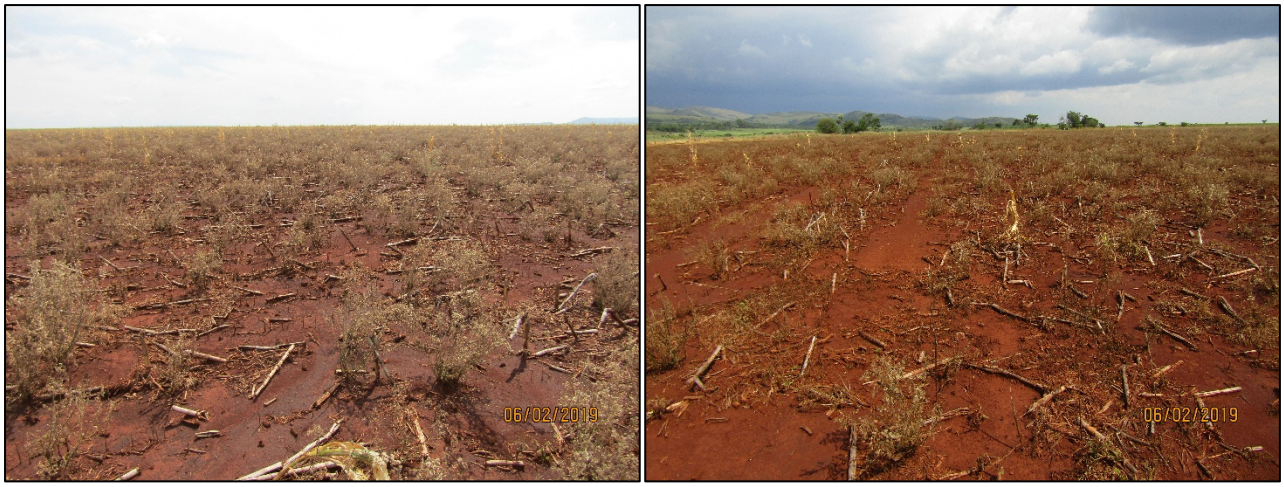


Figure 8: Photos of landscape surrounding trench T2 (cropland)

Figure 9: Photos of landscape surrounding trench T3 (on road in grassland used for grazing)

Figure 10: Photos of landscape surrounding borehole BH3 (land previously used for agriculture)

Figure 11: Photos of landscape surrounding trench T5 and boreholes BH4 and BH5 (in cropland)

Figure 12: Photos of landscape surrounding trench T4 (grassland)

Figure 13: Photos of landscape surrounding borehole BH6 and trench T6 (cropland)

Figure 14: Photo of landscape surrounding trench T7 (cropland with natural bush adjacent)
Note: no activities are to be placed in the bush area / game enclosure" adjacent to T7

Geographical and Physical

The application area is located approximately 67 km southeast of Lydenburg in the Limpopo Province. The towns of Laersdrif and Stofberg are located on the south-eastern border of the project area. The farm portions the project are situated in the Elias Motsoaledi Local Municipality and the Sekhukhune District Municipality. It covers an area of approximately 9 756.504 ha and includes 202 portions of the following farms:

- De Lagersdrift 177
- De Lagersdrift 178
- Blaauwbank 179
- Swartkoppies 217

The topography of the study area is characterised by a relatively flat to gently undulating topography, with depressions and valleys were rivers flow. Land cover consist largely of cropland, with small pockets of natural grassland which is used for grazing. Impacts on the area include farming related homesteads and structures, fencing, grazing, cropland and some dirt tracks.

The Laersdrift River and Steelpoortdrift River flow through the project area, confluencing toward the northern boundary of the prospecting right area. A number of smaller drainage lines and streams are located in the area. None of the rivers and stream on the project area are expected to be impacted by the prospecting activities, as all activities are to take place outside of 100 m of any watercourses.

Average slope is given as 2.5% in an east west direction and 3.1 in a north south direction.

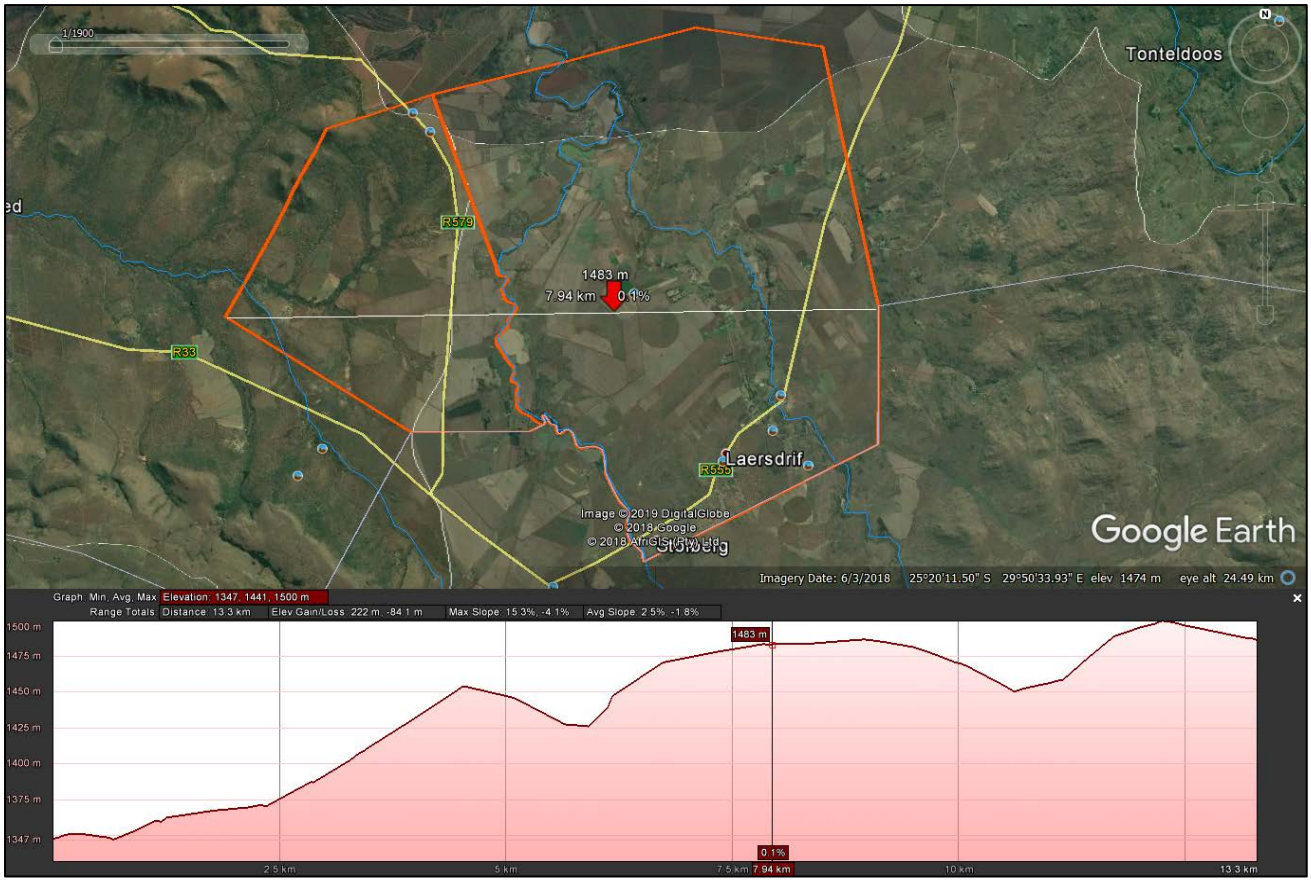


Figure 15: Topography of project area (north to east)

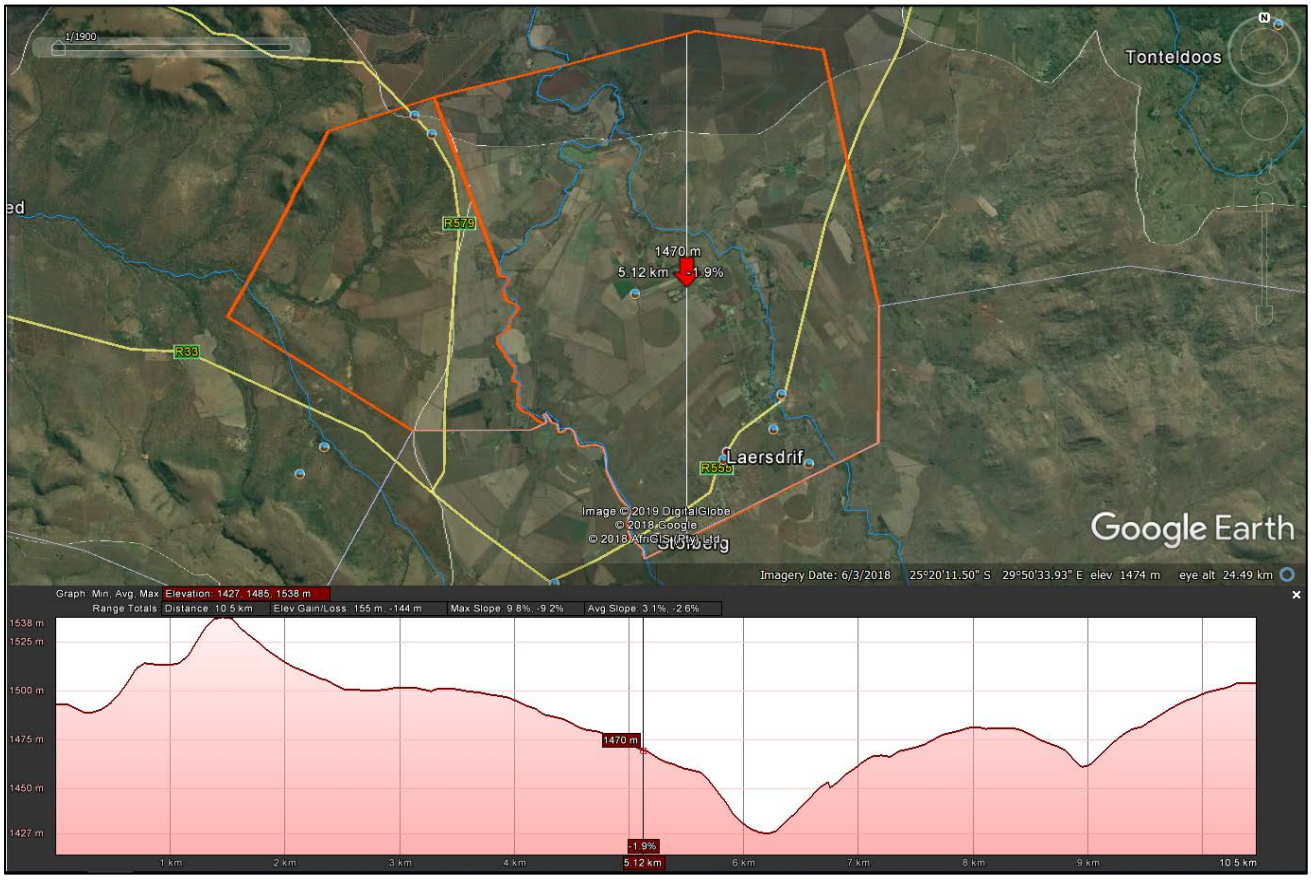


Figure 16: Figure 17: Topography of project area (west to east)

Geology

The application area contains rocks of the Bushveld Complex. The Rustenburg Layered Suite (RLS) is an approximately 8 km thick succession of layered mafic and ultramafic rocks, exposed in 4 major lobes in the Bushveld Complex, i.e., the Eastern Limb, Western Limb, the Northern Limb and the Bethal Lobe. The proposed project area is located within the Eastern Limb of the Bushveld Complex.

The Upper Zone of the Rustenburg Layered Suite contains up to 23 magnetite layers (Molyneux, 1970). The most prominent and prospective is the Main Magnetite Layer (MML), which is encountered over hundreds of kilometres in the Eastern, Western and Northern limbs of the Bushveld Complex. This makes the MML one of the most significant Vanadium deposits on Earth with associated Titanium and Iron as by-products.

Rocks of the Rustenburg Layered Suite, which are associated with the MML, are present on the project area. Figure 4 depicts the geology of the project area and illustrates the presence of a vanadium, iron and titanium rich layer within the project area.

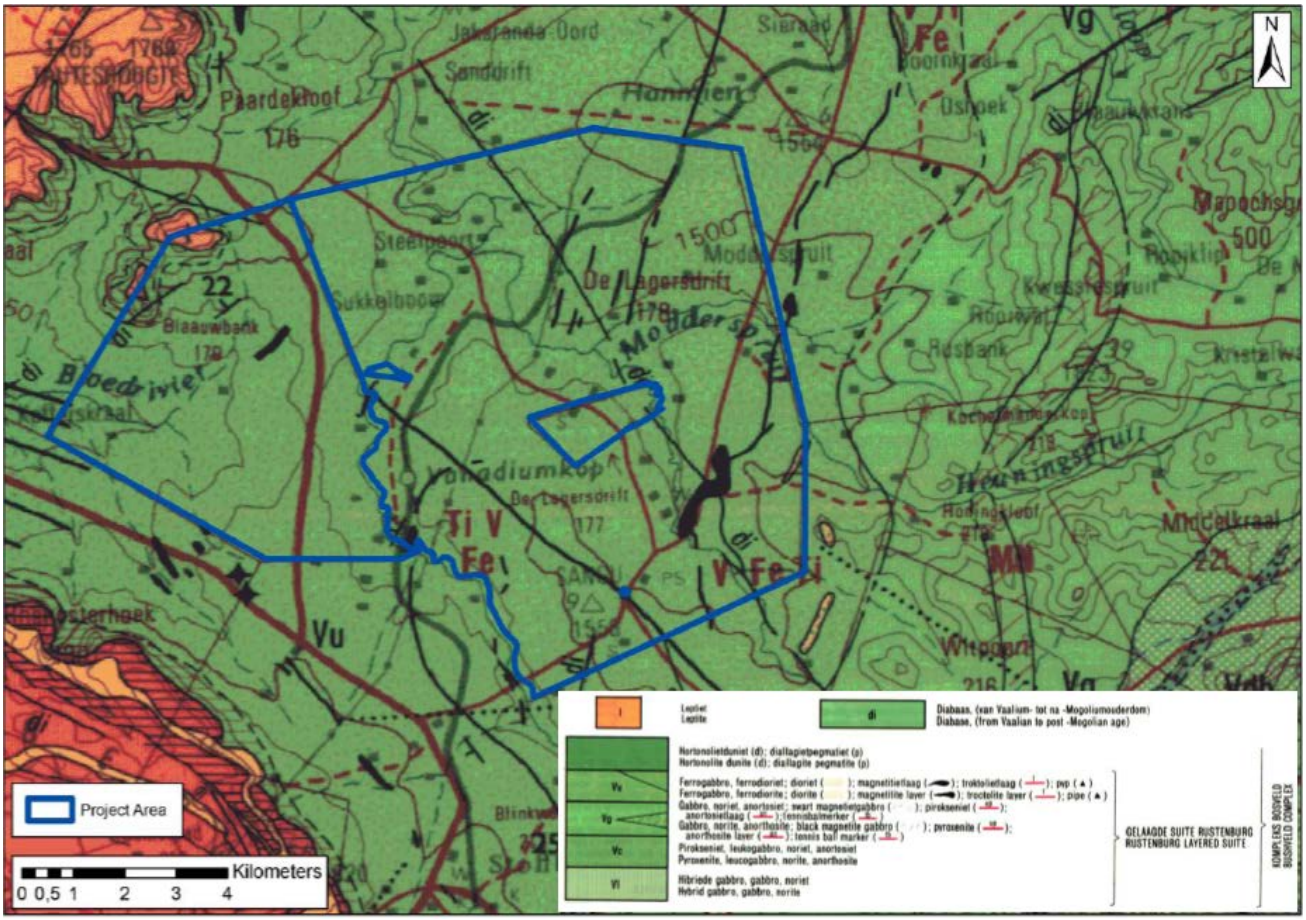


Figure 18: Geological map of the proposed prospecting area

Groundwater

A specialist opinion from a Geohydrologist, on the impacts of prospecting drill holes on groundwater, was obtained: *"Drilling for exploration purposes often entails either diamond core drilling or rotary air percussion drilling. In unstable rock formations, core drilling occasionally uses drilling mud or fluid to stabilise the formation. However, in South Africa's hard rock aquifers, this is often not required. Therefore, a low risk to groundwater quality exists during exploration with the exception of chemical spills on site such as hydrocarbons. Drilling also does not influence aquifer mechanics on any*

notable scale. Groundwater is transported through rock formations in fractures and fissures in a hard rock aquifer. This process occurs over km scales within which the width of a drill rod is negligible. Therefore, the rock acts like a sponge and not a plumbing system which can be "severed" as often thought. It merely forms an additional cavity in the rock in the form of the drill hole and cannot inhibit flow. The only way to inhibit flow through rock is to seal off fractures with grout, a type of engineering cement which is designed for this specific purpose. Another cause could be over-utilising groundwater in which case water bearing fractures could collapse and the specific borehole can no longer be utilised. However, this does not mean that other boreholes in the area which are not connected to the collapsed fracture can no longer be utilised." Mr Altus Huisamen (Ph.D., Pr.Sci.Nat., Hydrogeochemist).

The Eastern Highveld Hydrogeological Region covers virtually the whole southern portion of the Limpopo Province. The rocks found here belong to the Ecca Formation, which forms part of the Karoo Supergroup. The rocks where formed during the Permian Erathem, which was an extremely wet period in the history of the earth, hence the coal deposits, which occur throughout this region. The hydrogeological map (Johannesburg) shows this area as having intergranular and fractured aquifer with a low to medium development potential.

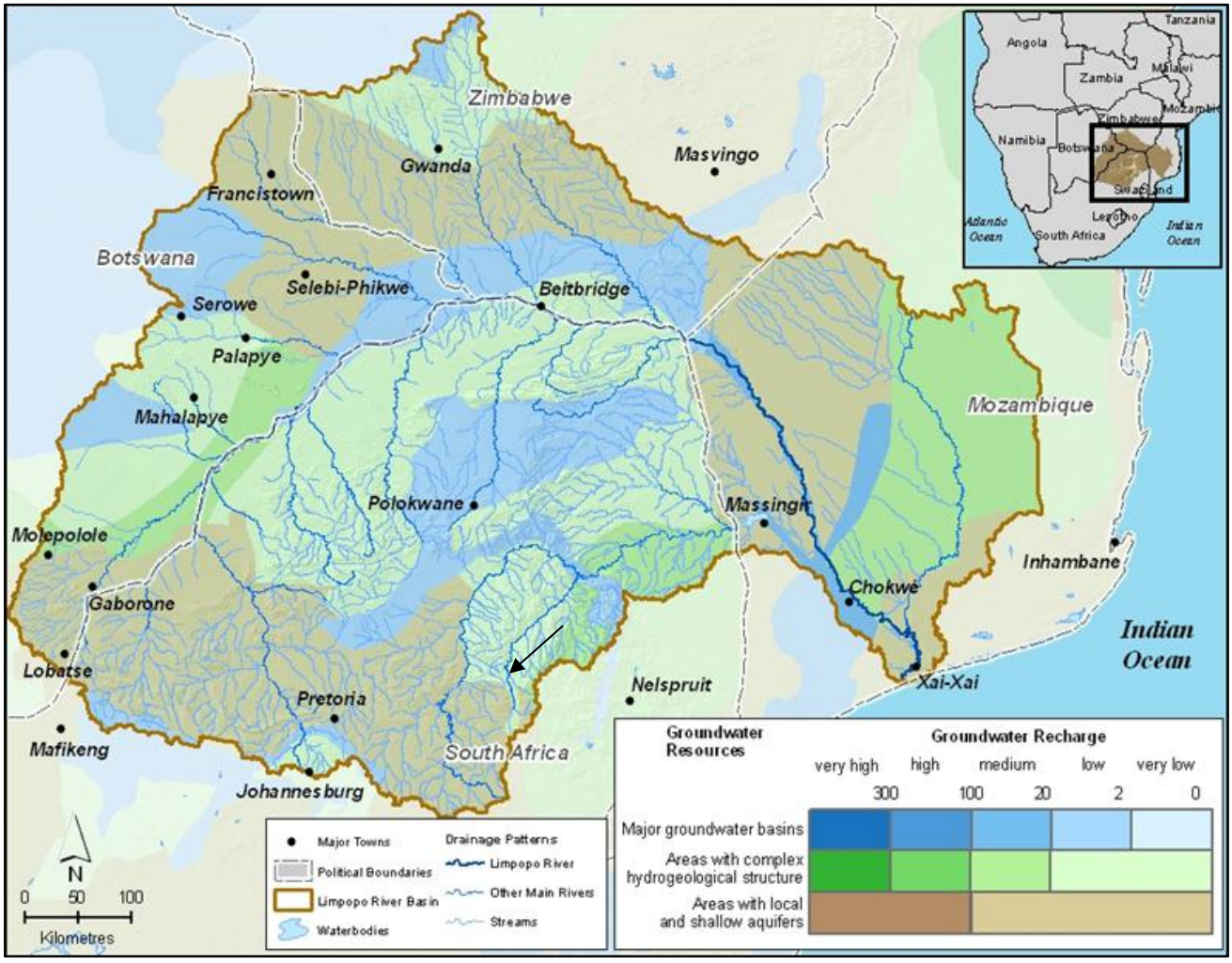


Figure 19: Regional groundwater resources

Surface Water

The project site is situated at the intersection of the B41B, B32E and B41 quaternary catchments. The Laersdrift River and Steelpoortdrift River flow through the eastern section of the project area, confluencing toward the northern boundary of the prospecting right area. The western section of the prospecting area is drained by tributaries of the Bloed River, which flows through the eastern most section of the project area. None of the rivers and stream on the project area are expected to be impacted by the prospecting activities, as all activities are to take place outside of 100 m of any watercourses.

The project occurs in the Middle Olifants sub-WMA of the Olifants Water Management Area. The Olifants River originates in the Highveld of Mpumalanga and the water management area covers three provinces; Gauteng, Mpumalanga and Limpopo.

The information presented in the table below was sourced from the Proposed Reserve Determination of Water Resources for the Olifants and Letaba Catchments published in September 2017 by the Department of Water and Sanitation.

Catchment	River name	Present Ecological State (PES)	Ecological Importance and Sensitivity (EIS)	Recommended Ecological Category (REC)
B41B	Steelpoort	C	Moderate	C
B41D	Steelpoort	C	High	C
B32E	Bloed	B	High Moderate	B

All drill sites, trenches and site camps will be situated outside of the 100 m buffers of the watercourses on site.

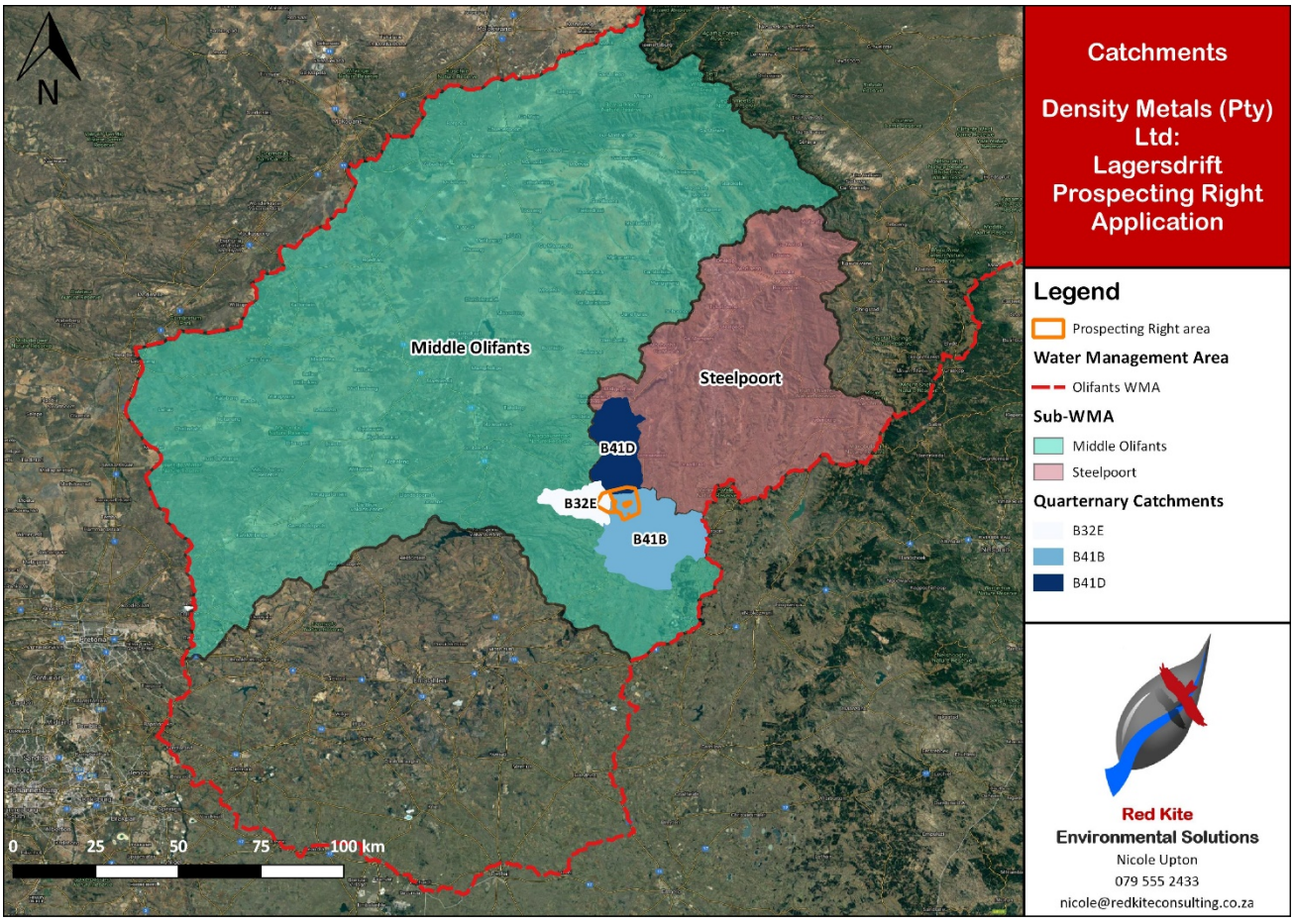


Figure 20: Catchments

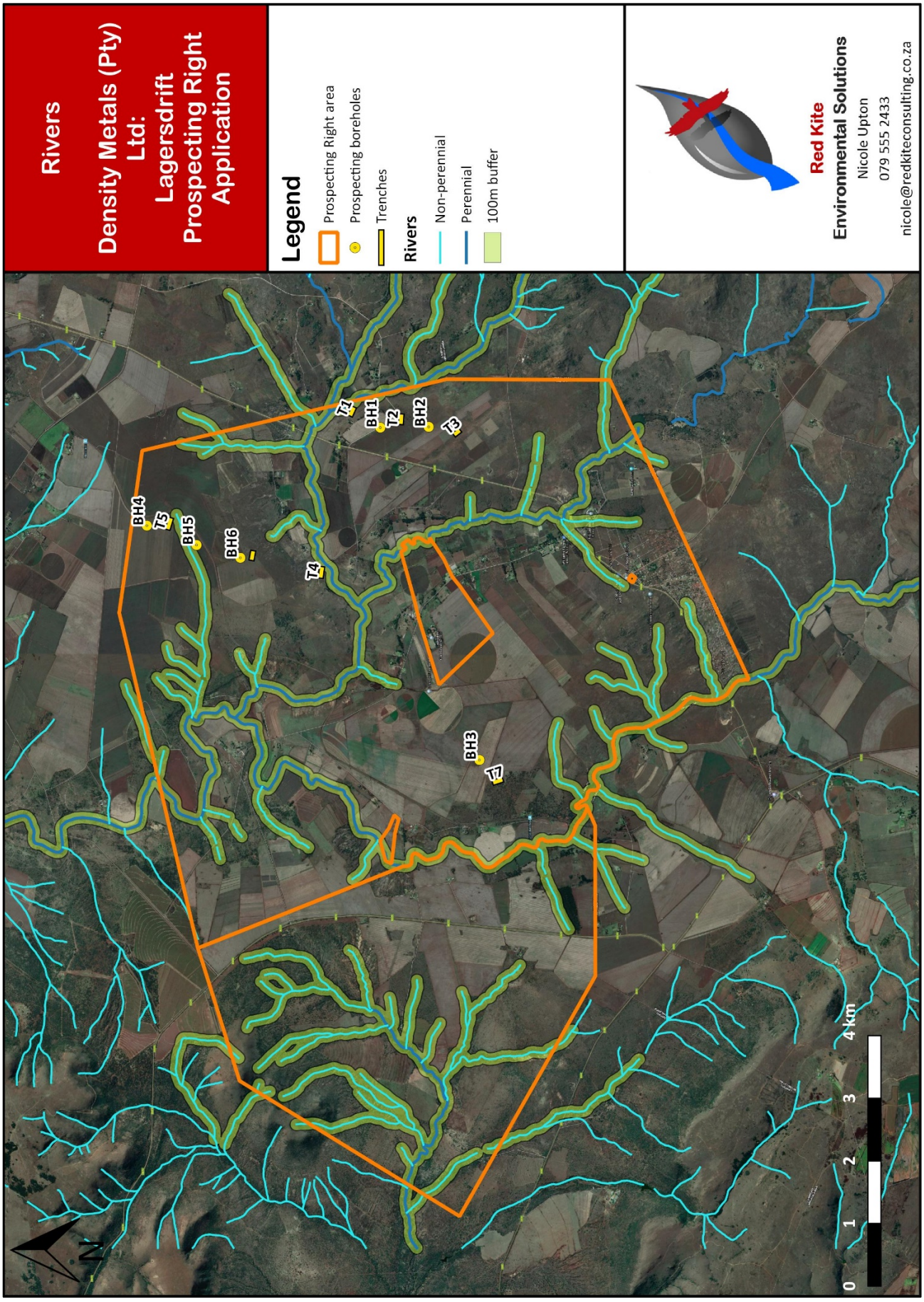


Figure 21: Watercourses on the project site

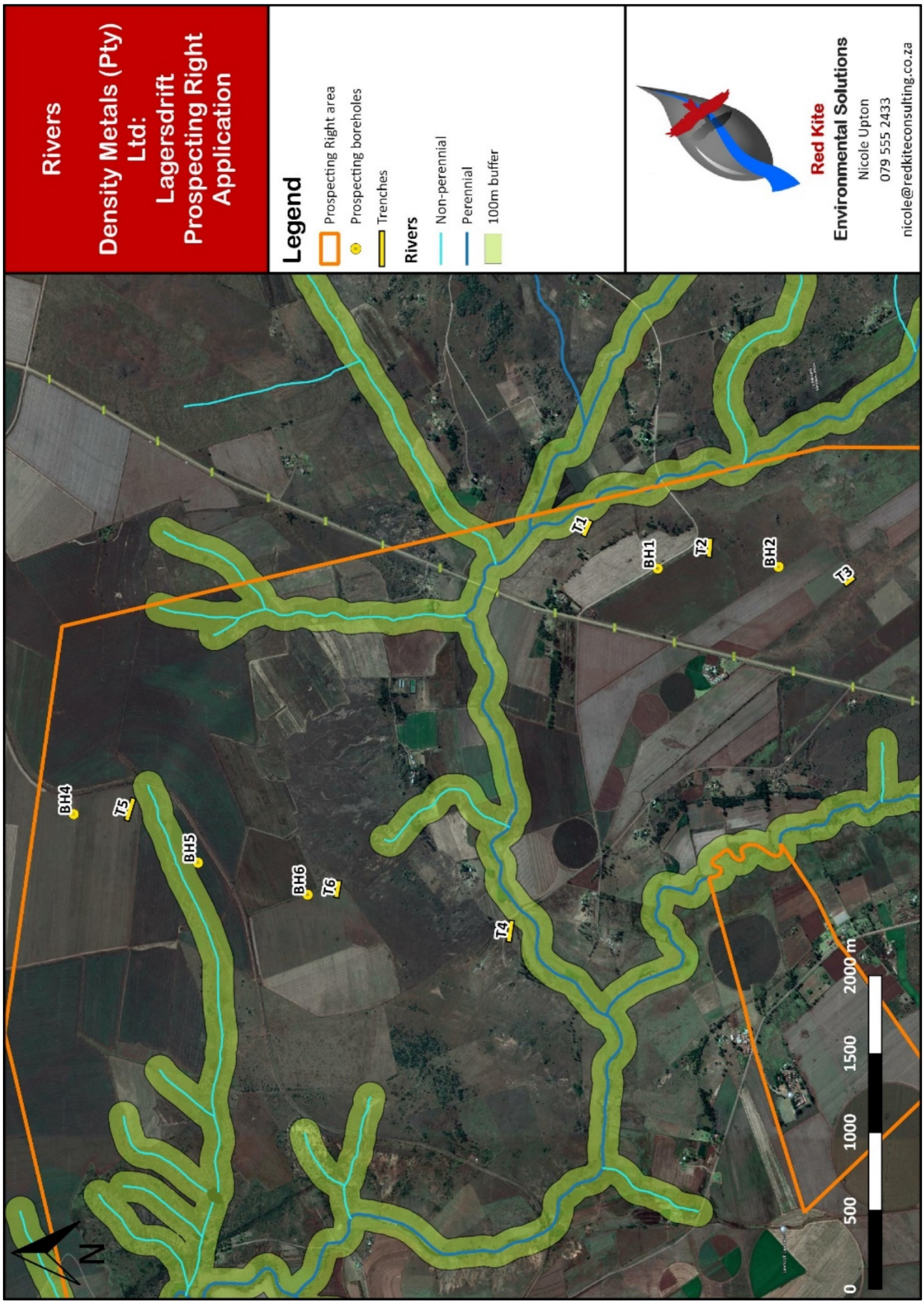


Figure 22: Trenches and boreholes outside of 100 m river buffer

Ecology

A desktop Fauna and Flora Assessment was conducted to establish whether any potentially sensitive fauna and flora species or species of conservation concern may possibly occur on site. Refer to Appendix 6 for he Fauna and Flora Report.

The majority of the planned invasive prospecting activities (boreholes and trenches) are not proposed within sensitive zones, as most of the footprints occur within transformed/cultivated land.

The project area is located in the Sekhukhune Montane Grassland (Gm19) and Rand Highveld Grassland (Gm11) vegetation types. Prospecting activities (boreholes and trenches) are only planned on the Sekhukhune Montane Grassland vegetation type.

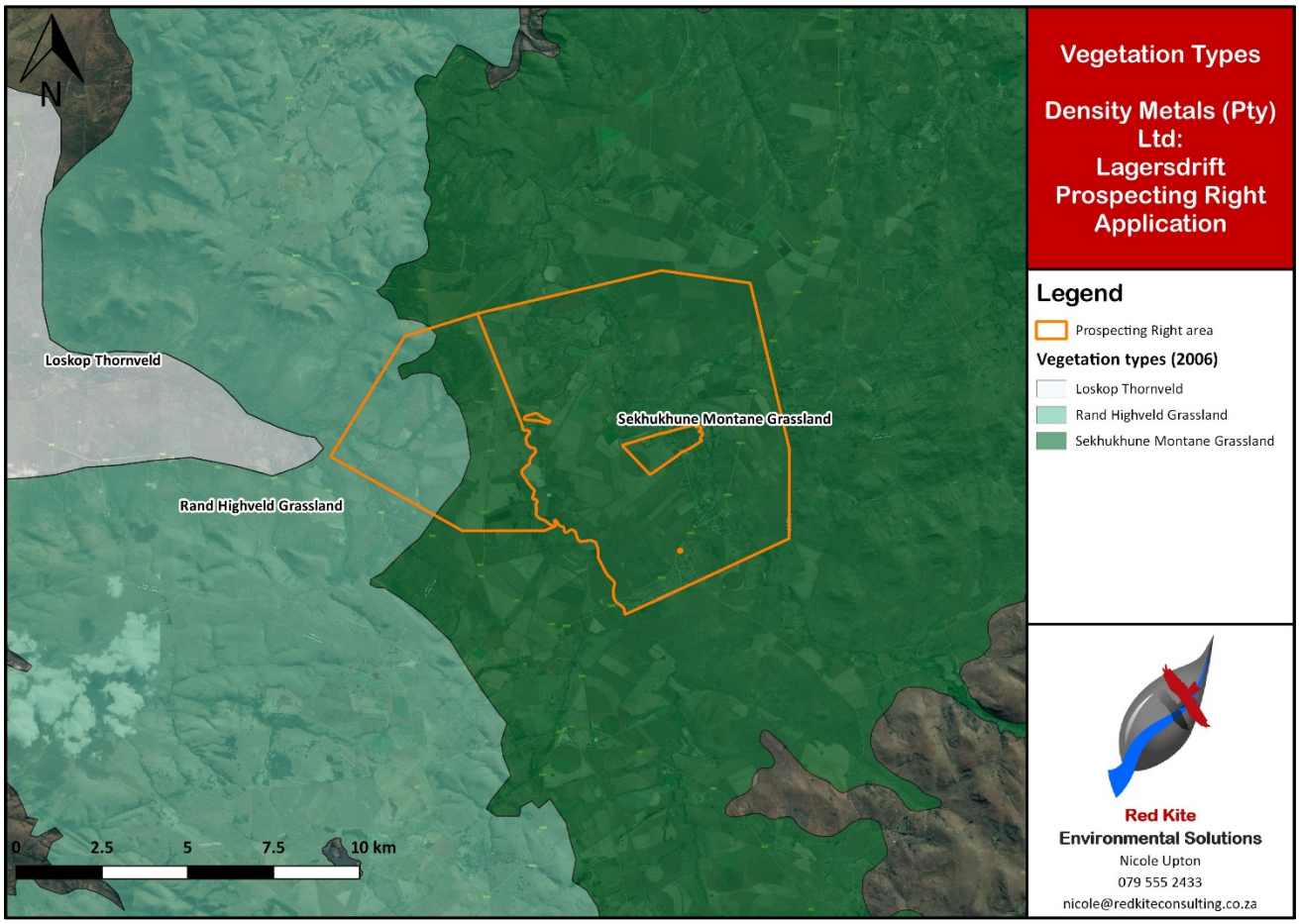


Figure 23: Vegetation types of the project area

The study area falls within the 2529BD Quarter Degree Square. Information on plant species recorded was extracted from the POSA online database hosted by SANBI, based on a 15 km x 15 km square surrounding the project area. A list of plant species that have a high probability of occurring in the aforementioned area (15 km x 15 km square) is provided in Appendix B. The results indicate that approximately 95 plant species occur within the square, consisting of 36 families. The most prominent families are Apocynaceae and Fabaceae, each with 10 species. Four species of conservation concern

were found to possibly occur in the area. Three exotic plant species are known to occur within the area queried. Of the 94 plant species listed as occurring in the project area, twelve are endemic to South Africa (refer to species list in Appendix B).

Table 5: Floral species summary for QDS

Number of Families	Number of species	Species of conservation cencern	Exotic/naturalised species
36	95	4	3

Aloe castanea (Catstail aloe), *Brachystelma rubellum* and *Cyrtanthus contractus* are listed in Schedule 12 of the LEMA as a protected species. *Aloe reitzii* is listed as Near threatened in the IUCN Red List.

None of the species listed for the area queried are listed in the Threatened and Protected Species (ToPS) List, as published in the Government Gazette Notice No. 151 of 2007 (12 February 2007) as part NEMBA (Act 10 of 2004).

None of the Protected Tree species, as promulgated in terms of the National Forest Act (Act 84 of 1998), were listed for the area queried.

Invasive and exotic species tend to increase in disturbed environments (DEA & DMR, 2013). Therefore, the construction and operational phases of developments can increase the spread and growth of invasive species. Three plant species not indigenous to South Africa were listed for the project area, two of which are listed as alien and invasive plant species in NEMBA, 2004 (Act 10 of 2004). *Acacia dealbata* (Silver wattle) is a category 2 AIP and *Verbena bonariensis* (Purple top) is a category 1b AIP.

Category 1 is the strictest category of species and none of these species are allowed to occur and/or become established on any land area except for the use of a biological control reserve. They possess characteristics that are harmful to humans, animals or the environment. Category 1b is described in NEMBA, 2004 (Act 10 of 2004) as invasive species that may not be owned, imported into South Africa, grown, moved, sold, given as a gift or dumped in a waterway. Category 1b species are major invaders that may need government assistance to remove.

Two Category 2 plant species were recorded on the site. Category 2 AIP are invasive species that can remain in your garden, but only with a permit, which is granted under very few circumstances.

Some of the species that are listed on POSA for the project area have cultural and/or medicinal use. Various medicinal books and peer-reviewed articles were used to verify whether the species have any medicinal uses. Thirty-nine species were listed have medicinal uses:

1. *Acalypha villicaulis*
2. *Adenia digitata*
3. *Alepidea setifera*
4. *Aloe transvaalensis*
5. *Amaranthus thunbergii*
6. *Asparagus laricinus*
7. *Convolvulus sagittatus*
8. *Cynodon dactylon*
9. *Cyrtanthus contractus*

10. *Diospyros lycioides*
11. *Eleusine coracana*
12. *Eriosema cordatum*
13. *Eriosema psoraleoides*
14. *Erythrina zeyheri*
15. *Felicia filifolia*
16. *Gladiolus crassifolius*
17. *Helichrysum athrixiifolium*
18. *Helichrysum cooperi*
19. *Helichrysum nudifolium*
20. *Huernia zebrina*
21. *Hypoxis multiceps*
22. *Hypoxis rigidula*
23. *Imperata cylindrica*
24. *Jamesbrittenia burkeana*
25. *Jatropha hirsuta*
26. *Jatropha zeyheri*
27. *Lasiosiphon capitatus*
28. *Ledebouria cooperi*
29. *Monocymbium ceresiiforme*
30. *Myrothamnus flabellifolius*
31. *Otholobium wilmsii*
32. *Oxygonum sinuatum*
33. *Pachycarpus asperifolius*
34. *Plectranthus hadiensis*
35. *Ranunculus multifidus*
36. *Searsia dentata*
37. *Tephrosia capensis*
38. *Vachellia karroo*
39. *Ziziphus zeyheriana*

These plants are important from a cultural perspective and are used for traditional/cultural purposes. Traditional medicine in South Africa is an important practice on which seventy two percent of the Black African population relies, that accounts for 26.6 million consumers (Mander et al., 2007). Approximately 133 000 people are employed in the trade of traditional medicine, especially rural women (Mander et al., 2007).

Several species were identified as possibly sensitive species within the framework of this study. The sensitive species were determined according to their close relationship and dependence on the vegetation type and possible sensitive areas located on the relevant farm. As per the intended activity areas received from the client, it seems prospecting is not proposed within sensitive zones, as most of the footprints (boreholes and trenches) occur within transformed/cultivated land. Other natural areas should be restricted in terms of access.

Table 6 lists all fauna species that are of conservation concern which were found during the desktop study. Only mammalian, avi-faunal species and Lepidopteran species with a red listed status are known to occur within the specific area where the prospecting is to take place.

Table 6: Fauna species of conservation concern found in 2529BD QDS

Common name	Species	Conservation status
Mammals		
Southern African Hedgehog	*Atelerix frontalis*	Near Threatened (2016)
Leopard	*Panthera pardus*	Vulnerable (2016) – ***Not expected***
Lepidopteran		
Scarce widow	*Dingana fraterna*	Critically Endangered (SABCA 2013)
Rossouw's copper	*Aloeides rossouwi*	Endangered (SABCA 2013)
Avi-faunal		
Crane, Blue	*Anthropoides paradiseus*	Near Threatened (Regional) Vulnerable (Global)
Eagle, Verreaux's	*Aquila verreauxii*	Vulnerable (Regional) Least Concern (Global)
Falcon, Lanner	*Falco biarmicus*	Vulnerable (Regional) Least Concern (Global)
Ibis, Southern	*Bald Geronticus calvus*	Vulnerable (Regional) Vulnerable (Global)

Common name	Species	Conservation status
Korhaan, White-bellied	*Eupodotis senegalensis*	Vulnerable (Regional) Least Concern (Global)
Secretarybird, Secretarybird	*Sagittarius serpentarius*	Vulnerable (Regional) Vulnerable (Global)
Stork, Black	*Ciconia nigra*	Vulnerable (Regional) Least Concern (Global)
Sugarbird, Gurney's	*Promerops gurneyi*	Least Concern (Regional) Near Threatened (Global)

It is important to note that, from aerial photographs, it is apparent that large parts of the Prospecting Right area have had their natural vegetation disturbed through agriculture (crop production and grazing). The vegetation cover in the disturbed areas is now of a secondary nature.

The Kwaggavoetpad Nature Reserve is situated approximately 21 km toward the north-west of the project area and the Verloren Valei Nature Reserve is situated 21 km east of the Prospecting Right area. A small area in the north-western section of the project area falls within the Mpumalanga Mesic Grassland NPAES.

A small portions of the north-western section of the project area is situated on the Rand Highveld Grassland Vegetation Type which has been categorised as a threatened ecosystems in the Government Gazette (2011), No. 34809, General Notice 1002 (Section **Error! Reference source not found.**), promulgated in terms of NEMBA. The National list of threatened ecosystems categorises the vegetation type as vulnerable.

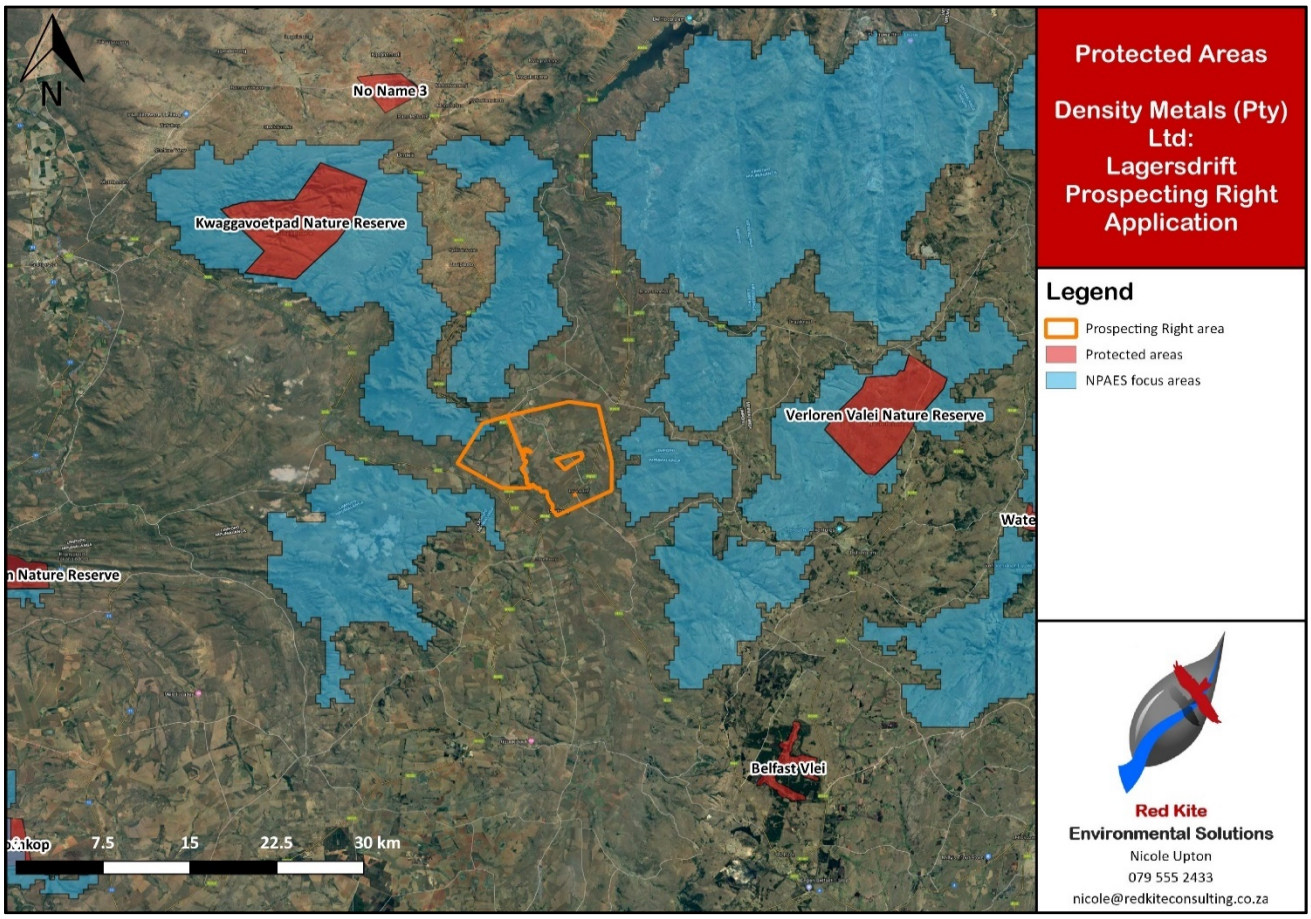


Figure 24: Protected areas in the vicinity of the project site

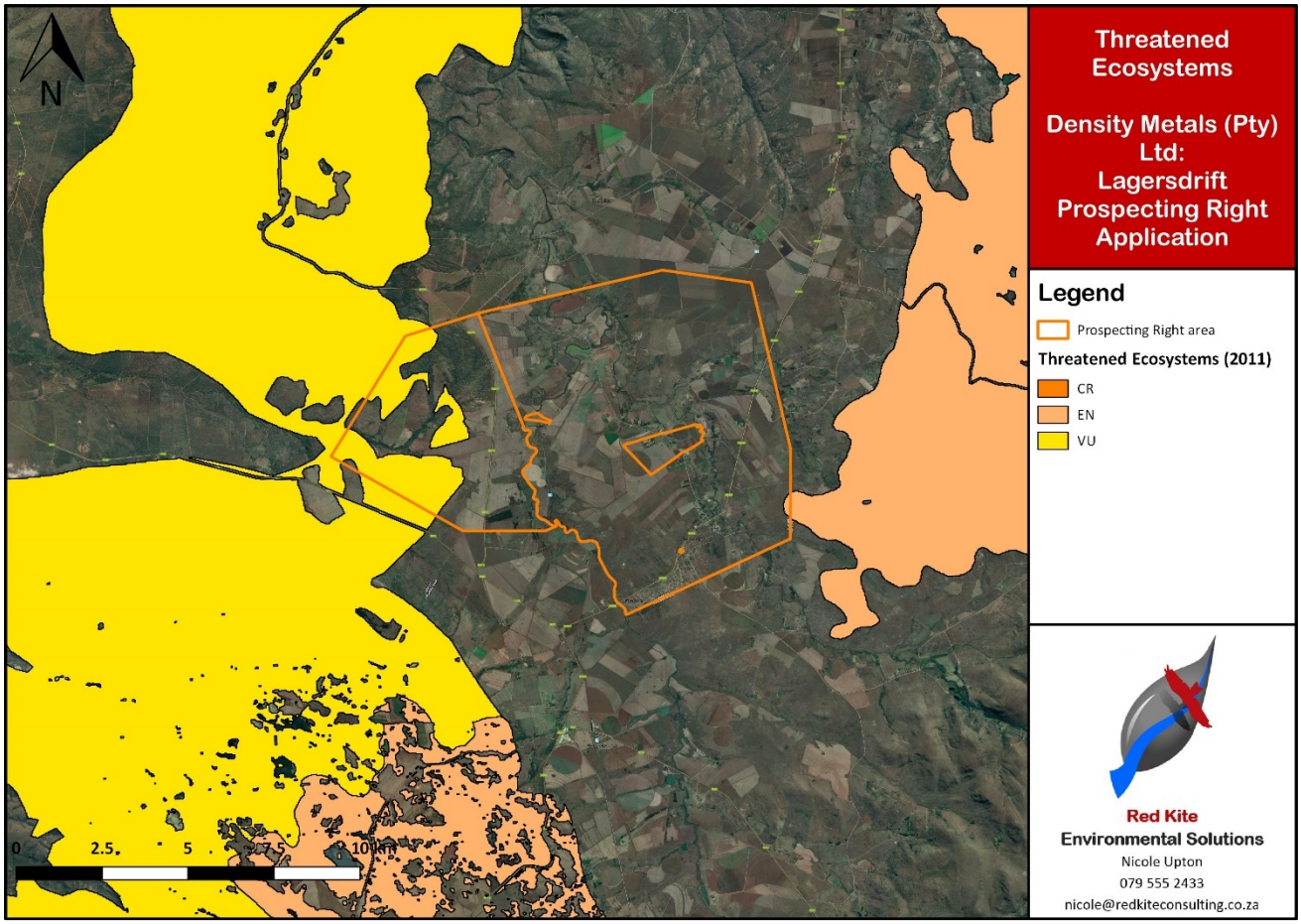


Figure 25: Threat status of associated ecosystems

Various tributaries of the Steelpoort River are located on the project area. Rivers and streams and their associated riparian habitat are considered to be sensitive areas.

Figure 26, below, depicts the project area in relation to the Limpopo Conservation Plan. The project area is situated on areas categorised as CBA1, CBA 2, ESA 1, and ESA2. The majority of the invasive prospecting activities (boreholes and trenches) are situated on ESA2 areas.

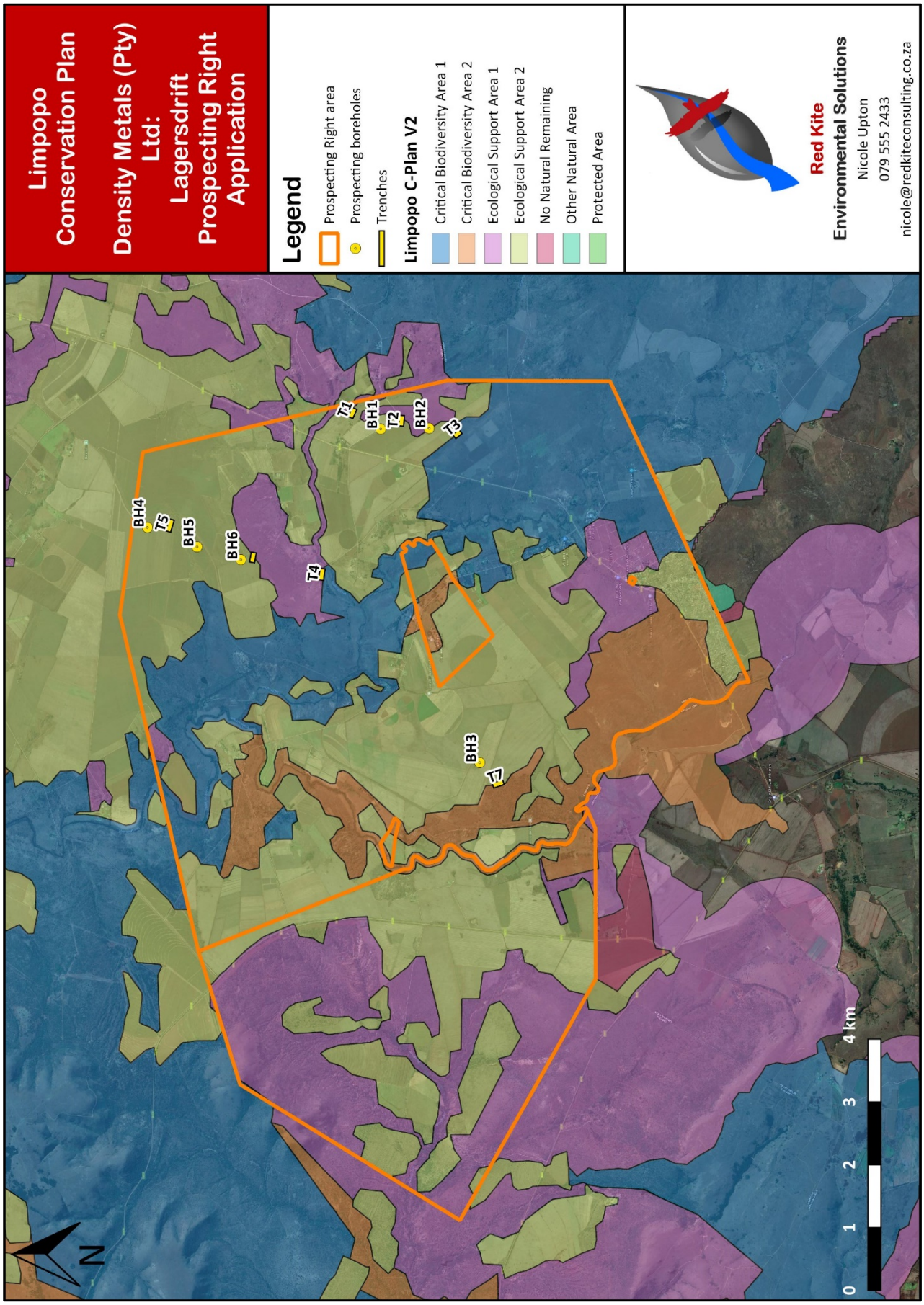


Figure 26: Western Cape Biodiversity Spatial Plan in relation to project area

Important Birding and Biodiversity Areas (IBAs) occur within the larger regional area and the closest corresponds with the Steenkampsberg IBA (towards the east, approximately 20 km) and also the Loskop Dam IBA (far west).

Note: The IBA and these wetland systems are not in close proximity of the proposed farms for prospecting, but birds known to occur within these regions may utilise other surrounding areas as well.

Waterbirds are not expected to be impacted by the prospecting activities, since prospecting activities are usually short term and not located associated with permanent water or wetlands in this case, but largely within transformed and cultivated fields.

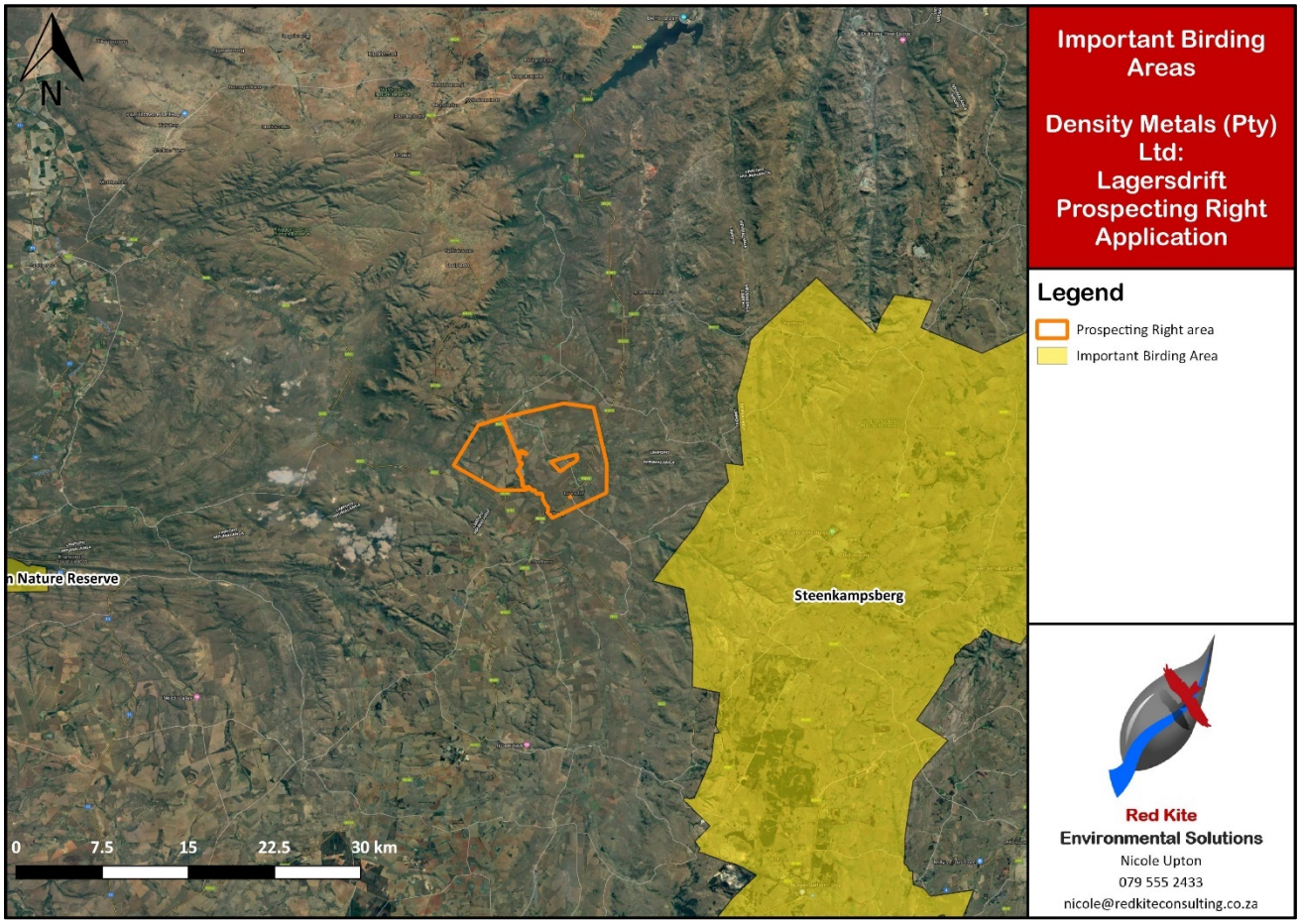


Figure 27: Project area in relation to Important Birding Areas

No site survey has been conducted to verify or dispute the desktop findings.

Socio-economic

According to data published on www.localgovernment.co.za (accessed on 12 February 2019), the population in the Elias Motsoaledi Local Municipality for 2016 was 268 256 (http://www.localgovernment.co.za). The Elias Motsoaledi Local Municipality (previously Greater Groblersdal Local Municipality) is located in the Sekhukhune District of the Limpopo Province. It is one of four municipalities in the district. The seat of the municipality is Groblersdal. The socio-economic characteristics are listed in the table below.

Should the applicant continue with a Mining Right, depending on the information collected during the prospecting phase, the proposed project will provide long-term job opportunities. As a result, the proposed prospecting project may contribute to the local economy through the possible creation of future jobs as well as the purchase of goods and services from the local community.

Cities/Towns: Groblersdal, Roossenekal
Main Economic Sectors: Community services, agriculture, tourism, land development.

Table 7: Elias Motsoaledi Local Municipality demographic information (2016)

Demographic information	2016	2011
Population	268 256	249 36
Population under 15	33.4%	36.1%
Population 15 to 64	60.9%	56.8%
Population over 65	5.7%	7.0%
Dependency Ratio: Per 100 (15-64)	64.3	76.0
Sex Ratio: Males per 100 females	87.4	86.3
Population Growth Per annum	1.66%	n/a
Unemployment rate (official)	n/a	42.9%
Youth unemployment rate (official) 15-34	n/a	52.7%
Education (aged 20 +)		
No schooling	15.8%	24.1%
Matric	26.1%	20.1%
Higher education	6.9%	6.2%
Household Dynamics		
Households	66 359	60 251
Average household size	4.0	4.0
Female headed households	52.3%	53.2%
Formal dwellings	88.5%	90.5%
Housing owned	64.2%	58.1%
Household Services		
Flush toilet connected to sewerage	9.8%	10.1%
Weekly refuse removal	11.1%	10.2%
Piped water inside dwelling	6.8%	12.2%
Electricity for lighting	93.3%	91.1%

Heritage

A Heritage Assessment was performed by APelser Archaeological Consulting (2019) for the Prospecting Right Area and can be found attached as Appendix 7 of this report.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific area, and none were identified in the study area during the assessment.

The study area is located on the various portions of the farm De Lagersdrift 178JS, located approximately 11km north-east of Stoffberg in the Elias Motsoaledi Local Municipality of the Limpopo Province.

The topography of the study area is in general flat and open, with the Borehole and Trench positions located in the main in old and current agricultural areas (ploughed & planted fields). During the assessment some of the locations could not be accessed as a result of wet and rainy conditions, with access roads made impassable. However, as a result of current and recent historical agricultural activities (extensive ploughing and crop growing), any cultural heritage (archaeological and/or historical) sites, features or material that might have been present here would have been largely disturbed or destroyed as a result.

Six proposed borehole and seven trench positions related to the prospecting application had to be assessed, while the larger geographical area within which these fall were also looked at. These borehole and trench positions are situated on the following portions of the farm De Lagersdrift: Portions 63; 73; 120; 123; 137; 138; 139; 141; 142; 166 & 167.

No cultural heritage sites, features or material were identified in the area during the assessment. All the intended Borehole and prospecting trench positions are located in old and current agricultural fields. If any sites (archaeological and/or historical) did exist here it would most likely have been heavily disturbed or totally destroyed as a result of these activities.

It should be noted that although all efforts are made to cover a total area during any assessment and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and significance, that there is always the possibility of something being missed. This will include low stone-packed or unmarked graves. This aspect should be kept in mind when development work commences and if any sites (including graves) are identified then an expert should be called in to investigate and recommend on the best way forward.

(b) Description of the current land uses

The prospecting activities are not expected to affect any existing infrastructure, beyond requiring the use of existing farm access roads. Currently the infrastructure that exists are related to farming practices such as farm houses, sheds, livestock pens, irrigation systems, boreholes and water pipelines and so forth. A disused railway track runs from the north-eat corner of the prospecting area to the south-western border. The R555 regional road passes through the south-eastern section of the projects site were the towns of Laersdrif and Stofberg are located. A safe 100 m buffer has also been placed around existing infrastructure and no drilling or excavation activities will take place within this buffer area.

The current land use of the proposed site is:

- Towns (Stofberg and Laersdrif)
- Railway line (disused)
- Agriculture (crop farming and grazing);
- Primary and secondary roads transecting the project area;
- Wilderness; and
- Communities and residences (farming).

(c) Description of specific environmental features and infrastructure on the site.

T9he Laersdrift River and Steelpoortdrift River flow through the eastern section of the project area, confluencing toward the northern boundary of the prospecting right area. The western section of the prospecting area is drained by tributaries of the Bloed River, which flows through the eastern most section of the project area. None of the rivers and stream on the project area are expected to be impacted by the prospecting activities, as all activities are to take place outside of 100 m of any watercourses.

he Kwaggavoetpad Nature Reserve is situated approximately 21 km toward the north-west of the project area and the Verloren Valei Nature Reserve is situated 21 km east of the Prospecting Right area. A small area in the north-western section of the project area falls within the Mpumalanga Mesic Grassland NPAES.

A small portions of the north-western section of the project area is situated on the Rand Highveld Grassland Vegetation Type which has been categorised as a threatened ecosystems in the Government Gazette (2011), No. 34809, General Notice 1002 (Section **Error! Reference source not found.**), promulgated in terms of NEMBA. The National list of threatened ecosystems categorises the vegetation type as vulnerable.

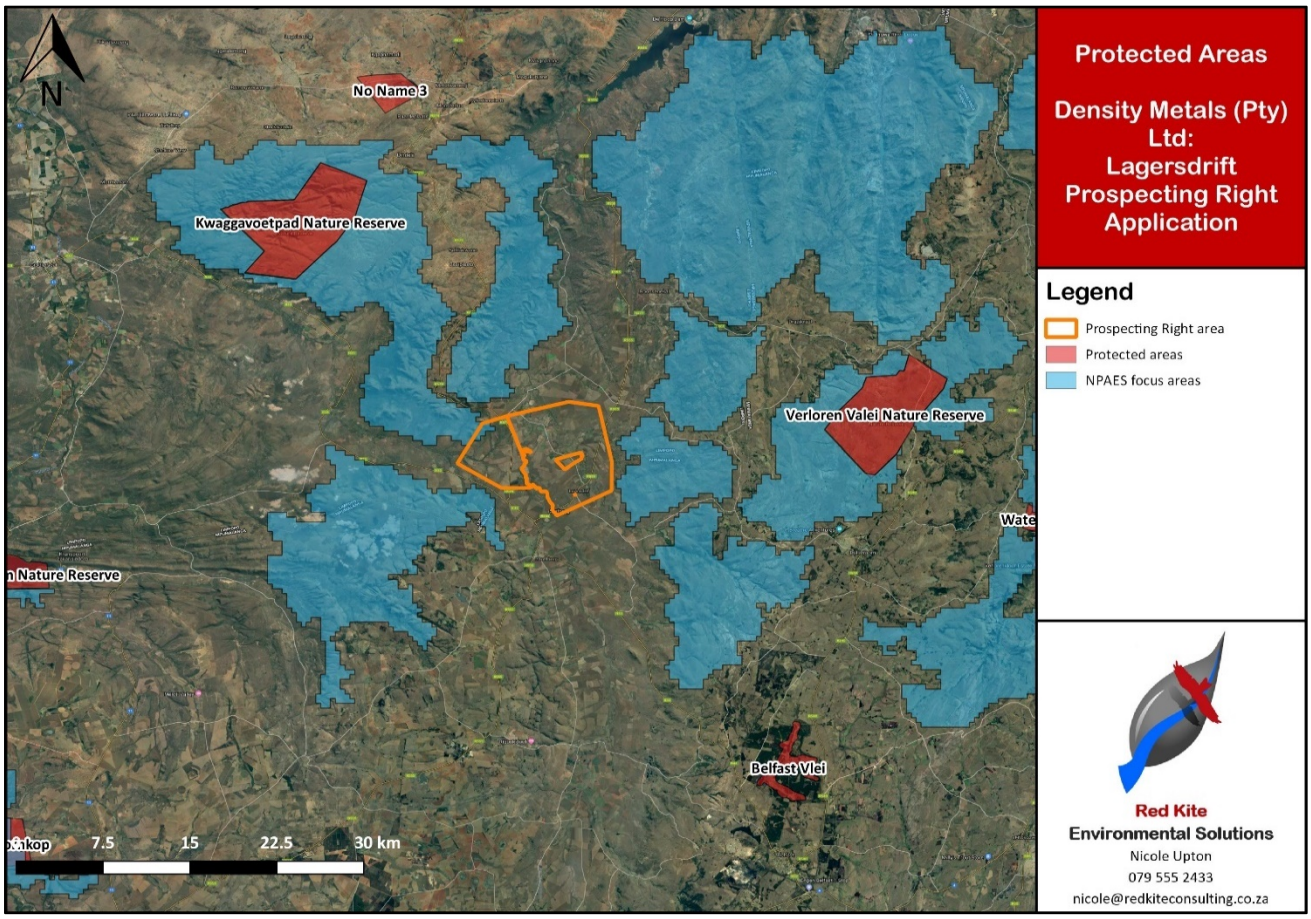


Figure 28: Protected areas in the vicinity of the project site

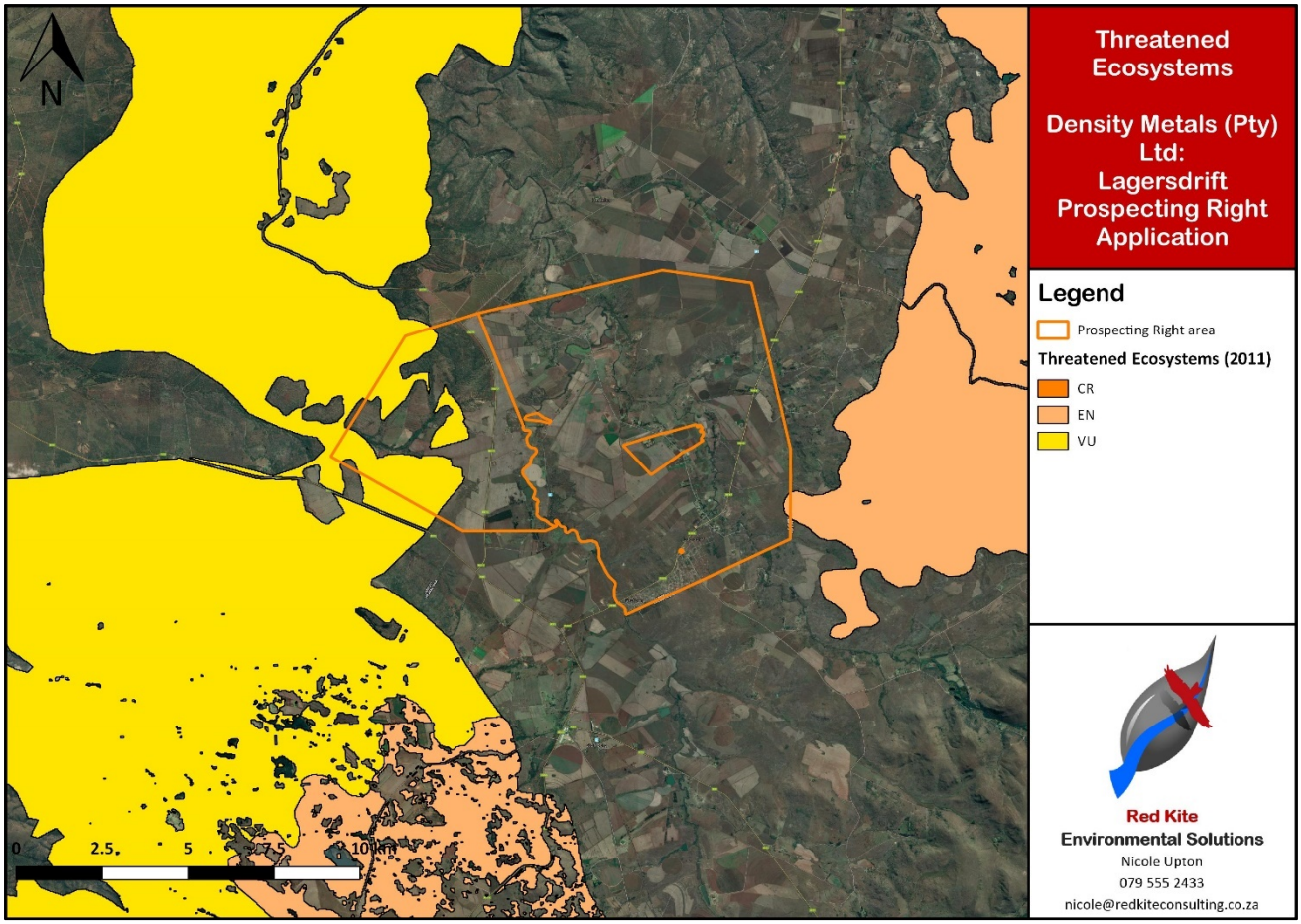


Figure 29: Threat status of associated ecosystems

Various tributaries of the Steelpoort River are located on the project area. Rivers and streams and their associated riparian habitat are considered to be sensitive areas.

The figure below, depicts the project area in relation to the Limpopo Conservation Plan. The project area is situated on areas categorised as CBA1, CBA 2, ESA 1, and ESA2. The majority of the invasive prospecting activities (boreholes and trenches) are situated on ESA2 areas.

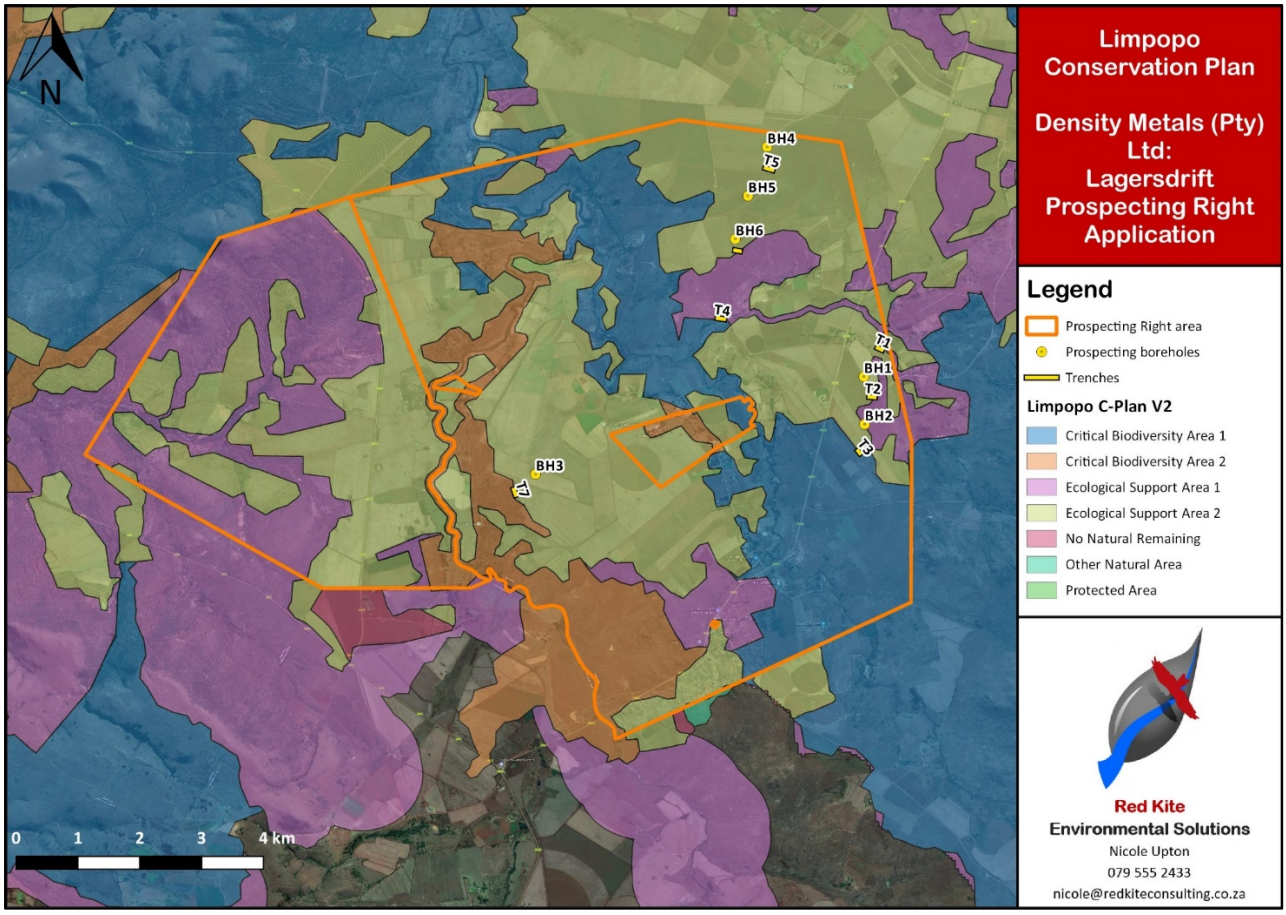


Figure 30: Western Cape Biodiversity Spatial Plan in relation to project area

Important Birding and Biodiversity Areas (IBAs) occur within the larger regional area and the closest corresponds with the Steenkampsberg IBA (towards the east, approximately 20 km) and also the Loskop Dam IBA (far west).

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

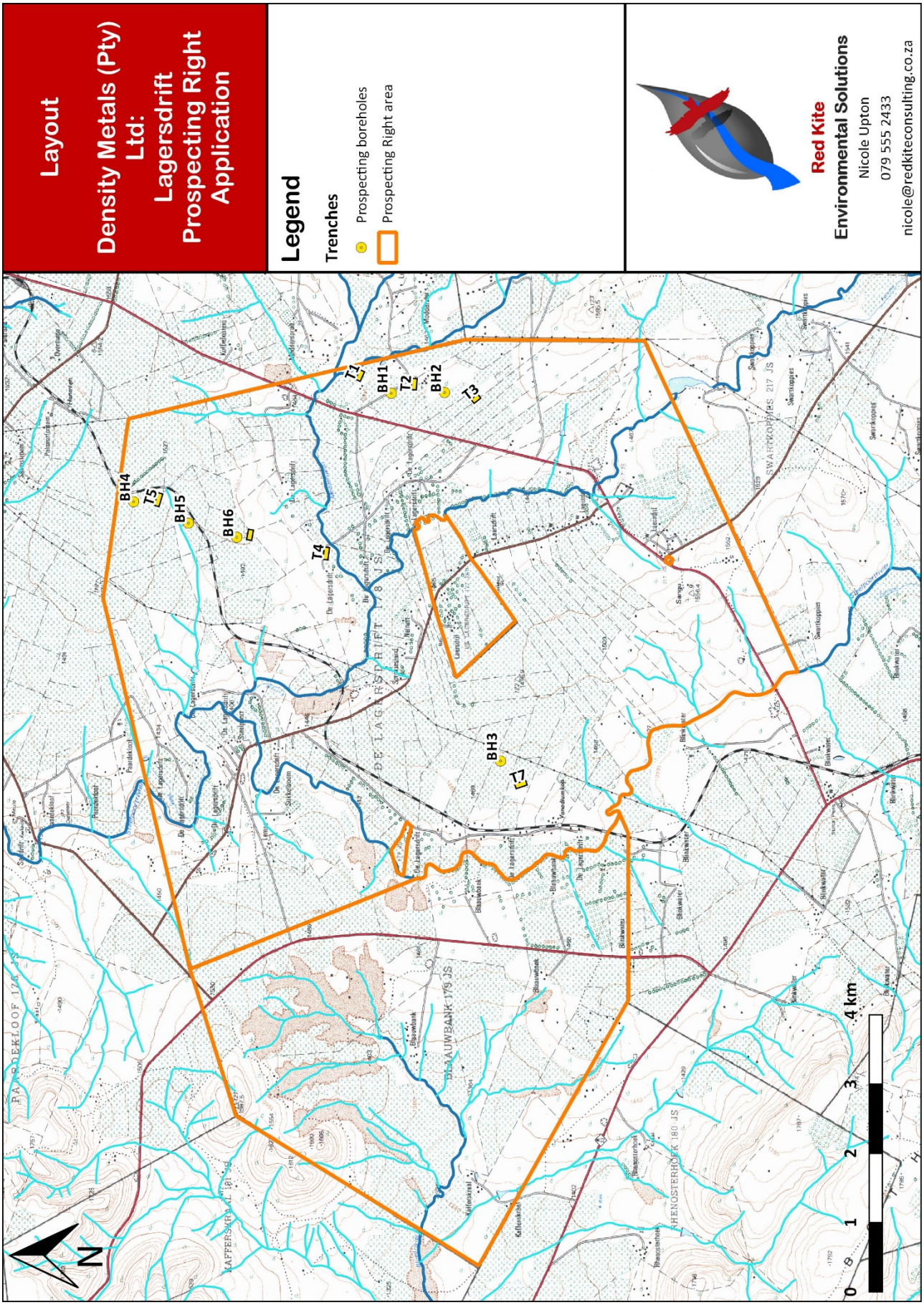


Figure 31: Current land use map

v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

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

Table 7 and Table 8 identifies and lists the various anticipated impacts, while Table 9 and Table 10 provide details on the rating of these impacts in terms the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be mitigated or reversed.

Table 8: List of identified impacts and proposed mitigations measures

Potential impacts	Mitigation measures
Construction phase	
Fauna and Flora – Clearance of vegetation for establishment of site camp and trenches	• No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • No activities will take place within 100 m of any water body • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal. • The prospecting areas should be well demarcated and contractors should not enter into adjacent areas. • All trenches should be fenced-off to prevent game or livestock from falling in.
Air Quality - dust creation due to clearance	• Dust abatement by wetting down exposed areas at drill sites, trenches and/or camp site, where required.

Environmental training	• All site personnel will have a basic level of environmental awareness training.
	• Topics covered should include;
	  ◦ What is meant by “Environment”
	  ◦ Why the environment needs to be protected and conserved
	  ◦ How construction activities can impact on the environment
	  ◦ What can be done to mitigate against such impacts
	  ◦ Awareness of emergency and spills response provisions
	  ◦ Social responsibility during construction of the camp site e.g. being considerate to local residents
	• The need for a “clean site” policy also needs to be explained to the workers.

Prospecting (operational) phase	

Environmental training	• All site personnel will have a basic level of environmental awareness training.
	• Topics covered should include;
	  ◦ What is meant by “Environment”
	  ◦ Why the environment needs to be protected and conserved
	  ◦ How construction activities can impact on the environment
	  ◦ What can be done to mitigate against such impacts
	  ◦ Awareness of emergency and spills response provisions

Potential impacts	Mitigation measures
	• Social responsibility during construction of the camp site e.g. being considerate to local residents • The need for a "clean site" policy also needs to be explained to the workers.
Air quality – dust creation due to vehicle movement, excavation and drilling	• Dust abatement by wetting down exposed areas at drill sites, trenches and/or camp sites will be required. • Vehicles will stay on the approved or available tracks as far as practically possible. • Low speed limits will be set to avoid the creation of dust (40 km/hr). • All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions from their engines. • No burning of waste will be allowed on site. • Fire extinguishers and other fire safety equipment will be available on site. • Drilling and trench locations as set out by the final layout plan and as discussed with the relevant landowners will be adhered to. • Excavations and other clearing activities will only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. • Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Project Geologist and Contractor. • All areas will be rehabilitated immediately upon conclusion of work conducted.
Noise pollution – vehicle movement, use of drill rigs and excavation machinery	• The activities will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislation regarding noise control. • Employees will be supplied with ear plugs. All prospecting vehicles will be maintained in a road worthy condition. • All work will be limited to daylight hours, i.e. between 6am and 6pm
Waste pollution – domestic waste produced by workers	• Bins will be emptied on a regular basis. • Domestic waste to be removed from site - no burying or burning of domestic waste will be allowed. • Ablution facilities will be regularly serviced.
Water pollution (Surface and groundwater, wetlands and water bodies) – due to possible spillages, leaks from vehicles or ablution facilities	• Prospecting activities will not be conducted within 100 m of a watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to drilling and trenching taking place. All preliminary drill hole and trench locations are placed to **NOT** occur within these buffer zones. • Limited amounts of water (approximately 5000 liters / day) will be used during drilling. Water will be trucked to site. • Ablution facilities will not be placed within 100 m of any water body. • No construction will take place inside or within 100 meters of any water body or wetland. **Hazardous materials** • All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces.

Potential impacts	Mitigation measures
	• The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential high runoff storm water events. • Any hazardous substances will be stored at least 100 m from any of the water bodies on site. • Contaminated wastewater will be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp will be collected and removed from the site for appropriate disposal at a licensed commercial facility.
Soils – soil erosion and pollution due to exposed areas not being managed, leaks or spillages from ablution facilities	• Dust abatement by wetting down exposed drill site and camp areas will be required. • Stockpiles will be below the 1.5 m height restriction. • The use of oil drip trays under drilling equipment to ensure no spillage of oils and fuels onto the ground. • Where possible, no major vehicle repairs will be done on site. • Oils and fuel will be stored on bounded areas to avoid spillages. • Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (in excess of 35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water and Sanitation, DMR and any other relevant authorities. In such cases the contaminated soil will be excavated and disposed at a suitably licensed and registered landfill. • An emergency plan for spillages will be available on site. • Storm water runoff in and around drill holes and trenches will be controlled. • Keep equipment and vehicles within the limits of the initially disturbed areas. • Apply erosion control measures (i.e. silt fences) in areas that have high risk for erosion.
Fauna and Flora – due to uncontrolled vehicle movement or improper rehabilitation	• Only demarcated areas for drilling and trenching will be cleared to the minimum required for access and adjacent and/or other areas will not be disturbed. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • To minimize potential impacts to animal species, animals (wildlife and domestic animals) may under no circumstances be handled, removed, killed or interfered with by the Contractor, his employees, his Sub-Contractors or his Sub-Contractors' employees. • No cigarette butts will be disposed of on the relevant properties. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal. • Vehicles will remain on approved tracks. • All trenches should be fenced-off to prevent game or livestock from falling in. • See rehabilitation mitigation measures.

Potential impacts	Mitigation measures
Fire Prevention	• The Contractor will have operational fire- fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process. • See mitigation measures for Fauna and Flora above.
Erosion	• Wind screening and storm water control will be undertaken to prevent soil loss from the site. • All erosion control mechanisms will be regularly maintained. • Re-vegetation of disturbed surfaces will occur immediately after the construction and prospecting activities are completed. • Rehabilitation will be undertaken progressively
Visual impact – may impact on surrounding land uses where visitors value the undisturbed / untransformed characteristics of the general region and due to the visibility of vehicles	• Visual impacts will be of a temporary nature and unfortunately cannot be mitigated.
Cultural and Heritage Artifacts	• Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artifacts are uncovered in the affected area and mitigation measures recommended by SAHRA will be followed. • The contractor will ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. • Any discovered artifacts will not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. • Drill sites and trenches are to be positioned to not impact on any identified sites heritage significance.
Prospecting (rehabilitation/closure) phase	
Fauna and Flora – due to uncontrolled vehicle movement or improper rehabilitation	• Mitigation measures as per Part B (EMPr) of this report will be adhered to. • Site activities will be restricted to daylight hours between 6am and 6pm and as per the agreement with the landowner/s. • Vehicles will remain on the existing tracks. • Prospecting activities will not be conducted within 100 m of pens and stalls. • All equipment will be removed from site. • Rehabilitation will be done in such a manner that the site is in the state prior to prospecting. • All structures comprising the site camps will be removed from site. • The area that housed the site camps will be checked for spills of substances such as oil, paint, etc., and these will be cleaned up and contaminants disposed of appropriately.
Land degradation – due to improper site clean-up	• All waste bins and domestic waste will be removed from site once the activity is complete. • Excess topsoil not used in rehabilitation will be levelled. • All equipment will be removed from site on completion of the activity.

Potential impacts	Mitigation measures
	• All areas where temporary services were installed will be rehabilitated to the satisfaction of the ECO. • The site will be cleared of all litter. • Final inspection in order to ensure adherence to EMPr guidelines, completion of localised/ remaining areas of impact, monitoring of rehabilitation success, etc.

Table 9: Potential social related impacts and mitigation measures

Potential Impacts	Mitigation measures
Socio-environmental	
Increase Traffic - During prospecting 4x4 vehicles will be utilising the existing road network. This may result in the impeding of traffic flow and damage to the existing roads such as the main access roads to the proposed development site.	• Warning signage will be erected at all intersections, including at the intersections with farm access roads. • Heavy vehicles will not travel the road between 10pm and 6am unless it is absolutely unavoidable and has been discussed with the relevant landowner. • Sufficient distance will be maintained between heavy vehicles to allow light vehicles to overtake safely. • All drivers will be made aware of the procedures to be followed if an accident occurs. • If any damage to gravel roads occur as result of drilling or excavations, the damage will either be compensated for or repaired. • See mitigation measures as outlined in Table 10 above relating to dust and traffic speed.
Nuisance (Air and Noise) - Impacts on air quality will primarily result from increased dust levels associated with the required drilling and excavations. It is anticipated that there will be an increase in noise levels during prospecting which will be associated with the operation of vehicles, drilling and sampling equipment.	• See mitigation measures as outlined in Table 10 above.
Water pollution (ground and surface water) - Various substances may result in the pollution of surface and groundwater sources. Pollution from litter and general wastes may occur due to improper site management. Washing down of vehicles and equipment may result in the pollution of groundwater, and pollution may occur from poor vehicle maintenance and improper storage of hazardous materials such as fuel, etc.	• See mitigation measures as outlined in Table 10 above.
Socio-economic	
Cultural environment - The project could possibly have an impact on farm owners' sense of place as the project will alter the landscape	• The applicant will, before commencing any prospecting activity, ascertain whether the

Potential Impacts	Mitigation measures
(short-term); The project could have an impact on cultural heritage values, as well as heritage artefacts if these are found within the area.	designated site does not include a heritage site. • Any heritage sites/artefacts found will be reported to SAHRA. • National heritage sites will not be destroyed, damaged, excavated, altered, or defaced without a permit. • Demolishing of buildings older than 60 years is subjected to approval - National Heritage Resources Act, 1999 (Act No 25 of 1999). • All health and safety aspects will be adhered to.
Visual Impact	• See mitigation measures as outlined in the table above
Economic - According to the Integrated Development Plan (IDP) for the Elias Motsoaledi Local Municipality, the unemployment rate just over 25.9%. Many 'poverty gaps' exist, with informal settlements in the nearby towns. Therefore, depending on the number of employment opportunities to be created, the project could have a positive impact in terms of employment (especially for the youth and women).	• Local labour and service companies will be used where possible. • Prospecting Rights do not supersede property rights hence the applicant will comply with all reasonable requirements to minimise the impact of prospecting on landowners and agricultural activities.

Table 10: Significance statements and rating of the identified environmental impacts, before and after mitigation

Potential impacts	Significance rating before mitigation	Significance rating with mitigation
Construction phase		
Fauna and Flora – Clearance of vegetation for establishment of site camp.	**Extent: Local** **Duration: Medium-term** **Intensity: Minor** **Probability: Almost certain** **Significance: Medium-low**	**Extent: Site** **Duration: Short-term** **Intensity: Negligible** **Probability: Possible** **Significance: Low**
Air Quality - dust creation due to clearance.	**Extent: Site** **Duration: Short-term** **Intensity: Low** **Probability: Possible** **Significance: Medium-low**	**Extent: Site** **Duration: Short-term** **Intensity: Low** **Probability: Unlikely** **Significance: Low**
Operational phase		
Air quality – dust creation due to vehicle movement, excavations and drilling.	**Extent: Site** **Duration: Short-term** **Intensity: Low** **Probability: Possible** **Significance: Medium-low**	**Extent: Site** **Duration: Short-term** **Intensity: Low** **Probability: Unlikely** **Significance: Low**
Noise pollution – vehicle movement, use of drill rigs and excavation machinery.	**Extent: Site** **Duration: Short-term** **Intensity: Low** **Probability: Probable**	**Extent: Site** **Duration: Short-term** **Intensity: Low** **Probability: Probable**

Potential impacts	Significance rating before mitigation	Significance rating with mitigation
	Significance: Medium-low	**Significance: Medium-low**
Waste pollution – domestic waste produced by workers.	**Extent: Local** **Duration: Medium-term** **Intensity: Low** **Probability: Possible** **Significance: Medium**	**Extent: Local** **Duration: Short-term** **Intensity: Low** **Probability: Unlikely** **Significance: Medium-low**
Water pollution (Surface and groundwater) – due to possible spillages, leaks from vehicles or ablution facilities.	**Extent: Local** **Duration: Medium-term** **Intensity: Low** **Probability: Probable** **Significance: Medium**	**Extent: Local** **Duration: Short-term** **Intensity: Low** **Probability: Unlikely** **Significance: Low**
Soils – soil erosion and pollution due to exposed areas not being managed, leaks or spillages from ablution facilities.	**Extent: Local** **Duration: Medium-term** **Intensity: Low** **Probability: Possible** **Significance: Medium**	**Extent: Local** **Duration: Short-term** **Intensity: Low** **Probability: Unlikely** **Significance: Medium-low**
Fauna and Flora – disturbance due to clearing and due to uncontrolled vehicle movement.	**Extent: Local** **Duration: Medium-term** **Intensity: Minor** **Probability: Almost certain** **Significance: Medium-low**	**Extent: Site** **Duration: Short-term** **Intensity: Negligible** **Probability: Possible** **Significance: Low**
Visual impact – visibility of vehicles and may impact on surrounding land uses where visitors value the undisturbed / untransformed characteristics of the general region.	**Extent: Site** **Duration: Short-term** **Intensity: Negligible** **Probability: Likely** **Significance: Low**	**Extent: Site** **Duration: Short-term** **Intensity: Negligible** **Probability: Likely** **Significance: Low**
Decommissioning/ Rehabilitation phase		
Fauna and Flora – disturbance due to uncontrolled vehicle movement or improper rehabilitation.	**Extent: Local** **Duration: Medium-term** **Intensity: Minor** **Probability: Almost certain** **Significance: Medium-low**	**Extent: Site** **Duration: Short-term** **Intensity: Negligible** **Probability: Possible** **Significance: Low**
Land degradation – due to improper site clean-up.	**Extent: Site** **Duration: Medium-term** **Intensity: Low** **Probability: Possible** **Significance: Medium**	**Extent: Site** **Duration: Short-term** **Intensity: Negligible** **Probability: Unlikely** **Significance: Low**

Table 11: Significance statements and rating of the identified cultural/heritage socio-economic impacts, before and after mitigation

Potential Impacts	Significance rating before mitigation	Significance rating with mitigation
Socio-environmental		
Increase Traffic - During prospecting 4x4 vehicles will be utilizing the existing road network. This may result in the impeding of traffic flow and damage to the existing roads such as the main access road to the proposed development site.	Extent: Local Duration: Short-term Intensity: Low Probability: Possible Significance: Medium	Extent: Local Duration: Short-term Intensity: Negligible Probability: Possible Significance: Medium-low
Nuisance (Air and Noise) - Impacts on air quality will primarily result from increased dust levels associated with the required drilling and trenching. It is anticipated that there will be an increase in noise levels during prospecting which will be associated with the operation of vehicles, excavations and drilling and sampling equipment.	Extent: Site Duration: Short-term Intensity: Low Probability: Probable Significance: Medium-low	Extent: Site Duration: Short-term Intensity: Low Probability: Probable Significance: Medium-low
Water pollution (Ground and surface water) - Various substances may result in the pollution of surface and groundwater sources. Pollution from litter and general wastes may occur due to improper site management. Washing down of vehicles and equipment may result in the pollution of groundwater, and pollution may occur from poor vehicle maintenance and improper storage of hazardous materials such as fuel, etc.	Extent: Local Duration: Medium-term Intensity: Low Probability: Probable Significance: Medium	Extent: Local Duration: Short-term Intensity: Low Probability: Unlikely Significance: Low
Socio-economic		
Cultural environment - The project could possibly have an impact on farm owners' sense of place, as the project will alter the landscape temporarily. The project could have an impact on cultural heritage values, as well as heritage artefacts if these are found within the area.	Extent: Site Duration: Short-term Intensity: Moderate Probability: Unlikely Significance: Low	Extent: Site Duration: Short-term Intensity: Low Probability: Rare Significance: Low
Visual Impact – disturbance to sense of place, visibility of vehicles to landowner as well as other visitors.	Extent: Site Duration: Short-term Intensity: Negligible Probability: Likely Significance: Low	Extent: Site Duration: Short-term Intensity: Negligible Probability: Likely Significance: Low

Based on the nature of the prospecting activities, there are no cumulative impacts anticipated.

vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

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

The criteria for the description and assessment of environmental impacts were drawn from the EIA Guidelines (DEAT, Environmental Impact Assessment Guidelines., 1998) and as amended from time to time (DEAT, Impact Significance, Integrated Environmental Management, Information series 5., 2002).

The level of detail as depicted in the EIA Guidelines (DEAT, Environmental Impact Assessment Guidelines., 1998) (DEAT, Impact Significance, Integrated Environmental Management, Information series 5., 2002)) was fine-tuned by assigning specific values to each impact. In order to establish a coherent framework within which all impacts could be objectively assessed, it was necessary to establish a rating system, which was applied consistently to all the criteria. For such purposes each aspect was assigned a value, ranging from one (1) to five (5), depending on its definition. This assessment is a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

An explanation of the impact assessment criteria is defined below.

Table 12: Impact Assessment Criteria

Assessment	Definition	Quantification				
		1	2	3	4	5
Environment Type	Type of environment anticipated to be impacted	Degraded sites/ heavy industrial areas/ high density townships	High density residential/ retail and office complexes/ central business districts industrial/ large- scale agriculture1	Medium density residential/ light industrial/ office parks/ sports facilities medium- scale agriculture2	Low density residential/ small- scale agricultural3/ small holdings	Greenfield sites/ nature reserves/ protected areas/ natural recreational facilities
Intensity	The potential of the impact to cause harm	Negligible Impact	Minor Impact	Moderate Impact	High Impact	Severe/ Irreversible
Extent	The spatial extent or population extent of an impact	Within project area (<500m from project)	Surrounding area (500m – 1km radius)	Outside project area (1 – 5km radius)	Regional and provincial (5 – 50km radius)	National or international (>50km radius)
Duration	The period the impact will interact with the receiving environment	Immediate (days)	Short term (weeks)	Medium term (months)	Long term (years)	Beyond life of project
Probability	The likelihood of the impact occurring	Rare	Unlikely	Possible	Likely	Almost certain

Table 13: Significance matrix

Likelihood	Consequence				
	2 – 6	5 – 8	9 – 11	12 – 15	14 – 17
	5 – 8	9 – 11	12 – 15	14 – 17	18 – 21
	9 – 11	12 – 15	14 – 17	18 – 21	20 – 23
	12 – 15	14 – 17	18 – 21	20 – 23	24 – 27
	14 – 17	18 – 21	20 – 23	24 – 27	26 – 30

Table 14: Significance Rating

Environmental Significance		Description of Rating
2 – 8	Low Significance	No specific management action required
9 – 11	Medium-low Significance	Administrative management actions required
12 – 17	Medium Significance	Management and monitoring action plans required
18 – 23	Medium-high significance	Specific management and monitoring plans required
24 – 30	High Significance	Detailed management and monitoring plans required, potential red flag impact

Risk assessment involves the calculation of the magnitude of potential consequences (levels of impacts) and the likelihood (levels of probability) of these consequences to occur. Risk = Consequence + Likelihood; where: (i) likelihood is the probability of occurrence of an impact that affects the environment; and, (ii) consequence is the environmental impact if an event occurs.

Consequence can be calculated as the sum of the risk levels comprising environment type, nature, extent and duration of the potential impact. Likelihood can be calculated as the sum of the risks of frequency and probability of the impact occurring. The likelihood and consequence can input into a matrix in order to identify the significance of the risk occurring.

The C + L matrix method therefore combines the scores from the qualitative or semi-quantitative ratings of consequence (levels of impact) and the likelihood (levels of probability) that a specific consequence will occur (not just any consequence) to generate a risk score and risk rating.

vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

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

Due to the location and presence of the potential mineral resources, the preferred site layout is the only alternative considered; however, as prospecting progresses through the aforementioned phases, the preliminary site layout may be slightly adjusted. The final locations of the drill holes, trenches and site camp can only be established once the geophysical survey has been completed in the non- invasive phases of the activity and once agreements has been discussed and signed with the relevant landowners. This can only be done once the Prospecting Right has been approved.

The identified potential impacts range from air pollution such as dust, noise pollution, soil pollution, waste pollution, water pollution, fauna and flora impacts, surface water impacts, impacts to heritage resources, visual impacts and socio-economic impacts. All these will be properly managed. None of these impacts will be significant since the proposed prospecting activities will be of small scale, short term, mitigation measures will be adhered to and concurrent rehabilitation will take place. Refer to the tables above which review the significance of impacts by taking the proposed mitigation measures into consideration.

All anticipated impacts with the relevant mitigation measures have been included in the section above. Refer to the Issues and Response Report included in Appendix 5 as well as Section A: 1)h) and Section A: 1)h)iii).

viii) The possible mitigation measures that could be applied and the level of risk.

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

All anticipated impacts with the relevant mitigation measures have been included in the section above – Table 7 to Table 10. Refer to the Issues and Response Report included in Appendix 5 as well as Section A: 1)h) and Section A: 1)h)iii).

ix) Motivation where no alternative sites were considered.

No location alternatives were identified as the location of the proposed activities are determined on initial assessment of the geological data available which has determined that the area in question may have the proposed minerals. The location of the drilling sites and trenches may be varied once the non-invasive activities have been completed and can be used to inform more appropriate locations for the invasive prospecting activities. Other than existing geological data, the current locations of the drill sites and trenches were chosen where they are at least 100 m from the nearest dwelling, 100 m away from any watercourses or wetlands, access roads are available and not on sites considered to have a high sensitivity.

x) Statement motivating the alternative development location within the overall site.

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

Refer to section (ix) above. Each phase is dependent on the preceding phase and results thereof. The preferred location is thus the only location assessed. It should be noted that prospecting is a “locality bound” industry (it has to take place where the resources are) thus no alternative locations for prospecting can be assessed. However, alternative locations for infrastructural components of the project that are not locality bound can be considered.

xi) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.

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

Refer to section (vi) for the Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.

Refer to section (v), Table 9 and Table 10 for the significance statements of each identified impact as well as section (j) below.

All impacts were identified by a combination of the following:

- Desktop analysis;
- Specialist investigation (Heritage and Ecology Assessment);
- Consultation process with landowners and I&APs; and
- A site survey.

xii) Assessment of each identified potentially significant impact and risk

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

Table 15: Assessment of each identified potentially significant impact and risk

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
Non-invasive prospecting	Reduce environmental impact through proper planning	Environmental	Planning	N/A	N/A	N/A
Construction and Operational phase: Invasive Prospecting (6 drill holes and 7 trenches)						
Vegetation clearing for drill sites, site camp and storage area.	Fauna and Flora – Clearance of vegetation for establishment of site camp	Environmental and social	Construction and Operational	Medium-low	• The drill/site camp will be placed in a disturbed area that will limit impacts on vegetation. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal. • All trenches should be fenced-off to prevent game or livestock from falling in.	Low
	Air Quality - dust creation due to clearance	Environmental and social	Construction and Operational	Medium-low	Dust abatement by wetting down exposed areas at drill and/or camp site, where required.	Low
Drilling Procedures	Air quality – dust creation due to vehicle movement, excavations and drilling	Environmental and social	Operational	Medium-low	• Dust abatement by wetting down exposed areas at drill and/or camp sites will be required. • Vehicles will stay on the approved or available tracks as far as practically possible. • Low speed limits will be set to avoid the creation of dust (40 km/hr).	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					• All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions from their engines. • No burning of waste will be allowed on site. • Fire extinguishers and other fire safety equipment will be available on site. • Drilling and trench locations as set out by the final layout plan and as discussed with the relevant landowners will be adhered to. • Excavations and other clearing activities will only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. • Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Project Geologist and Contractor. • All areas will be rehabilitated immediately upon conclusion of work conducted.	
	Noise pollution – vehicle movement, use of drill rigs and excavation machinery	Environmental and social	Operational	Medium-low	• The activities will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislations regarding noise control. • Employees will be supplied with ear plugs. All prospecting vehicles will be maintained in a road worthy condition. • All work will be limited to daylight hours, i.e. between 6am and 6pm	Medium-low
	Waste pollution – domestic waste produced by workers	Environmental and social	Operational	Medium	• Bins will be emptied on a regular basis.	Medium-low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					• Domestic waste to be removed from site - no burying or burning of domestic waste will be allowed. • Ablution facilities will be regularly serviced.	
	Water pollution (Surface and groundwater, wetlands and water bodies) – due to possible spillages, leaks from vehicles or ablution facilities	Environmental and social	Operational	Medium	• Prospecting activities will not be conducted within 100 m of a watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to drilling or trenching taking place. All preliminary drill hole and trench locations are placed to **NOT** occur within these buffer zones. • Limited amounts of water (approximately 5000 liters / day) will be used during drilling. Water will be trucked to site. • Ablution facilities will not be placed within 100 m of any water body. • No construction footprint will take place inside or within 100 meters of any water body or wetland. **Hazardous materials** • All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces. • The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential high runoff storm water events. • Any hazardous substances will be stored at least 100 m from any of the water bodies on site.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					• Contaminated wastewater will be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp will be collected and removed from the site for appropriate disposal at a licensed commercial facility	
	Soils – soil erosion and pollution due to exposed areas not being managed, leaks or spillages from ablution facilities	Environmental and social	Operational	Medium	• Dust abatement by wetting down exposed drill site and camp areas will be required. • Stockpiles will be below the 1.5 m height restriction. • The use of oil drip trays under drilling equipment to ensure no spillage of oils and fuels onto the ground. • Where possible, no major vehicle repairs will be done on site. • Oils and fuel will be stored on bounded areas to avoid spillages. • Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (in excess of 35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water and Sanitation, DMR and any other relevant authorities. In such cases the contaminated soil will be excavated and disposed at a suitably licensed and registered landfill. • An emergency plan for spillages will be available on site. • Storm water runoff in and around drill holes and excavated areas will be controlled. • Keep equipment and vehicles within the limits of the initially disturbed areas.	Medium-low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					• Apply erosion control measures (i.e. silt fences) in areas that have high risk for erosion.	
	Fauna and Flora – due to uncontrolled vehicle movement or improper rehabilitation	Environmental and social	Operational	Medium-low	• Only demarcated areas for drilling and trenching will be cleared to the minimum required for access and adjacent and/or other areas will not be disturbed. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • No cigarette butts will be disposed of on the relevant properties. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal. • Vehicles will remain on approved tracks. • All trenches should be fenced-off to prevent game or livestock from falling in. • See rehabilitation mitigation measures.	Low
	Fire prevention	Environmental and social	Operational	Low	• The Contractor will have operational fire- fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process. • See mitigation measures for Fauna and Flora above.	Low
	Erosion	Environmental and social	Operational	Low	• Wind screening and storm water control will be undertaken to prevent soil loss from the site.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					• All erosion control mechanisms will be regularly maintained. • Re-vegetation of disturbed surfaces will occur immediately after the construction and prospecting activities are completed. • Rehabilitation will be undertaken progressively	
	Visual impact – may impact on surrounding land uses where visitors value the characteristics of the general region and due to the visibility of vehicles	Environmental and social	Operational	Low	• Visual impacts will be of a temporary nature and unfortunately cannot be mitigated.	Low
	Cultural and Heritage Artifacts	Environmental and social	Construction and Operational	Low	• Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artifacts are uncovered in the affected area and mitigation measures recommended by SAHRA will be followed. • The contractor will ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. • Any discovered artifacts will not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. • Drill sites are to be positioned to not impact on any identified sites heritage significance.	Low
Social impacts of invasive prospecting activities	Increase Traffic - During prospecting 4x4 vehicles will be utilizing the existing road network. This may result in the impeding of traffic flow	Social	Operational	Medium	• Warning signage will be erected at all intersections, including at the intersections with farm access roads.	Medium-low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
	and damage to the existing roads such as the main access roads to the proposed development site.				• Heavy vehicles will not travel the road between 10pm and 6am unless it is absolutely unavoidable and has been discussed with the relevant landowner. • Sufficient distance will be maintained between heavy vehicles to allow light vehicles to overtake safely. • All drivers will be made aware of the procedures to be followed if an accident occurs. • If any damage to gravel roads occur as result of drilling or excavations, the damage will either be compensated for or repaired.	
	Nuisance (Air and Noise) - Impacts on air quality will primarily result from increased dust levels associated with the required drilling and excavations. It is anticipated that there will be an increase in noise levels during prospecting which will be associated with the operation of vehicles, drilling and sampling equipment.	Social	Operational	Medium-low	• See mitigation measures as outlined above.	Medium-low
	Water pollution (Ground and surface water) - Various substances may result in the pollution of surface and groundwater sources. Pollution from litter and general wastes may occur due to improper site management. Washing down of vehicles and equipment may result in the pollution of groundwater, and pollution may occur from poor	Social	Operational	Medium	• See mitigation measures as outlined above.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
	vehicle maintenance and improper storage of hazardous materials such as fuel, etc.					
	Cultural environment - The project could possibly have an impact on farm owners' sense of place as the project will alter the landscape (short-term); The project could have an impact on cultural heritage values, as well as heritage artefacts if these are found within the area.	Social	Operational	Low	• The applicant will, before commencing any prospecting activity, ascertain whether the designated site does not include a heritage site. • Any heritage sites/artefacts found will be reported to SAHRA. • National heritage sites will not be destroyed, damaged, excavated, altered, or defaced without a permit. • Demolishing of buildings older than 60 years is subjected to approval - National Heritage Resources Act, 1999 (Act No 25 of 1999). • All health and safety aspects will be adhered to.	Low
	Economic	Social	Operational	Low Positive	• Local labour and service companies will be used where possible. • Prospecting Rights do not supersede property rights hence the applicant will comply with all reasonable requirements to minimise the impact of prospecting on landowners and agricultural activities.	Low Positive
Decommissioning and Rehabilitation						
Closure of boreholes and trenches and rehabilitation of sites	Fauna and Flora – due to uncontrolled vehicle movement or improper rehabilitation	Environmental	Closure and Decommissioning	Low	• Mitigation measures as per Part B (EMPr) of this report will be adhered to. • Site activities will be restricted to daylight hours between 6am and 6pm and as per the agreement with the landowner/s. • Vehicles will remain on the existing tracks. • Prospecting activities will not be conducted within 100 m of pens and stalls.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					• All equipment will be removed from site. • Rehabilitation will be done in such a manner that the site is in the state prior to prospecting. • All structures comprising the drilling camp will be removed from site. • The area that housed the drilling camp will be checked for spills of substances such as oil, paint, etc., and these will be cleaned up and contaminants disposed of appropriately.	
	Land degradation – due to improper site clean-up	Environmental	Closure and Decommissioning	Medium	• All waste bins and domestic waste will be removed from site once the activity is complete. • Excess topsoil not used in rehabilitation will be levelled. • All equipment will be removed from site on completion of the activity. • All areas where temporary services were installed will be rehabilitated to the satisfaction of the ECO. • The site will be cleared of all litter. • Final inspection in order to ensure adherence to EMPr guidelines, completion of localised/ remaining areas of impact, monitoring of rehabilitation success, etc.	Low

i) Summary of specialist reports.

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

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Heritage Impact Assessment	A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific area, and none were identified in the study area during the assessment. Finally, it should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.	X	Table 8 and Table 10 and the Heritage section of the Baseline Environment Description.
Ecology Assessment	**Construction and Operational Phases** • Responsible persons from the staff members/workers should be identified to ensure that the necessary mitigation measures are implemented and established. These personnel should also enforce the collaboration of other staff members, contractors and workers to comply with these mitigation measures. • Ensure awareness amongst all staff, contractors and visitors to site to not needlessly harm or hinder animals or damage flora. • A management plan for the control of invasive/alien weed species needs to be implemented. Specialist advice should be used in this regard. This plan should include pre-treatment, initial treatment and follow-up treatment and should be planned and budgeted for in advance. The cleared areas after removal should be re-vegetated with indigenous naturally occurring species to decrease large patches of bare soil. The best mitigation measure in this regard is avoiding invasive and/or exotic species from being established. This should not only be conducted within the direct location of the operational area but also into surrounding area which may be impacted by the project. It is vital that the control of alien invasive species is ongoing. The reason for this is that an ongoing eradication of the invasive species will be more cost effective. • Allow animals to escape areas of activity freely and do not hinder their movement.	X	Table 7, Table 9 and the Ecology section of the Baseline Environment Description.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	• All injured animals sighted during the development should be protected and moved to receive rehabilitation at the designated centre (identified within the EMP) and should not be handled by the employees under any circumstance. Clear protocol should be developed on the matter. • Have a policy in place to prohibit hunting (rifles, snares, dogs) by the workers or employees of the site. These conditions should be written into contractors' agreements with strict penalty clauses. Employees engaging in any of these activities should be faced with disciplinary action. No hunting activities will be allowed on site. • Activities on site must comply with the regulations of the Animal Protection Act, 1962 (Act 71 of 1962). Workers should also be advised on the penalties associated with the needless destruction of wildlife, as set out in this act. • All activities should be restricted to one area and activity and access into larger intact areas should be avoided. Strict measures should be implemented. No foraging, food and wood collecting within the veld should be allowed. • All activity should be avoided in restricted areas and riparian zones. • All noisy equipment should be mitigated to lessen the sound levels as well as vibration levels should be controlled to limit impact on biodiversity and sensitive species by an accredited vibration specialist. • Large undisturbed natural areas that should remain intact throughout the lifetime of the proposed development and must be designated in the planning phase. • Avoid night time movement or activities associated with the prospecting. Restrict prospecting during the day-time hours to avoid impacts on nocturnal animals and to prevent 24 hour human activity. • The vegetation removal (and associated fauna) should be controlled and should be very specific. Trenched areas should not be cleared well in advance and should be restored properly. • Trenched and drilled areas should be barricaded by suitable methods as to prevent hazardous excavations before rehabilitation and backfill has been completed. • Continuous rehabilitation should be implemented during the operational phase. This includes using indigenous vegetation to re-vegetate land on an ongoing basis. **Decommissioning and Closure** • A management plan for control of invasive/exotic plant species needs to be implemented as part of the flora management plan. This will be ongoing until the end of the closure phase.		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	• A rehabilitation plan should be implemented as part of the flora management plan. This includes the return of the topsoil and the process of replanting the vegetation for areas that was subjected to trenching activities. The focus of the rehabilitation plan would be to deliver the best overall environmental, economic and social outcomes. • Close monitoring of faunal communities to ensure that ecology is restored and self-sustaining. A formal report should be written and stored to be made available and should be available at all times. • Ensure awareness amongst all staff, contractors and visitors to the site to not needlessly damage flora. • Re-vegetation of all degraded areas and bare patches is advised to speed recovery to natural, self-sustaining state as soon as possible • Ensure awareness amongst all staff, contractors and visitors to the site to not needlessly harm or hinder animals. • General management in terms of dust and traffic control will ensure low hindrance to the fauna communities and should be adequate. These measures are discussed below in the following section. **Monitoring** Monitoring of the ecological aspects should be done on a continual basis to assess whether there are any concerns regarding the flora and fauna and to assess whether the rehabilitation is successful. Monitoring of the flora should start as soon as the construction phase of the development commences. Monitoring should be undertaken annually. The monitoring of biodiversity should include the following: • Seasonal visual assessment of areas to determine if vegetation in undisturbed areas is being impacted. • In the case of favourable findings in terms of prospecting indicating the possibility of applying for mining of the area, a biodiversity baseline assessment should be conducted, specifically a site assessment. Once this data is available, annual biodiversity monitoring of areas both affected and unaffected by activities should be initiated to determine the annual fluctuation in species numbers and, if necessary, relate this to activities on site. • Continue with alien invasive monitoring, eradication and control programme. • Implement an Observe and Report approach which will enable employees to report any disturbance of fauna or degradation that they encounter during the operational phase.		

Based on the small area of impact, desktop analysis, specialist input (groundwater) and the site visit, only Heritage and Ecology specialist reports were deemed necessary at this stage of the application process. It is anticipated that the proposed prospecting activities will not result in significant negative impacts. Should the proposed prospecting activities give an indication that the area has potential for mining activities in the future, i.e. it will be economically viable to mine the minerals applied for over the land in question, a mining right application will be submitted that will include a number of detailed specialist assessments such as Geohydrology and Surface Water, etc. **The Heritage Assessment can be found attached as Appendix 7 and the Ecology Assessment as Appendix 6.**

j) Environmental impact statement

i) Summary of the key findings of the environmental impact assessment;

If suggested mitigation measures are implemented and due to the small- scale short-term nature of the prospecting activities and the fact that the area will be rehabilitated back to its original state, it is unlikely that the proposed development will create any long-term negative impacts of high significance. The majority of the negative impacts identified can be mitigated to low significance.

ii) Final Site Map

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

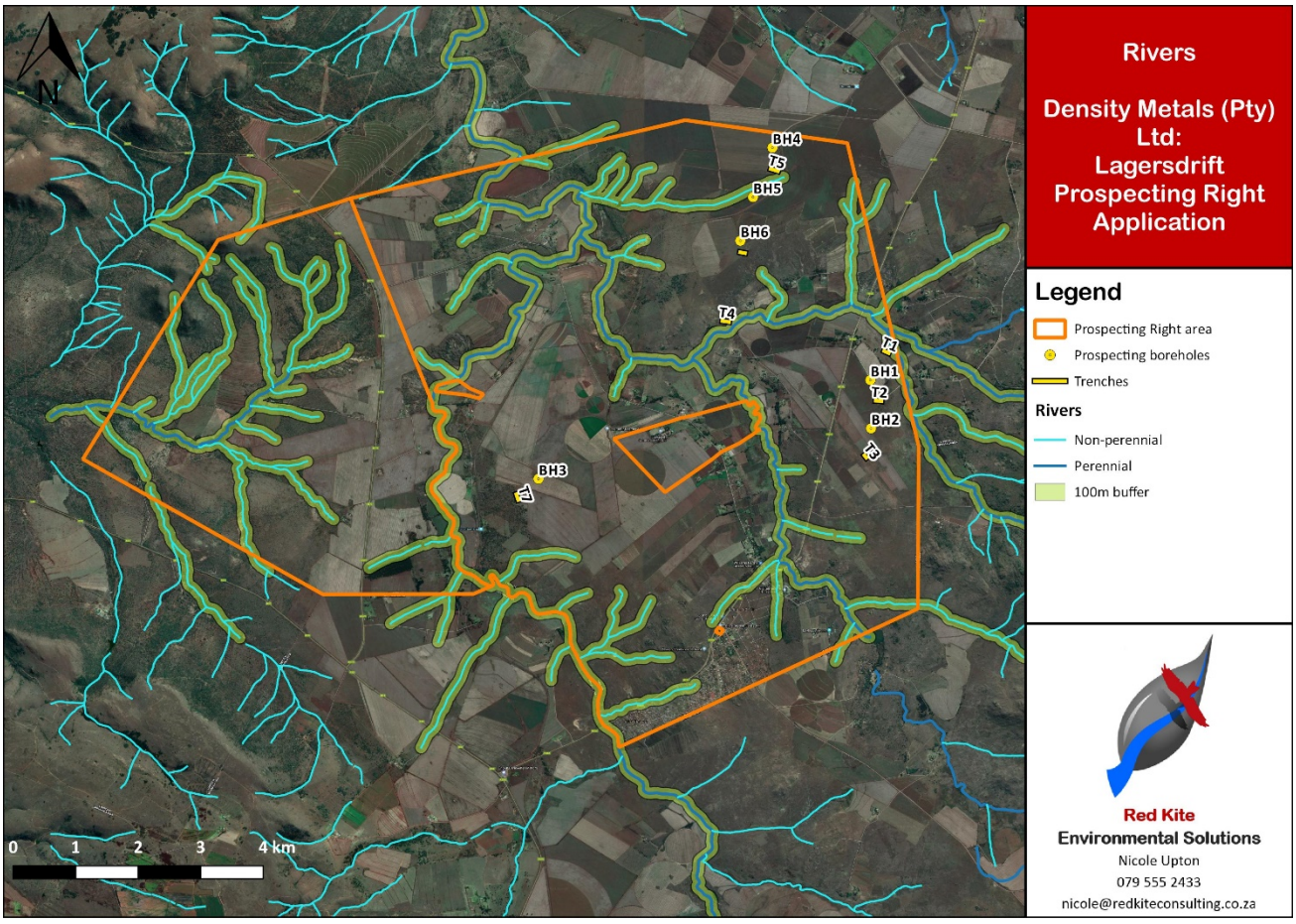


Figure 32: Final site map indicating sensitive areas

Refer to Appendix 4 for the sensitivity map.

iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

The identified potential impacts for the preferred alternative range from air pollution such as dust, noise pollution, soil pollution, waste pollution, water pollution, fauna and flora impacts, visual impacts and socio-economic impacts. All these will be properly managed. None of these impacts will be significant since the proposed prospecting activities will be of small-scale, short-term, mitigation measures will be adhered to and concurrent rehabilitation will be practiced. Please

refer to Table 7, Table 8, Table 9 and Table 10 which reviews the significance of impacts by taking the proposed mitigation measures into consideration.

k) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Air pollution

- Dust abatement by wetting down exposed areas at drill and camp sites where required.
- Vehicles will stay on the approved or available tracks as far as practically possible.
- Low speed limits will be set to avoid the creation of dust (40km/hr).
- All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions and noise from their engines.
- No burning of waste will be allowed on site.
- Fire extinguishers and other fire safety equipment will be available.
- Drilling and trench locations as set out by the final layout plan will be adhered to.
- Excavations and other clearing activities will only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.
- Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor.

Noise pollution

- The activities will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislations regarding noise control.
- Employees will be supplied with ear plugs. All prospecting vehicles will be maintained in a road worthy condition.
- All work will be limited to daylight hours i.e. between 6am and 6pm.

Waste pollution

- Bins will be emptied on a regular basis
- No burying and/or burning of waste is allowed.
- All waste bins and domestic waste will be removed from site on a regular basis.

Water pollution

- Prospecting activities will not be conducted within 100 m of a watercourse or a wetland. Should this become a requirement, the relevant permits will have to be obtained from DWS prior to drilling or trenching taking place. All preliminary drill hole and trench locations are placed to NOT occur within these buffer zones.
- Limited amounts of water (approximately 5000 liters / day) will be used during drilling. Water will be trucked to site.
- Ablution facilities will not be placed within 100 m of any water body.
- No construction footprint will be placed inside or within 100 m of any water body or wetland. A SACNASP Registered Wetland Specialist should consulted when determining the final drill hole and trench localities.

Hazardous materials

- Use and /or storage of materials, fuels and chemicals which could potentially leak into the ground will be controlled in a manner that prevents such occurrences.
- All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces.

- The bund wall will be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential high runoff storm water events.
- Any hazardous substances will be stored at least 100m from any of the water bodies on site.
- Contaminated wastewater will be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp will be collected and removed from the site for appropriate disposal at a licensed commercial facility.

Soil pollution

- Dust abatement by wetting down exposed drill site and camp areas where required.
- Stockpiles will be below the 1.5m height restriction.
- The use of oil drip trays under drilling equipment to ensure no spillage of oils and fuels onto the ground.
- Where possible, no major vehicle repairs will be done on site.
- Oils and fuel will be stored on bunded areas to avoid spillages.
- Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (in excess of 35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water and Sanitation, DMR and any other relevant authorities. In such cases the contaminated soil will be excavated and disposed at a suitably licensed and registered landfill.
- An emergency plan for spillages will be available on site.
- Storm water runoff in and around drill holes and excavated areas will be controlled.
- Wind screening and storm water control will be undertaken to prevent soil loss from the site.
- All erosion control mechanisms will be regularly maintained.
- Re-vegetation of disturbed surfaces will occur immediately after the construction and prospecting activities are completed.
- Rehabilitation will be undertaken progressively

Fauna and flora

- Only demarcated areas for drilling or trenches will be cleared to the minimum level required for access and adjacent and/or other areas will not be disturbed. No trees will be removed.
- Place temporary facilities on already disturbed land as far as possible to limit impacts on vegetation.
- No firewood harvesting will be allowed.
- No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas.
- No hunting will be allowed.
- All equipment will be removed from site.
- No cigarette butts may be disposed of on the relevant properties.
- All trenches should be fenced-off to prevent game or livestock from falling in.
- Rehabilitation will be done in such a manner that the site is in the original state prior to prospecting.

Rehabilitation

- Prior to rehabilitation of the site, all remnants of foreign debris shall be removed from the site.
- All holes will be covered first with subsoil and then with topsoil (minimum of 10cm deep). Topsoil will be spread to the original depth (30cm where possible).
- As topsoil will contain all cleared vegetation, no additional treatment will be required.
- The soil must cover all the roots and be well firmed down to a level equal to that of the surrounding in situ material.
- Control weeds by means of extraction, cutting or other approved methods.
- Monitoring will be undertaken once a month or until rehabilitation has been deemed successful.
- Follow up inspections will be conducted every two months to remove upcoming seedlings of alien vegetation.

- Continued monitoring throughout the life of the project will be required as the risk of alien plant species invasion is never eliminated.
- A single permanent marker will be required to mark the location of the drill hole for future reference. The siting of such a marker shall be cleared with the landowner.
- All rehabilitation referred to in this environmental management programme will be done concurrent to prospecting operations as set out in the MPRDA. Best practice methods will be used.
- Continuous monitoring of possible soil erosion will be required.

Cultural/Heritage

- The applicant will, before commencing any prospecting activity, ascertain whether the designated site does not include a heritage site.
- Any heritage sites/artefacts found will be reported to SAHRA.
- National heritage sites will not be destroyed, damaged, excavated, altered, or defaced without a permit.
- Demolishing of buildings older than 60 years is subjected to approval - National Heritage Resources Act, 1999 (Act No 25 of 1999).
- Invasive activities will not be allowed within 100m from farm houses.
- Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artefacts are uncovered in the affected area and mitigation measures recommended by SAHRA should be followed.
- The contractor will ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken.
- Any discovered artefacts will not be removed under any circumstances. Any destruction of a site will only be allowed once a permit is obtained and the site has been mapped and noted.

Socio-economic

- Local labour and service companies will be used where possible.
- Prospecting Rights do not supersede property rights hence the applicant will comply with all reasonable requirements to minimize the impact of prospecting on landowners and agricultural activities
- All relevant mitigation measures as set out in Table 11.

Environmental Training

- All site personnel will have a basic level of environmental awareness training. Topics covered should include;
    - What is meant by “Environment”
    - Why the environment needs to be protected and conserved
    - How construction and prospecting activities can impact on the environment
    - What can be done to mitigate against such impacts
    - Awareness of emergency and spills response provisions
    - Social responsibility during construction and prospecting e.g. being considerate to local residents
- The need for a “clean site” policy also needs to be explained to the workers.

l) Aspects for inclusion as conditions of Authorisation

Any aspects which must be made conditions of the Environmental Authorisation

It is recommended that the following conditions be included in the Environmental Authorisation:

- All mitigation measures included in this report should be adhered to.
- A detailed final drill hole and trench layout plan will be submitted to the DMR once finalised.
- An ECO should be appointed for the proposed development

m) Description of any assumptions, uncertainties and gaps in knowledge

(Which relate to the assessment and mitigation measures proposed)

- Due to the nature of the activities (small scale and short term) the site was not subjected to a Surface Water, Geohydrological Assessment, etc.
- The final drill hole and trench layout can only be finalised on completion of the non-invasive phases of the programme and after agreements have been signed with the relevant landowners.
- Heritage Assessment: Although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.
- Ecology Assessment: No site survey has been conducted to verify or dispute the desktop findings.

n) Reasoned opinion as to whether the proposed activity should or should not be authorised

i) Reasons why the activity should be authorized or not.

Based on the analysis and findings as discussed throughout the report, there is no reason why the project should not be authorised. There are no environmental fatal flaws and all impacts can be effectively mitigated. The spatial extent of disturbance related to this activity is minimal and short term. The implementation of effective rehabilitation will ensure that the site is returned to its original state and that the impacts are reversed. In addition to this the activity should be authorised in order for a better understanding of the mineral potential in the area to be obtained. Once a deposit is defined, a better understanding of its economic value will be achieved and this will then provide a better platform for making an informed decision about the potential for mining operations in this area.

ii) Conditions that must be included in the authorisation

(1) Specific conditions to be included into the compilation and approval of EMPr

To ensure compliance with, and implementation of the EMP by:

- Appointing of a suitably qualified individual as Environmental Control Officer to oversee implementation of the EMP during all phases of the project
- To ensure that all staff, contractors and sub-contractors are aware of and understand the requirements of the EMP and environmental issues in relation to their individual areas of work by:
    - Developing an induction and training program covering the EMP, environmental awareness, dealing with environmental incidents and waste management; and
    - Advising staff commissioned during pre-construction and construction, including sub-contractors, of EMP requirements through the induction program as well as on notice boards at the contractor's camps during construction and notice boards during operation. These notice boards should cover the EMP, environmental awareness, dealing with emergencies and waste management.
- Landowners should be consulted regarding finalised location of drillholes and trenches.

o) Period for which the Environmental Authorisation is required

The authorisation is required for the duration of the prospecting right which is an initial 5 years plus a potential to extend the right by an additional 3 years. In addition to this the period should allow for a further 2 years for the application period. Thus, a total of 10 years.

p) Undertaking

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

The undertaking has been included in Part B (EMPr) of this report.

q) Financial Provision

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

i) Explain how the aforesaid amount was derived.

Financial provision has been calculated according to the regulation 54 of the MPRDA and the principles presented in the guidelines for the determination of financial provision for the mining industry (2005) – and only aspects applicable to prospecting through exploration drilling and trenching up to de-establishment are addressed in the financial provision assessment.

The primary risk ranking of the overall prospecting activities was determined as class C. The overall environmental sensitivity of the proposed project site was defined as being high. Weighing factor 1 was defined as 1.10 based on the terrain and weighing factor 2 was defined as 1.05 due to the proximity to an urban area.

The rates used in the assessment are based on the DMR Master Rates table for financial provision 2019.

Table 16: Calculated cost for rehabilitation

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of **processing plant and related structures** (including overland conveyors and powerlines)	m^3	0.00	16.35	1.00	1.00	R 0.00
2(A)	Demolition of **steel buildings and structures**	m^2	0.00	227.68	1.00	1.00	R 0.00
2(B)	Demolition of **reinforced concrete buildings and structures**	m^2	0.00	335.52	1.00	1.00	R 0.00
3	Rehabilitation of **access roads**	m^2	0.00	40.74	1.00	1.00	R 0.00
4(A)	Demolition and rehabilitation of **electrified railway lines**	m	0.00	395.43	1.00	1.00	R 0.00
4(B)	Demolition and rehabilitation of **non-electrified railway lines**	m	0.00	215.69	1.00	1.00	R 0.00
5	Demolition of **housing and/or administration facilities**	m^2	0.00	455.35	1.00	1.00	R 0.00
6	**Opencast rehabilitation** including final voids and ramps	ha	0.20	231,747.17	0.52	1.00	R 24,101.71
7	Sealing of **shafts, adits and inclines**	m^3	0.00	122.23	1.00	1.00	R 0.00
8(A)	Rehabilitation of **overburden and spoils**	ha	0.00	159,131.47	1.00	1.00	R 0.00
8(B)	Rehabilitation of processing waste **deposits and evaporation ponds (basic salt-producing waste)**	ha	0.00	198,195.37	1.00	1.00	R 0.00
8(C)	Rehabilitation of processing waste **deposits and evaporation ponds (acidic, metal-rich waste)**	ha	0.00	575,653.28	0.66	1.00	R 0.00
9	Rehabilitation of **subsided areas**	ha	0.00	133,248.63	1.00	1.00	R 0.00
10	**General surface rehabilitation**	ha	0.40	126,058.96	1.00	1.00	R 50,423.59
11	**River diversions**	ha	0.00	119,370.17	1.00	1.00	R 0.00
12	**Fencing**	m	0.00	136.17	1.00	1.00	R 0.00
13 (A)	**Water management**	ha	0.00	45,387.90	0.25	1.00	R 0.00
14	2 to 3 years of **maintenance and after care**	ha	0.40	15,885.76	1.00	1.00	R 6,354.30
						Sum of items 1-15	**R 80,879.60**
	Subtotal 1 - Multiply sum of items 1-14 by weighting factor 2 (1.05)			R 84,923.58			
1	Preliminary and General	6.0%	if Subtotal 1 > 100 000 000	-			
		12.0%	if Subtotal 1 < 100 000 000	R 10,190.83			
2	Contingency	10%	of Subtotal 1	R 8,492.36			
	Subtotal 2 (Subtotal 1 plus sum of management and contingency)			R 103,606.76			
	Subtotal 2 = VAT @ 15%			R 15,541.01			
	GRAND TOTAL (Subtotal 2 plus VAT)			**R 119,147.78**			

ii) Confirm that this amount can be provided for from operating expenditure.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

Density Metals (Pty) Ltd will provide the indicated financial provision of R 119,147.78 for rehabilitation and post-monitoring of the site which has been included into the total cost required to finance the PWP. Find attached the Mining Work Programme in Appendix 8.

r) Specific Information required by the competent Authority

i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the:-

(1) Impact on the socio-economic conditions of any directly affected person.

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

A consultation process was conducted (Appendix 5). During this process landowners, surrounding landowner, national, provincial and local government departments were identified and notified of the application. All comments and concerns were recorded and considered during compilation of this report. Appendix 5 provides comprehensive details on the PPP to date with sufficient proof.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

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

The heritage assessment for the project was undertaken by APelser Archaeological Consultants. Refer to the Heritage section in the Baseline Environment Description of this report as well as Appendix 7.

s) Other matters required in terms of sections 24(4)(a) and (b) of the Act.

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

The proposed prospecting activities requested as part of this authorisation is the only current viable manner in which a mineral deposit can be identified and used to generate a SAMREC compliant resource which is a minimum requirement to determine whether it is viable to invest in a future mine.

The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires the applicant to identify alternatives for projects applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;

(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Density Metals (Pty) Ltd proposes to undertake prospecting to determine whether or not the project area consist of the subject minerals. If the proposed prospecting development delivers a positive outcome, the economic viability of the mineral (size, quantity, grade, etc.). The proposed activity will include the drilling of exploration boreholes and the excavation of trenches. The associated activities/infrastructure will include: access to the drill and trench sites and a campsites set up at each drill site only for the duration of drilling operations.

- **Location Alternatives:** No location alternatives were identified as the location of the proposed activities are determined on initial assessment of the geological data available which has determined that the area in question may have the proposed minerals. The location of the drilling sites and trenches may be varied once the non-invasive activities have been completed and can be used to inform more appropriate locations for the invasive prospecting activities. Other than existing geological data, the current locations of the drill sites and trenches were chosen where they are at least 100 m from the nearest dwelling, 100 m away from any watercourses or wetlands, access roads are available and not on sites considered to have a high sensitivity.

- **Access Route Alternatives:** No alternatives were considered for the access roads as the intention is to use existing roads where possible as well as private farm roads. This will ultimately reduce the impact/ environmental footprint of the proposed project.

- **Design/Layout Alternatives:** Since the drill sites are relatively small (12 m x 12 m) and the site infrastructure is very basic and standard for the type of operations, no design and layout alternatives for the proposed project were determined. The dimension and location of the trenches may be refined once the non-invasive activities have been completed and more information is available.

- **Technology Alternatives:** Based on the policies of the Department of Water and Sanitation, the local municipalities and the property itself, it was determined that the only feasible technological way of undertaking the proposed activities would be to use energy currently available to the applicant (diesel and petrol), water from the local municipality or land owners and existing waste management facilities for the operation of the proposed project. In view of the above, no technology alternatives were considered for this project.

- **Input Material Alternatives:** As mentioned above, water will be purchased from the local municipality or land owners and mobile generators will be used for the operation of the proposed project. In view of the above, no other input material alternatives were considered for this project. Note that no building facilities will be constructed at the project site since existing or movable facilities in town will be used for the proposed project.

- **Operational Alternatives:** Exploration Drilling Methods is used to determine the depth, amount and thickness of the minerals at any point across a prospecting area. Drilling can either be done by non-core drilling or core drilling techniques.
  - Non-Core Drilling Methods - Non-core drilling techniques mostly uses the rotary drilling methods. In this technique, a string of metal rods is rotated axially and a bit at the base of the string is forced downward, under controlled pressure, breaking up the ground and advancing the depth of the hole. Cuttings are swept away from the bit and lifted to the surface either by means of pumped circulating water or by jets of compressed air. Logging of the hole drilled by non-core drilling methods is mainly based on the cuttings obtained as the drill progresses. In view for the difficulty and error bound logging, this method of drilling was discarded and may be used only for infill drilling wherever necessary.

- Core-Drilling Methods - Core drilling techniques uses diamond drilling methods. In this technique, a hollow cylindrical drill bit impregnated with industrial diamonds is attached to a series of metal drill rods and rotated under controlled downward pressure. A circle of rock is ground away, the cutting removed by water flushing and a cylindrical core remains in the hollow centre of the drill string. Core drilling is the only satisfactory means of obtaining representative samples of seams at depth for quality determination. In view of the above, the preferred drilling methods is the core drilling technique using the diamond drill.

- **No-Go Option:** The 'no-go' alternative is the option of not undertaking prospecting activities on the project site. The no-go option assumes the site remains in its current state. The no-go alternative would result in no impacts on the social and biophysical environment. Density Metals (Pty) Ltd intends on exploring the proposed area in order to determine availability of the subject minerals. Should the minerals be found at the prospecting area, Density Metals (Pty) Ltd will achieve its long-term objective of owning and operating its own mine to benefit the local community where the operation takes place. Accordingly, the consequences of not proceeding with the proposed project will have a detrimental impact on the potential positive impact this project may have on the future labour force. The no-go alternative is therefore not considered desirable at a local, regional and national scale, in terms of job creation and positive economic impacts.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) ENVIRONMENTAL MANAGEMENT PROGRAMME

a) Details of the EAP

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

Name of the Practitioner:	Nicole Upton
Tel No.:	079 555 2433
Fax No.:	086 648 9734
Postal address:	P.O. Box 32677, Totiusdal, Pretoria, 0134
E-mail address:	nicole@redkiteconsulting.co.za

The requirement for the provision of the details and expertise of the EAP are included in PART A, section 1(a) of the Basic Assessment Report. Refer to Appendix 1 and 2 for qualifications and a comprehensive CV.

b) Description of the Aspects of the Activity

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

The requirement to describe the aspects of the activity is already included in PART A, section 1(h) of the Basic Assessment Report.

c) Composite Map

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

See Appendix 3 for the locality map and Appendix 4 for layout and sensitivity map.

d) Description of Impact management objectives including management statements

i) Determination of closure objectives

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

The closure objectives provided below are to ensure that the closure of the site is compliant with the legislature and that the environment will be left in a state which is sustainable and not harmful. Closure objectives include but are not limited to:

- To ensure closure complies with the Mineral and Petroleum Resources Development Act 28 of 2002.
- To ensure that the prospecting footprints are rehabilitated to an acceptable standard, where there is ecosystem functioning and that all environmental and social risks have been reduced and do not pose any threat to the environment.
- To ensure that the goals which were specified in the rehabilitation section of this report have been met and that the land may have a sustainable use.
- To implement management strategies that will ensure that the negative impacts (risks) associated with proposed prospecting are eliminated or minimised to acceptable standards.
- To leave the area in a manner that is environmentally safe and does not pose any health risks to the neighbouring communities.

The objective of closure and rehabilitation for this area will be to leave the area in a functional state and returned to its pre-prospecting condition i.e. agricultural land.

ii) Volumes and rate of water use required for the operation.

Approximately 5000 litres of water will be required per day. Water will not be abstracted and will be trucked to site.

iii) Has a water use licence has been applied for?

A water use licence has not been applied for. This is based on the limited amount of water required and the fact that no abstraction will be done. In addition, no drilling or excavations will take place within 100 m from any watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to invasive prospecting activities taking place. All preliminary drill hole and trench locations are placed to NOT occur within these buffer zones.

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Non-invasive analysis	Planning	Site extent: 9 756.504 ha	N/A	N/A	Before commencement of invasive prospecting activities.
Construction and operational phases: Invasive Prospecting (6 drill holes and 7 trenches)					
Vegetation clearing	Pre-construction	3 250 m^2	• The drill/site camps and trenches will be preferentially placed in disturbed areas that will limit impacts on vegetation. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal.	• National Heritage Resources Act (No. 25 of 1999) (NHRA) • National Environmental Management: Biodiversity Act (Act No 10 of 2004) (NEMBA) • Noise; SANS 10103 and local municipal bylaws • Occupational Health and Safety Act (No. 85 of 1993) (OHSA) • National Water Act (No. 36 of 1998) (NWA)	Throughout the course of the activity, but especially at the onset of the invasive phase of the prospecting
Drill site operations and trench excavations	Operational	3 250 m^2	• All site personnel will have a basic level of environmental awareness training. • Topics covered should include: o What is meant by "Environment" o Why the environment needs to be protected and conserved o How construction activities can impact on the environment	• NHRA • NEMBA • Noise; SANS 10103 and local municipal bylaws • OHSA	Throughout the course of the activity, but especially at the onset of the invasive phase of the

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			○ What can be done to mitigate against such impacts ○ Awareness of emergency and spills response provisions ○ Social responsibility during construction of the camp site e.g. being considerate to local residents ○ The need for a "clean site" policy also needs to be explained to the workers. • Dust abatement by wetting down exposed areas at drill and/or camp sites will be required. • Vehicles will stay on the approved or available tracks as far as practically possible. • Low speed limits will be set to avoid the creation of dust (40 km/hr). • All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions from their engines. • No burning of waste will be allowed on site. • Fire extinguishers and other fire safety equipment will be available on site. • Drilling and trench locations as set out by the final layout plan and as discussed with the relevant landowners will be adhered to. • Excavations and other clearing activities will only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. • Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Project Geologist and Contractor. • All areas will be rehabilitated immediately upon conclusion of work conducted. • The activities will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislations regarding noise control. • Employees will be supplied with ear plugs. All prospecting vehicles will be maintained in a road worthy condition.	• NWA • NEMWA	prospecting

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• All work will be limited to daylight hours, i.e. between 6am and 6pm • Bins will be emptied on a regular basis. • Domestic waste to be removed from site - no burying or burning of domestic waste will be allowed. • Ablution facilities will be regularly serviced. • Prospecting activities will not be conducted within 100 m of a watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to drilling or trenching taking place. All preliminary drill hole and trench locations are placed to NOT occur within these buffer zones. • Limited amounts of water (approximately 5000 liters / day) will be used during drilling. Water will be trucked to site. • Ablution facilities will not be placed within 100 m of any water body. • All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces. • The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential high runoff storm water events. • Any hazardous substances will be stored at least 100 m from any of the water bodies on site. • Contaminated wastewater will be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp will be collected and removed from the site for appropriate disposal at a licensed commercial facility. • Stockpiles will be below the 1.5 m height restriction. • The use of oil drip trays under drilling equipment to ensure no spillage of oils and fuels onto the ground. • Where possible, no major vehicle repairs will be done on site. • Oils and fuel will be stored on bounded areas to avoid spillages. • Any spillages which may occur will be investigated and immediate action will		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			be taken. In the event of significant spills (in excess of 35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water and Sanitation, DMR and any other relevant authorities. In such cases the contaminated soil will be excavated and disposed at a suitably licensed and registered landfill. • An emergency plan for spillages will be available on site. • Storm water runoff in and around drill holes and excavated areas will be controlled. • Keep equipment and vehicles within the limits of the initially disturbed areas. • Apply erosion control measures (i.e. silt fences) in areas that have high risk for erosion. • Only demarcated areas for drilling and excavations will be cleared to the minimum required for access and adjacent and/or other areas will not be disturbed. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • No cigarette butts will be disposed of on the relevant properties. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal. • Vehicles will remain on approved tracks. • Wind screening and storm water control will be undertaken to prevent soil loss from the site. • All erosion control mechanisms will be regularly maintained. • Re-vegetation of disturbed surfaces will occur immediately after the construction and prospecting activities are completed.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Rehabilitation will be undertaken progressively • Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artifacts are uncovered in the affected area and mitigation measures recommended by SAHRA will be followed. • The contractor will ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. • Any discovered artifacts will not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. • Drill sites and trenches are to be positioned to not impact on any identified sites heritage significance. • Warning signage will be erected at all intersections, including at the intersections with farm access roads. • Heavy vehicles will not travel the road between 10pm and 6am unless it is absolutely unavoidable and has been discussed with the relevant landowner. • Sufficient distance will be maintained between heavy vehicles to allow light vehicles to overtake safely. • All drivers will be made aware of the procedures to be followed if an accident occurs. • If any damage to gravel roads occur as result of drilling or excavations, the damage will either be compensated for or repaired.		
Closure of boreholes and trenches and rehabilitation of sites	Decommissioning and Rehabilitation	3 250 m^2	• All waste bins and domestic waste will be removed from site once the activity is complete. • Excess topsoil not used in rehabilitation will be levelled. • All equipment will be removed from site on completion of the activity. • All areas where temporary services were installed will be rehabilitated to the satisfaction of the ECO.	• NEMBA • Noise; SANS 10103 and local municipal bylaws • OHSA	From the onset of the activity until the closure procedure has been completed and then, additionally, in the initial period after

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• The site will be cleared of all litter. • Final inspection in order to ensure adherence to EMPr guidelines, completion of localised/ remaining areas of impact, monitoring of rehabilitation success, etc. Also refer to Rehabilitation in Part B of this report.		the activities are completed.

e) Impact Management Outcomes

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

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Construction Phase				
Vegetation clearance	**Fauna and Flora –** Clearance of vegetation for establishment of site camp	Vegetation	• The drill/site camp will be placed, as far as possible, in a disturbed area that will limit impacts on vegetation. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal. • Prospecting activities will not be conducted within 100 m of a watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to prospecting taking place. All preliminary drill hole and trench locations are placed to NOT occur within these buffer zones.	Avoid limit vegetation removal to areas where construction will take place. Adhere to NEMBA.
	Air Quality - dust creation due to clearance	Air quality	• Dust abatement by wetting down exposed areas at drill sites, camp sites and/or trenches, where required.	Reduce impact of construction activities on air quality.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Operational Phase				
Drilling procedures	**Air quality** – dust creation due to vehicle movement and drilling	Air quality	• Dust abatement by wetting down exposed areas at drill and/or camp sites will be required. • Vehicles will stay on the approved or available tracks as far as practically possible. • Low speed limits will be set to avoid the creation of dust (40 km/hr). • All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimise the amount of emissions from their engines. • No burning of waste will be allowed on site. • Fire extinguishers and other fire safety equipment will be available on site. • Drilling and trench locations as set out by the final layout plan and as discussed with the relevant landowners will be adhered to. • Excavations and other clearing activities will only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. • Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Project Geologist and Contractor. • All areas will be rehabilitated immediately upon conclusion of work conducted.	Prevent air pollution by dust generation during operational phase.
	Noise pollution – vehicle movement, use of drill rigs and excavation machinery	Noise pollution	• The activities will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislations regarding noise control. • Employees will be supplied with ear plugs. All prospecting vehicles will be maintained in a road worthy condition. • All work will be limited to daylight hours, i.e. between 6am and 6pm	Reduce noise pollution. Adhere to relevant municipal by-laws.
	Waste pollution – domestic waste produced by workers	Waste pollution	• Bins will be emptied on a regular basis.	Eliminate littering and ensure that no waste remains on site once drilling is completed.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
			• Domestic waste to be removed from site - no burying or burning of domestic waste will be allowed. • Ablution facilities will be regularly serviced.	
	Water pollution (Surface and groundwater, wetlands and water bodies) – due to possible spillages, leaks from vehicles or ablution facilities	Water pollution	• Prospecting activities will not be conducted within 100 m of a watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to drilling or trenching taking place. All preliminary drill hole and trench locations are placed to **NOT** occur within these buffer zones. • Limited amounts of water (approximately 5000 liters / day) will be used during drilling. Water will be trucked to site. • Ablution facilities will not be placed within 32 m of any water body. • No construction footprint will take place inside or within 100 meters of any water body or wetland. **Hazardous materials** • All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces. • The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential high runoff storm water events. • Any hazardous substances will be stored at least 100 m from any of the water bodies on site. • Contaminated wastewater will be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp will be collected and removed from the site for appropriate disposal at a licensed commercial facility.	Avoid hydrocarbon spills and sewage spills.
	Soils – soil erosion and pollution due to exposed areas not being	Soils	• Dust abatement by wetting down exposed drill site and camp areas will be required. • Stockpiles will be below the 1.5 m height restriction.	Avoid erosion from occurring due to project activities.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	managed, leaks or spillages from ablution facilities		• The use of oil drip trays under drilling equipment to ensure no spillage of oils and fuels onto the ground. • Where possible, no major vehicle repairs will be done on site. • Oils and fuel will be stored on bounded areas to avoid spillages. • Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (in excess of 35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water and Sanitation, DMR and any other relevant authorities. In such cases the contaminated soil will be excavated and disposed at a suitably licensed and registered landfill. • An emergency plan for spillages will be available on site. • Storm water runoff in and around drill holes and excavated areas will be controlled. • Keep equipment and vehicles within the limits of the initially disturbed areas. • Apply erosion control measures (i.e. silt fences) in areas that have high risk for erosion.	
	Fauna and Flora – due to uncontrolled vehicle movement or improper rehabilitation	Fauna and Flora	• Only demarcated areas for drilling and trenching will be cleared to the minimum required for access and adjacent and/or other areas will not be disturbed. • No firewood harvesting will be allowed. • No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas. • No hunting will be allowed. • No cigarette butts will be disposed of on the relevant properties. • Should any protected tree or plant species be found on site, it will be avoided and a safe buffer (10-15 m) distance placed around it. If for any reason it cannot be avoided, the relevant permits will be applied for prior to removal.	Activities, human and vehicle movement to be restricted to existing roads and drill sites to be kept as small as feasible. Rehabilitation to be implemented as per the approved EMPr.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
			• Prospecting activities will not be conducted within 100 m of a watercourse or wetland. Should this become a requirement, the relevant permits will be obtained from DWS prior to drilling or trenching taking place. All preliminary drill hole and trench locations are placed to NOT occur within these buffer zones. • Vehicles will remain on approved tracks. • See rehabilitation mitigation measures.	
	Fire Prevention	Safety Fauna and Flora	• The Contractor will have operational fire- fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process. • See mitigation measures for Fauna and Flora above.	Reduce the risk of fires occurring due to project activities.
	Erosion	Soils Fauna and Flora	• Wind screening and storm water control will be undertaken to prevent soil loss from the site. • All erosion control mechanisms will be regularly maintained. • Re-vegetation of disturbed surfaces will occur immediately after the construction and prospecting activities are completed. • Rehabilitation will be undertaken progressively	Reduce erosion due to project activities.
Closure Phase				
Closure of boreholes and trenches and rehabilitation of sites	**Fauna and Flora –** due to uncontrolled vehicle movement or improper rehabilitation	Fauna and Flora	• Mitigation measures as per Part B (EMPr) of this report will be adhered to. • Site activities will be restricted to daylight hours between 6am and 6pm and as per the agreement with the landowner/s. • Vehicles will remain on the existing tracks. • Prospecting activities will not be conducted within 100 m of pens and stalls. • All equipment will be removed from site. • Rehabilitation will be done in such a manner that the site is in the state prior to prospecting.	Impacted areas to be rehabilitated to previous land use (agriculture).

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
			• All structures comprising the drilling and site camps will be removed from site. • The area that housed the drilling camp will be checked for spills of substances such as oil, paint, etc., and these will be cleaned up and contaminants disposed of appropriately.	
	Land degradation – due to improper site clean-up	Soils Visual	• All waste bins and domestic waste will be removed from site once the activity is complete. • Excess topsoil not used in rehabilitation will be levelled. • All equipment will be removed from site on completion of the activity. • All areas where temporary services were installed will be rehabilitated to the satisfaction of the ECO. • The site will be cleared of all litter. • Final inspection in order to ensure adherence to EMPr guidelines, completion of localised/ remaining areas of impact, monitoring of rehabilitation success, etc.	Impacted areas to be rehabilitated to previous land use (agriculture).

f) Impact Management Actions

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

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Vegetation clearance	**Fauna and Flora –** Clearance of vegetation for establishment of site camp **Air Quality -** dust creation due to clearance	• Control through management and monitoring • Remedy thorough rehabilitation	Throughout the course of the activity, but especially at the onset of the invasive prospecting activities.	Adhere to Environmental Authorisation, Air Quality act and any available dust regulations relevant.
Drilling procedures	**Air quality** – dust creation due to vehicle movement, excavation and drilling	• Control through management and monitoring • Remedy thorough rehabilitation	Throughout the course of the activity, but especially at the onset of the drilling and excavation phase.	Adhere to Prospecting works program, Environmental Authorisation for all aspects.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
				In terms of dust adhere to Air Quality act and any available dust regulations relevant.
	Noise pollution – vehicle movement, use of drill rigs and excavation machinery	• Control through management and monitoring		In terms of Noise adhere to Noise Regulations (SANS 10103). Adhere to Prospecting works program, Environmental Authorisation for all aspects.
	Waste pollution – domestic waste produced by workers	• Control through management and monitoring • Remedy thorough rehabilitation		Adhere to Prospecting works program, Environmental Authorisation for all aspects.
	Water pollution (Surface and groundwater, wetlands and water bodies) – due to possible spillages, leaks from vehicles or ablution facilities	• Control through management and monitoring • Remedy thorough rehabilitation		In terms of other environmental features adhere to Biodiversity Act, Waste Act and Water Act. Adhere to Prospecting works program, Environmental Authorisation for all aspects.
	Soils – soil erosion and pollution due to exposed areas not being managed, leaks or spillages from ablution facilities	• Control through management and monitoring • Remedy thorough rehabilitation		In terms of other environmental features adhere to Biodiversity Act, Waste Act and Water Act. Adhere to Prospecting works program, Environmental Authorisation for all aspects.
	Fauna and Flora – due to uncontrolled vehicle movement or improper rehabilitation	• Control through management and monitoring • Remedy thorough rehabilitation		In terms of other environmental features adhere to Biodiversity Act, Waste Act and Water Act.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
			From the onset of the activity until the closure procedure has been completed and then, additionally, in the initial period after the activities are completed.	Adhere to Prospecting works program, Environmental Authorisation for all aspects.
	Fire Prevention	• Control through management and monitoring		Adhere to Prospecting works program, Environmental Authorisation for all aspects.
	Erosion	• Control through management and monitoring • Remedy thorough rehabilitation		In terms of other environmental features adhere to Biodiversity Act, Waste Act and Water Act. Adhere to Prospecting works program, Environmental Authorisation for all aspects.
Closure of boreholes and trenches and rehabilitation of sites	**Fauna and Flora –** due to uncontrolled vehicle movement or improper rehabilitation	• Control through management and monitoring • Remedy thorough rehabilitation		Adhere to Prospecting works program, Environmental Authorisation for all aspects as well as Safety: MHSA guidelines.
	Land degradation – due to improper site clean-up	• Control through management and monitoring • Remedy thorough rehabilitation		Adhere to Prospecting works program, Environmental Authorisation for all aspects as well as Safety: MHSA guidelines.

i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The closure objectives provided below are to ensure that the closure of the site is compliant with the legislature and that the environment will be left in a state which is sustainable and not harmful. Closure objectives include but are not limited to:

- To ensure closure complies with the Mineral and Petroleum Resources Development Act 28 of 2002.
- To ensure that the prospecting footprints are rehabilitated to an acceptable standard, where there is ecosystem functioning and that all environmental and social risks have been reduced and do not pose any threat to the environment.
- To ensure that the goals which were specified in the rehabilitation section in this report have been met and that the land may have a sustainable use.
- To implement management strategies that will ensure that the negative impacts (risks) associated with proposed prospecting are eliminated or minimized to acceptable standards.
- To leave the area in a manner that is environmentally safe and does not pose any health risks to the neighbouring communities.

The objective of closure and rehabilitation for this area will be to leave the area in a functional state and returned to its pre-prospecting condition i.e. agricultural land.

Rehabilitation is a key mitigation action to reduce many of the impacts on the natural environment. A rehabilitation programme has been prepared as part of the EMPr in the relevant sections below. The objective of rehabilitation for this area will be to leave the area in a functional state and returned to its pre-prospecting condition, i.e. grazing, agriculture and wilderness. Rehabilitation will be conducted in a progressive manner: All drill sites and trenches will be surveyed and backfilled on an ongoing basis as they are completed. The rehabilitation of drill sites and trenches would take the form of in-filling of excavations, limited manual raking to open and flatten the surface area and very limited, targeted seeding of plants if the area is not in a disturbed area.

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

The draft report was made available to all identified I&APs for review and comment. Comments and concerns will be recorded and incorporated in the Final BAR and EMPr which will be submitted to the DMR. PPP has been included in Appendix 5.

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

The main purpose of rehabilitation is to minimize and remediate the negative impacts which were caused by prospecting. All efforts will be undertaken to rehabilitate the affected areas. This will mean that drill holes and trenches will be backfilled, areas where vegetation was removed will be re- vegetated, any piling of drill material will be removed from site, any stockpiled soil will be returned back to where it was excavated from and any fuel and oil leaks cleaned. All efforts will be made to rehabilitate the land to a quality of the same, if not better, than prior to the commencement of prospecting.

Rehabilitation process

Rehabilitation of impacted areas will involve the following process:

1. Removal of all construction equipment from the site.
2. Fill all drill holes and trenches with excavated soil.
3. Removal/spreading of all excess excavated soil.
4. Remove all construction rubble and rubbish.
5. Re-vegetation

- ***Removal of all equipment from the site:*** All construction equipment must be removed from the site. This includes vehicles, temporary structures, fencing, unused pipes/culverts etc.
- ***Fill all drill holes and trenches with excavated soil:*** Ensure that all drill sumps, holes and trench excavations are backfilled and all relevant anti-erosion mitigations are in place.
- ***Removal/spreading of all excess excavated soil:*** Any unused soil must be spread around the site and/or disposed of at a registered waste disposal facility.
- ***Remove all construction rubble and rubbish:*** All construction rubble and litter must be removed from the site and disposed of at a licenced waste disposal site.
- ***Re-vegetation:*** The re-vegetation process will not only focus on the rehabilitation of the drill holes and trenches but includes all exposed soil, transformed areas and areas where alien invasive plant species have been removed within the site caused as a result of the prospecting activities. Indigenous grass species, may be incorporated into these areas to create initial cover.

In order to rehabilitate impacted areas, the following landscaping techniques will be employed:

- Mulch is to be harvested from areas that are to be denuded of vegetation during construction activities, provided that they are free of seed-bearing alien invasive plants;
- No harvesting of indigenous vegetation may be done outside the area to be disturbed by construction activities.
- The Contractor shall ensure that all weeds and alien/invasive species cleared for prospecting activities are removed from site.
- Alien vegetation must be removed within the demarcated development footprint.
- Soil stockpiles during the construction phase should be placed in such a manner that natural drainage patterns are not disrupted (i.e. no stockpiles should be located in or adjacent to any seepage or drainage areas).
- No imported soil material should be used, unless it can be ensured that it is free of exotic and alien vegetation seeds;
- Where necessary, appropriate dust suppression techniques should be employed, such as regular watering of exposed areas and stockpiles;
- It is recommended that exposed areas of soil be stabilised as soon as possible, either through appropriate surfacing (e.g. roads) or through landscaping (e.g. road reserve, etc.);
- The natural topography of the site must be maintained during and after construction (i.e. indiscriminate levelling or elevating of the site must be avoided);
- In the case of existing surface wash-away and wind erosion, the Contractor shall implement remedial measures as soon as possible in order to prevent further erosion;
- Appropriate erosion control/ soil stabilisation measures are to be implemented where necessary;
- During construction the Contractor shall protect areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking other measures necessary to prevent the surface water from being concentrated in streams and from scouring the slopes, banks or other areas.
- Traffic and movement over stabilised areas is to be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ECO.

Refer to the preferred site layout in Appendix 4.

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

Rehabilitation measures have been designed to meet closure objectives as stipulated in various sections of the report.

The objectives of rehabilitation and closure are:

- To ensure that vegetation clearing is done in an appropriate manner.
- To leave the site in a safe state for humans and animals, as it was originally.
- To remove all equipment, excess topsoil and any waste generated.
- To backfill drill holes and trenches adequately.
- Ensure that the water resource and underground water is not affected by prospecting or rehabilitation activities.

Site camp establishment, access footpaths, roads and tracks

- Ensure that the site camp is placed in an already disturbed area to limit vegetation disturbance.
- Ensure all equipment; fuel and waste have been removed from site.
- Place a natural barrier at the junction to the footpath/track/road being rehabilitated e.g. rocks to prevent further access.
- Loosen compacted soil on tracks when tracks are not needed again.
- Seeding to be done where required with appropriate seed.
- Daily site access will occur by the required vehicles.
- As far as possible, existing roads will be used. Consultation with the relevant landowner will be done where this is not possible.
- If any damage to gravel roads occur as result of drilling and excavation, the damage will either be compensated for or repaired.
- No new access roads will be constructed however should there be a need to establish access roads, these will be constructed in such a way that vegetation clearance is limited, and existing structures such as fence lines are followed as far as possible.
- No fences will be cut and all access gates will be left in their original state.

Drilling and trench sites

- Prior to drilling and trenching a photographic record of the site will be established.
- Drill and trench sites will be selected based on geological information. These locations will be discussed with the relevant landowner.
- Drill and trench sites will be marked with pegs that will be removed once the activity is complete.
- All drill and trench sites will be screened for species of conservation concern.
- Vegetation removed must include the 1st upper 30 cm, where possible, of soil and stockpiled (topsoil).
- Topsoil and subsoil will be separated. Topsoil will be used in the rehabilitation phase.
- Since the plant material removed from the site are to be mixed into the topsoil to supplement the organic nutrient content of the soil, no further soil conditioning in terms of fertilising is deemed necessary.
- All cleared invasive alien vegetation will be removed from site.
- If drilling or trenching is required in grazing areas, consultations will be held with the relevant landowners to discuss consent and compensation.
- Backfilling will be done via infilling and raking of the suitable material over the disturbed areas.
- Drill holes will be plugged, capped and marked.

- All litter will be removed from site and the surrounds.
- Severely compacted soil will be loosened / scarified to allow water and seed penetration.
- Ablution facilities will be used and will be removed and the contents disposed of at an approved facility.
- Fires are prohibited on site.
- Where possible, no major servicing of vehicles will be allowed on site.
- Photographs of the site; file information with dates and notes when first monitoring is due as imperative.

Waste Disposal

- All generated waste and litter will be removed from site on a weekly basis.
- Ablution facilities will be outsourced, maintained and serviced on a regular basis by a licenced service provider.
- All spills / leaks will be contained in an appropriate manner and removed from site to a licenced facility.

Rehabilitation

- Prior to rehabilitation of the site, all remnants of foreign debris shall be removed from the site.
- All holes will be covered first with subsoil and then with topsoil (minimum of 10cm deep). Topsoil will be spread to the original depth (30cm where possible).
- As topsoil will contain all cleared vegetation, no additional treatment will be required.
- The soil must cover all the roots and be well firmed down to a level equal to that of the surrounding in situ material.
- Control weeds by means of extraction, cutting or other approved methods.
- Monitoring will be undertaken once a month or until rehabilitation has been deemed successful
- Follow up inspections will be conducted every two months to remove upcoming seedlings of alien vegetation.
- A single permanent marker will be required to mark the location of the drill hole for future reference. The siting of such a marker shall be cleared with the landowner.
- All rehabilitation referred to in this environmental management programme will be done concurrent to prospecting operations as set out in the MPRDA. Best practice methods will be used.
- Continuous monitoring of possible soil erosion will be required.

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

Financial provision has been calculated according to the regulation 54 of the MPRDA and the principles presented in the guidelines for the determination of financial provision for the mining industry (2005) – and only aspects applicable to prospecting through exploration drilling and trenching up to de-establishment are addressed in the financial provision assessment.

The primary risk ranking of the overall prospecting activities was determined as class C. The overall environmental sensitivity of the proposed project site was defined as being high. Weighing factor 1 was defined as 1.10 based on the terrain and weighing factor 2 was defined as 1.05 due to the proximity to an urban area.

Section 3 (q) of the Basic Assessment Report details the calculation of the rehabilitation costs of R 82,393.80.The rates used in the assessment are based on the DMR Master Rates table for financial provision 2019.

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

Density Metals (Pty) Ltd will provide the indicated financial provision R 119,147.78 for rehabilitation and post-monitoring of the site which has been included into the total cost required to finance the PWP. Find attached the Mining Work Programme in Appendix 8.

g) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

a) Monitoring of Impact Management Actions
b) Monitoring and reporting frequency
c) Responsible persons
d) Time period for implementing impact management actions
e) Mechanism for monitoring compliance

The following impacts will require monitoring:

- Air pollution
- Noise pollution
- Pollution of soil and erosion
- Water pollution and storm water runoff
- Condition of soils and vegetation due to removal or damage
- Possible impacts on heritage resources

The monitoring and performance of the prospecting activities will be conducted as prescribed in terms of regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). Section 38 of the Act is also relevant as far as monitoring of impacts is concerned. This section stipulates that the holder of the prospecting right or permit is required to rehabilitate the land disturbed to its natural state or predetermined condition. Quarterly EMP compliance audits by an ECO are required. These reports will inform the annual performance assessment that will be submitted to DMR. It is important to note that all environmental damage in the prospecting area will be the responsibility of the permit/rights holder. The continuous monitoring of key environmental indicators throughout the life of the operation will ensure that impacts do not become unmanageable.

Table 17: Mechanisms for monitoring compliance with the environmental management programme

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
All Prospecting Activities	N/A	Ensure that the prospecting programme is being implemented in line with the approved prospecting works programme.	Geologist	Submit an annual prospecting progress report to DMR
	All commitments contained in the BA Report and accompanying EMPr	Ensure commitments made within the approved BAR and EMPr are being adhered to.	Internal environmental control officer and independent EAP	Undertake and submit an environmental performance audit every two years to DMR
Drilling and excavation activities	Noise Dust fall Visual Soil & vegetation Social Housekeeping & maintenance Waste management Rehabilitation	Monthly inspections will cover the following: • Implementation of effective waste management • Establish and implement a stakeholder compliant register on site and ensure that all complaints are responded to promptly. • Ensure that an oil spill kit is readily available. • All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces. • Rehabilitation of drill pads. • Records of water intersections on borehole logs. • Control and minimise the development of new access tracks. • Appropriate storage and handling of topsoil.	Appointed contractor	Weekly inspection and reporting
Post drilling and excavation	• Revegetation Stability • Soil erosion • Alien invasive species	The drill site and excavated areas shall be monitored six monthly until closure certificate is obtained.	Environmental Coordinator	Biannual Monitoring Report

h) Indicate the frequency of the submission of the performance assessment/ environmental audit report

Annual performance assessment reports (including review of the financial provision) must be done by an independent ECO. These reports must be submitted to the DMR.

i) Environmental Awareness Plan

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

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

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

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

- The importance of conformance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities
- The environmental benefits of improved personal performance;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities;
- The importance of not littering;
- The need to use water sparingly;
- Details of, and encouragement to, minimise the production of waste and re-use, recover and recycle waste where possible;
- Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered;
- Details regarding flora of special concern, including protected/endangered plant and species, and the procedures to be followed should these be encountered during the construction phase.
- In the case of permanent staff, the Site manager shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Site manager shall inform how he intends concluding his environmental training obligations.

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

- The names, positions and responsibilities of personnel to be trained.
- The framework for appropriate training plans.
- The summarised content of each training course. The ECO shall monitor the records as listed above.

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

All employees must be provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. This should be in conjunction with the implementation of the EMPr.

j) Specific information required by the Competent Authority

In terms of Section 41, Regulations 53 and 54 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), Density Metals (Pty) Ltd is required to make financial provision for the interim and final rehabilitation activities on the site. This provision will be reviewed annually for adequacy and amended to compensate for new activities and/or inflation. During the annual review, confirmation will be provided that this amount can be provided for from operating expenditure.

4) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports ☒

b) the inclusion of comments and inputs from stakeholders and I&APs; ☒

c) the inclusion of inputs and recommendations from the specialist reports where relevant; ☒ and

d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein. ☒

Signature of the environmental assessment practitioner:

Red Kite Environmental Solutions (Pty) Ltd

Name of company:

14 February 2019

Date:

-END-