DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED PROSPECTING ACTIVITIES ON VARIOUS PROPERTIES IN THE POSTMASBURG DISTRICT, NORTHERN CAPE

For

Salene Manganese (Pty) Ltd

For the following Minerals:
Aluminium, Silver, Arsenic, Barium, Bismuth, Cerium, Cobalt, Copper, Potassium, Lanthanum, Nickel, Phosphorus, Lead, Rubidium, Sulphur, Scandium, Silicon, Strontium, Titanium, Vanadium, Zink, Rare Earth Elements, Lithium

Located on:

Jenkins 562, Gappenpin Reserve 670, Msahwening 557 (vanadium excluded), Helpebietjie 738, Kadgame 558, Bishop 671, Morokwa 672, Lomoteng 669, Magoloring 668, Vlakfontein 433, Doornfontein 446 (vanadium excluded), Farm 447, Farm 476, Lohathla 673, Goucester 674, Driehoekspan 435, Farm 434, Kapstewel 436, Farm 445, Farm 450, Beesthoek 448, Olkynfontein 475, Mokaninging 560, Farm 431, Farm 478, Farm 477, Farm 485, Farm 486, Ploegfontein 487, Leeuwfontein 488, Strydfontein 614, Klipbank 489, Kapstewel 541, portion of Pensfontein 449, Portion 1 and the remainder of Macarthy 559
within the administrative district of Postmasburg,
Northern Cape Province

DMRE Reference Number: NC30/5/1/1/2/12630 PR

Submitted for: Public Review and Comment
18 January 2021 – 18 February 2021

Ref: Salene Prospecting - NC30/5/1/1/2/12630 PR

Basic Assessment Report Compiled by:

Prescali
Environmental Consultants (Pty) Ltd

Title:
DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED PROSPECTING ACTIVITIES ON VARIOUS PROPERTIES IN THE POSTMASBURG DISTRICT, NORTHERN CAPE FOR SALENE MANGANESE (PTY) LTD

Client:

Project Applicant:	Salene Manganese (Pty) Ltd		
Registration Number (if any):	2001/012632/07		
Trading Name (if any):	Salene Manganese (Pty) Ltd		
Responsible Person, (e.g. Director, CEO, etc.):	Director		
Contact Person:	Moira Jaquet- Briner		
Physical Address:	351 Main Road, Bryanston, 2191		
Postal Address:	P O Box 50917, Randburg, 2125		
Postal Code:	2060	Mobile Number:	082 4408176
Telephone Numbers:	011- 463 7100	Fax	
E-mail Address:	Moira@salene.com		

Report no.:
Salene/Prospecting/DBAR/v0

Document prepared by:

Prescali Environmental Consultants (Pty) Ltd
P.O. Box 2544
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0159

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DOCUMENT CONTROL

	Name	Signature	Date
Compiled:	Mr. Gregory Netshilindi *(Cand. Nat. Sci)*		2020/12/23
Checked:	Dr Petro Erasmus *(Pri.Sci.Nat)(EAPASA)*		2020/12/28
Authorized:	Ms Elaine van der Linde		2020/01/09

This report has been reviewed and approved for submission by ……,
For Salene Manganese (Pty) Ltd:

Date: ……

Signature: ……

REVISION AND AMENDMENTS

Description of Revision / Amendment	No	Date
Salene Basic Assessment Report	0	
Salene Basic Assessment Report	1	

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

Draft Basic Assessment Report for the proposed prospecting activities for Salene Manganese (Pty) Ltd for the following Minerals: Aluminium, Silver, Arsenic, Barium, Bismuth, Cerium, Cobalt, Copper, Potassium, Lanthanum, Nickel, Phosphorus, Lead, Rubidium, Sulphur, Scandium, Silicon, Strontium, Titanium, Vanadium, Zink, Rare Earth Elements, Lithium. The proposed activities will be located on farms Jenkins 562, Gappenpin Reserve 670, Msahwening 557 (vanadium excluded), Helpebietjie 738, Kadgame 558, Bishop 671, Morokwa 672, Lomoteng 669, Magoloring 668, Vlakfontein 433, Doornfontein 446 (vanadium excluded), Farm 447, Farm 476, Lohathla 673, Goucester 674, Driehoekspan 435, Farm 434, Kapstewel 436, Farm 445, Farm 450, Beesthoek 448, Olkynfontein 475, Mokaninging 560, Farm 431, Farm 478, Farm 477, Farm 485, Farm 486, Ploegfontein 487, Leeuwfontein 488, Strydfontein 614, Klipbank 489, Kapstewel 541, portion of Pensfontein 449, Portion 1 and the remainder of Macarthy 559 within the administrative district of Postmasburg, Northern Cape Province.

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: Salene Manganese (Pty) Ltd
TEL NO: 011- 463 7100
FAX NO:
POSTAL ADDRESS: P O Box 50917, Randburg, 2125
PHYSICAL ADDRESS: 351 Main Road, Bryanston, 2191
DMRE REFERENCE NUMBER: NC 30/5/1/1/2/12630 PR

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.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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

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

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

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

EXECUTIVE SUMMARY

Salene Manganese (Pty) Ltd is proposing to conduct prospecting activities for Aluminium, Silver, Arsenic, Barium, Bismuth, Cerium, Cobalt, Copper, Potassium, Lanthanum, Nickel, Phosphorus, Lead, Rubidium, Sulphur, Scandium, Silicon, Strontium, Titanium, Vanadium, Zink, Rare Earth Elements, Lithium. The proposed activities will be located on farms Jenkins 562, Gappenpin Reserve 670, Msahwening 557 (vanadium excluded), Helpebietjie 738, Kadgame 558, Bishop 671, Morokwa 672, Lomoteng 669, Magoloring 668, Vlakfontein 433, Doornfontein 446 (vanadium excluded), Farm 447, Farm 476, Lohathla 673, Goucester 674, Driehoekspan 435, Farm 434, Kapstewel 436, Farm 445, Farm 450, Beesthoek 448, Olkynfontein 475, Mokaninging 560, Farm 431, Farm 478, Farm 477, Farm 485, Farm 486, Ploegfontein 487, Leeuwfontein 488, Strydfontein 614, Klipbank 489, Kapstewel 541, portion of Pensfontein 449, Portion 1 and the remainder of Macarthy 559 within the administrative district of Postmasburg, Northern Cape Province. The proposed prospecting activities will include the following activities:

Non-Invasive Activities:

Desktop Studies: The area is known for Manganese and Iron mining. There are thus a number of existing mines within the target area. Proper consultation will be done with holders of mining rights and prospecting rights to obtain access to the areas before any samples may be taken. Available historic prospecting data will be captured and evaluated, and a working plan of the area on a suitable scale (1:10 000 or 1:20 000) will be compiled. The desk-top study will provide guidance with respect of areas to target for soil sampling on existing dumps and disturbed areas.

Mapping: Geological mapping involves plotting the location and attitude of the various rock units, structures, economic mineral/metal occurrences, etc. as observed in the field on a base map. Geological mapping will be on a scale suitable for the local geological variability. Mapping will be done along lines spaced at regular intervals and oriented perpendicular to the expected north-south striking lithologies in the area. The mapping will primarily focus on the delineation of the Hotazel Formation and the iron and manganese bearing horizons thereof.

Compilation of Data, Interpretation and Reporting: This will follow after completion of the non-invasive phase, and before the planning of the sampling phase.

Resource estimation: The borehole logs and analytical data/results are captured into an electronic database and validated. A geological model is then developed that forms the basis for the resource estimate. The purpose of the resource estimate is to obtain an indication of the tonnage and grade of the potential precious and base metal deposit.

Invasive Activities:

Sampling Program: Samples will be taken from existing dumps, tailings, etc. Approximately 10 samples to be collected within a radius of approximately 500 m from each point. Twenty five (25) Site points have been identified. Each surface sample will not disturb more than 1 m^2. Samples will be submitted for analyses to determine the mineral content. Each sample will be logged and split and quartered where assaying is warranted. One quarter will be dispatched to the assay lab, one quarter kept for a permanent record, and the halves utilized for petrological studies or stored for future reference or metallurgical test work. Samples for analysis will be bagged and numbered on site by the geologist and field assistant, and dispatched to the contracted laboratory. Analyses to determine the mineral content and composition is conducted off site at an accredited laboratory.

Metallurgical Sampling: The mineralized portions of boreholes, as indicated by assay results, would provide sufficient material for metallurgical test work purposes.

Drilling: Drilling will only be considered after completion of sampling phase and shall only be done on existing disturbed areas such as dumps, etc.

Drilling will only be considered once sampling proves successful. This BAR only covers sampling activities. Should drilling be considered then an amendment to the environmental authorization will be applied for.

Listed Activities:

The proposed activities will trigger the following NEMA Listed Activities:

NAME OF ACTIVITY *(E.g., For prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route*	**AERIAL EXTENT OF THE ACTIVITY Ha or m²**	**LISTED ACTIVITY** *(Mark with an X where applicable or affected).*	**APPLICABLE LISTING NOTICE**
Sampling site	10 x 25 Sampling Site 1 Sample site= 1 m^2 Total Sampling Site Area= 250 m^2	X	GNR 983 (as amended 07 April 2017) Listed Activity 20
Rehabilitation and Closure	250 m^2	X	GNR 983 (as amended 07 April 2017) Listed Activity 22

The positive impact of the proposed activity is the discovery of economically viable mineral resources within Tsantsabane and Gamara Local Municipality, whose economy is very dependent on the mining industry.

It should be noted that this report will has been made available to I&AP's for review and comment and their comments and concerns will be taken into account in this BAR for submission to the DMRE. Furthermore, it should be noted that the impact scores themselves will include the results of the public response and comment.

The access roads may over time and continuous use deteriorate and become damaged. The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the topographical and geophysical surveys.

The removal of natural vegetation to accommodate the sampling site and their associated access roads may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area, at least temporarily. Access to the application area for the topographical and geophysical survey, prospecting sampling will be required which may interrupt the existing land uses, such as grazing and existing mines. However, this impact will be minimal as it is of short duration. Provisions have been made for the rehabilitation of all areas disturbed during prospecting, including access tracks.

Although the majority of the area is classed as a minor aquifer system with potentially poor water quality and low expected yields, there are existing groundwater users for which boreholes could be the only water source. It is therefore critical that existing groundwater users be taken into account and that their boreholes are not negatively affected in any way. Potential impacts that have been identified with regard to geohydrology are degradation of aquifers, impacts on existing groundwater users and impacts on surface water features.

The prospecting activities will generate general waste during the operational phase. This waste must be collected during site visits and be disposed of at appropriate landfill sites.

A summary of the positive and negative impacts of the proposed activity are provided in below.

Table 1: Positive and Negative impacts and the phases (C= Construction/Site Establishment; O= Operational; CL= Closure; D=Decommissioning)

ASPECT	**IMPACT**	**PHASE**	**POSITIVE/NEGATIVE**
Biodiversity	Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	C	Negative
	Destruction of and fragmentation of portions of vegetation community (note that most of the sampling activities will take place on previously disturbed areas such as dumps and tailings area)	C	Negative

ASPECT	IMPACT	PHASE	POSITIVE/NEGATIVE
	Loss of [1]CBA1 and [2]ESA and other sections of area classed as other natural Areas	C	Negative
	Displacement of faunal community due to temporary habitat loss, disturbance (noise, dust, and vibration) and/or direct mortalities	C	Negative
Biodiversity	Continued disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	O, Cl	Negative
	Encroachment by alien invasive plant species	Cl	Negative
	Disturbance and mortalities of reptiles and other herpetofauna due to rock and soil sampling	O	Negative
	Ongoing displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbance because of sampling.	O	Negative
	Further impacts due to the spread and/or establishment of alien and/or invasive species	O	Negative
	Displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbances such as dust, vibrations, poaching and noise.	C, O	Negative
Heritage Resources	Impacts on potential burial grounds and graves	C, O	Negative
	Impacts on archaeological resources	C, O	Negative
Noise	Noise nuisance	C, O	Negative
Soil	Pollution of soil	O	Negative
Air Quality	Air Quality	O	Negative
	Deterioration and damage to existing access roads and tracks	C, D	Negative
Socio-economic	Potential job creation	C, O, D	Positive
	Safety and security to existing landowners and lawful occupier	C, O, D	Negative
	Interference with existing land uses	C, O, D	Negative
Waste	Generation and disposal of waste	C	Negative
Soil	Erosion due to improper rehabilitation	D	Negative

No specialist studies were conducted for the proposed prospecting activities, as sampling will as far as possible take place on existing mining areas that have already been disturbed or degraded.

[1] CBA= Critical Biodiversity Area
[2] Ecological Support Area

Table of Contents

TABLE OF FIGURES

page

LIST OF TABLES

page

PART A
SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1. Details of:

1.1.1 The EAP who prepared the report

Name of the Practitioner: Prescali Environmental Consultants.

The report was compiled by Gregory Netshilindi *(Cand.Nat. Sci)*.

Tel No.:
Fax No.
e-mail

1.2. Expertise of the EAP

1.2.1. The qualifications of the EAP

(With evidence attached as Appendix 1

Mr Gregory Netshilindi has qualifications in Environmental & Geographical Sciences and Geological Sciences. He is a Cand.Nat.Sci. (SACNASP), Natural Professional Scientist for geological sciences. His qualifications are provided in **Error! Reference source not found.**.

Reviewers:

- Ms. E. van der Linde has qualifications in Geology, Engineering Geology and Environmental Management and experience in Water and Environmental Management. She is registered as a Pri Sci Nat. (SACNASP), Natural Professional Scientist. Her qualifications are provided in **Error! Reference source not found.**.
- Dr. P. Erasmus has qualifications in Zoology and Biochemistry and further studied in Zoology and Marine pollution. She is registered as a Pri Sci Nat. (SACNASP), Natural Professional Scientist, for Ecological and Environmental Sciences. She is also a registered Environmental Assessment Practitioner with EAPASA. Her qualifications are provided in **Error! Reference source not found.**.

1.2.2. Summary of the EAP's past experience.

(Attach the EAP's curriculum vitae as Appendix 2

- Mr G. Netshilindi has 4 years applicable experience (a short resume with a list of projects is attached in **Error! Reference source not found.**) and has been employed by:
  - Minmet Services (Pty) Ltd;
  - Tshikovha Green and Climate Change Advocates (Pty) Ltd; and
  - Prescali Environmental Consultants (Pty) Ltd.

Reviewers:

- Ms. E. van der Linde has 20 years of applicable experience (a short resume with a list of projects is attached in **Error! Reference source not found.** and has been employed by:
  - Department: Water Affairs and Forestry (DWAF);
  - Groundwater Consulting Services cc;
  - M2 Environmental Connections cc; and
  - Prescali Environmental Consultants (Pty) Ltd.
- Dr. P. Erasmus has 15 years of applicable experience (a short resume with a list of projects is attached in **Error! Reference source not found.** and has been employed by:
  - Department: Water Affairs and Forestry (DWAF);
  - M2 Environmental Connections (Pty) Ltd; and
  - Prescali Environmental Consultants (Pty) Ltd.

2. LOCATION OF THE OVERALL ACTIVITY.

The proposed prospecting activities will take place on the following farms and portions as outlined below. Please refer to Figure 3-1.

1.	Farm Name:	Jenkins	
	Farm Number:	562	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000056200000
		1	C04100000000056200001
		2	C04100000000056200002
		3	C04100000000056200003

2.	Farm Name:	Gappepin	
	Farm Number:	670	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000067000000

3.	Farm Name:	Mashwening	
	Farm Number:	557	
	Registration Division:	RD	
	Portions:	RE (0), 1	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000055700000
		1	C04100000000055700001

4.	Farm Name:	Helpebietjie	
	Farm Number:	738	
	Registration Division:	RD	
	Portions:	1	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		1	C04100000000073800001

5.	Farm Name:	Kadgame	
	Farm Number:	558	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 4	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000055800000
		1	C04100000000055800001
		2	C04100000000055800002
		4	C04100000000055800004

6.	Farm Name:	Bishop	
	Farm Number:	671	
	Registration Division:	RD	
	Portions:	RE (0), 2,3, 4	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000067100000
		2	C04100000000067100002
		3	C04100000000067100003

		4	C04100000000067100004

7.	Farm Name:	Morokwa	
	Farm Number:	672	
	Registration Division:	RD	
	Portions:	RE (0), 1,2, 3	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000067200000
		1	C04100000000067200001
		2	C04100000000067200002
		3	C04100000000067200003

8.	Farm Name:	Lomoteng	
	Farm Number:	669	
	Registration Division:	RD	
	Portions:	RE (0), 1,2,	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000066900000
		1	C04100000000066900001
		2	C04100000000066900002

9.	Farm Name:	Magoloring	
	Farm Number:	668	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3, 4, 5, 6	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000066800000
		1	C04100000000066800001
		2	C04100000000066800002
		3	C04100000000066800003
		4	C04100000000066800004
		5	C04100000000066800005
		6	C04100000000066800006

10.	Farm Name:	Vlakfontein	
	Farm Number:	433	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3,	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000043300000
		1	C03100000000043300001
		2	C03100000000043300002
		3	C03100000000043300003

11.	Farm Name:	Doornfontein	
	Farm Number:	446	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000044600000
		1	C03100000000044600001
		2	C03100000000046600002

12.	Farm Name:	Farm 447
	Farm Number:	447
	Registration Division:	RD

	Portions:	0	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		0	C03100000000044700000

13.	Farm Name:	Farm 476	
	Farm Number:	476	
	Registration Division:	RD	
	Portions:	0	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		0	C03100000000047600000

14.	Farm Name:	Lohathla	
	Farm Number:	673	
	Registration Division:	RD	
	Portions:	RE,1,2,3,4,5,6	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000067300000
		1	C04100000000067300001
		2	C04100000000067300002
		3	C04100000000067300003
		4	C04100000000067300004
		5	C04100000000067300005
		6	C04100000000067300006

15.	Farm Name:	Gloucester	
	Farm Number:	674	
	Registration Division:	RD	
	Portions:	RE (0),1,2,3,4,5,6,7,8	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000067400000
		1	C04100000000067400001
		2	C04100000000067400002
		3	C04100000000067400003
		4	C04100000000067400004
		5	C04100000000067400005
		6	C04100000000067400006
		7	C04100000000067400007
		8	C04100000000067400008

16.	Farm Name:	Driehoeks Pan	
	Farm Number:	435	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3, 4, 5, 6, 7, 8	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000043500000
		1	C03100000000043500001
		2	C03100000000043500002
		3	C03100000000043500003
		4	C03100000000043500004
		5	C03100000000043500005
		6	C03100000000043500006
		7	C03100000000043500007
		8	C03100000000043500008

17.	Farm Name:	Farm 434
	Farm Number:	434

	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000043400000

18.	Farm Name:	Kapstewel	
	Farm Number:	436	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000043600000
		1	C03100000000043600001
		2	C03100000000043600002
		3	C03100000000043600003
		4	C03100000000043600004
		5	C03100000000043600005
		6	C03100000000043600006
		7	C03100000000043600007
		8	C03100000000043600008

19.	Farm Name:	Farm 445	
	Farm Number:	445	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000044500000
		1	C03100000000044500001
		2	C03100000000044500002
		3	C03100000000044500003

20.	Farm Name:	Farm 450	
	Farm Number:	450	
	Registration Division:	RD	
	Portions:	RE (0), 1	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000045000000
		1	C03100000000045000001

21.	Farm Name:	Beesthoek	
	Farm Number:	448	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000044800000
		1	C03100000000044800001
		2	C03100000000044800002
		3	C03100000000044800003
		4	C03100000000044800004
		5	C03100000000044800005
		6	C03100000000044800006
		7	C03100000000044800007
		8	C03100000000044800008
		9	C03100000000044800009
		10	C03100000000044800010
		11	C03100000000044800011
		12	C03100000000044800012

22.	Farm Name:	Olynfontein	
	Farm Number:	560	
	Registration Division:	RD	
	Portions:	RE (0), 1, 2, 3, 4, 5, 6	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000056000000
		1	C04100000000056000001
		2	C04100000000056000002
		3	C04100000000056000003
		4	C04100000000056000004
		5	C04100000000056000005
		6	C04100000000056000006

23.	Farm Name:	Farm 431	
	Farm Number:	431	
	Registration Division:	RD	
	Portions:	RE (0), 1	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000043100000
		1	C03100000000043100001

24.	Farm Name:	Farm 478	
	Farm Number:	478	
	Registration Division:	RD	
	Portions:	RE	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000047800000

25.	Farm Name:	Farm 477	
	Farm Number:	478	
	Registration Division:	RD	
	Portions:	RE (0), 1	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000047700000
		1	C03100000000047700001

26.	Farm Name:	Farm 486	
	Farm Number:	486	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000048600000

27.	Farm Name:	Farm 485	
	Farm Number:	485	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000048500000

28.	Farm Name:	Ploegfontein
	Farm Number:	487
	Registration Division:	RD
	Portions:	0

	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		0	C03100000000048700000

29.	Farm Name:	Leeuwfontein	
	Farm Number:	488	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000048800000

30.	Farm Name:	Strydfontein	
	Farm Number:	614	
	Registration Division:	RD	
	Portions:	0	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		0	C03100000000061400000

31.	Farm Name:	Klipbank	
	Farm Number:	489	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000048900000

32.	Farm Name:	Kapstewel	
	Farm Number:	541	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000048900000
		1	C03100000000054100001
		2	C03100000000054100002
		3	C03100000000054100003

33.	Farm Name:	Pensfontein	
	Farm Number:	449	
	Registration Division:	RD	
	Portions:	RE (0)	
	Administrative District:	Hay	
	SG Codes	Farm Portion	SG Code
		RE	C03100000000044900000

34.	Farm Name:	Macarthy	
	Farm Number:	559	
	Registration Division:	RD	
	Portions:	RE (0), 1	
	Administrative District:	Kuruman	
	SG Codes	Farm Portion	SG Code
		RE	C04100000000055900000
		1	C04100000000055900001

Application Area (Ha):	115 333.338 Ha
Distance and Direction from Nearest Town:	1 km West of Postmasburg and 18 South of Kathu
Magisterial District:	ZF Mgcawu and John Taolo Gaetsewe Magisterial District

Locality Map:	Attach a locality map at a scale **not smaller than 1:250000**. (See Locality map append as Appendix 3

3. LOCALITY MAP

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

The locality map is provided in Appendix 3 and in Figure 3-1 and Figure 3-2.

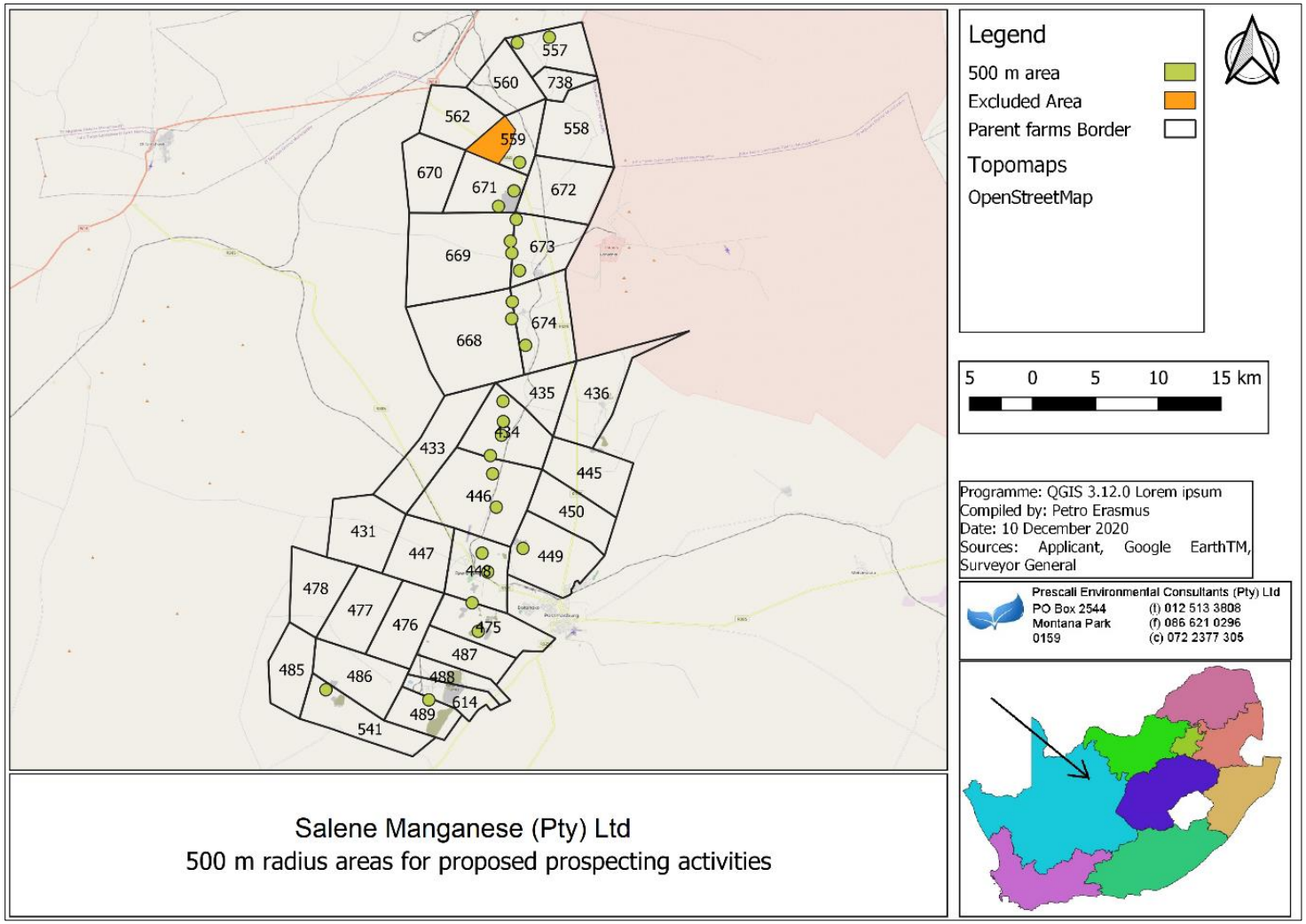

Figure 3-1: Salene Manganese Prospecting Area Locality Map

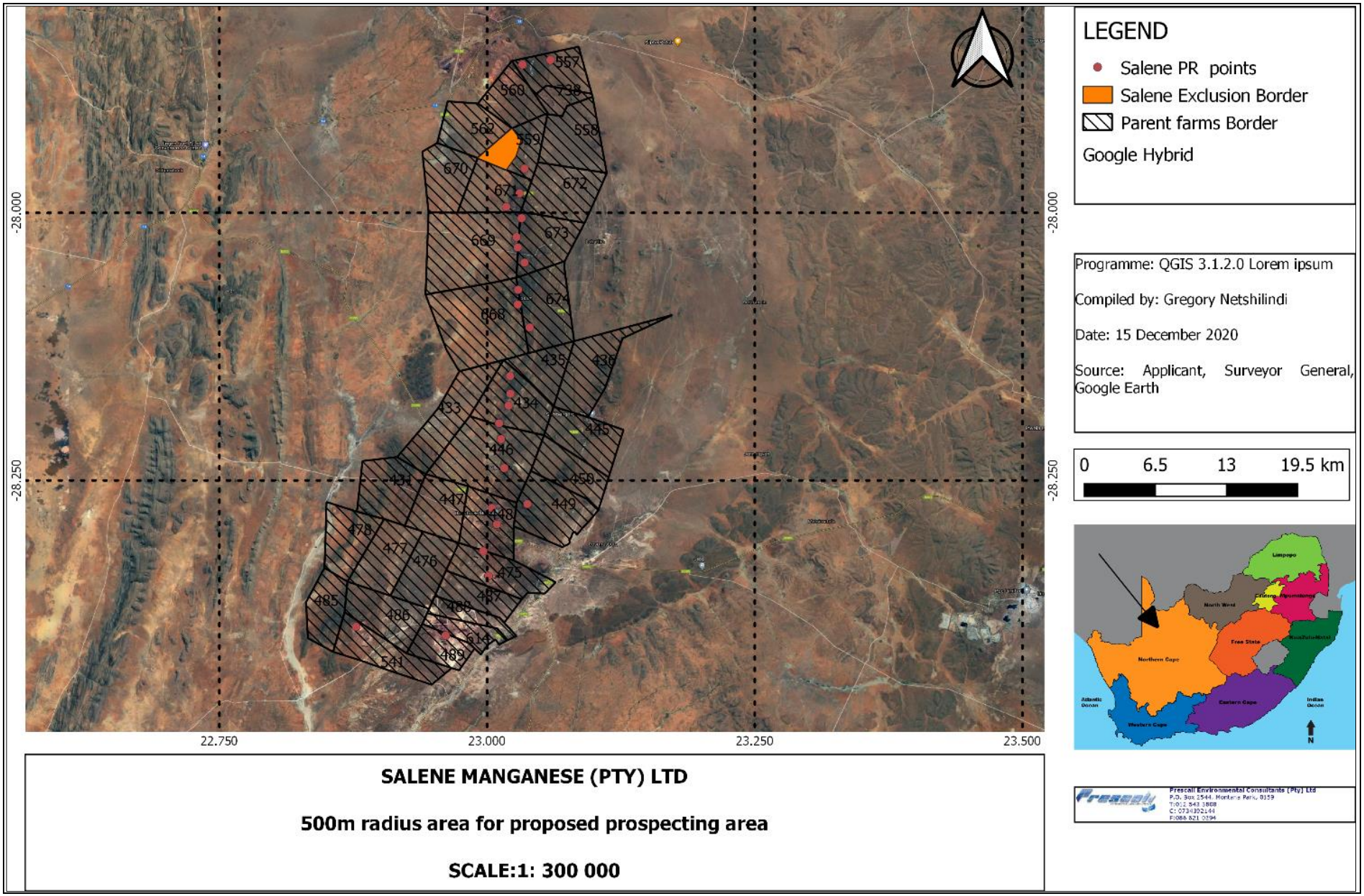

Figure 3-2: Regional Locality Map (1: 300 000)

4. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

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

The plan, showing the location of the proposed prospecting activities with a 500 m radius around each point in which prospecting activities will take place, is provided in Figure 3-1.

4.1. Non-Invasive Activities:

Desktop Studies: The area is known for Manganese and Iron mining. There are thus a number of existing mines within the target area. Proper consultation will be done with holders of mining rights and prospecting rights to obtain access to the areas before any samples may be taken. Available historic prospecting data will be captured and evaluated, and a working plan of the area on a suitable scale (1:10 000 or 1:20 000) will be compiled. The desk-top study will provide guidance with respect of areas to target for soil sampling on existing dumps and disturbed areas.

Mapping: Geological mapping involves plotting the location and attitude of the various rock units, structures, economic mineral/metal occurrences, etc. as observed in the field on a base map. Geological mapping will be on a scale suitable for the local geological variability. Mapping will be done along lines spaced at regular intervals and oriented perpendicular to the expected north-south striking lithologies in the area. The mapping will primarily focus on the delineation of the Hotazel Formation and the iron and manganese bearing horizons thereof.

Compilation of Data, Interpretation and Reporting: This will follow after completion of the non-invasive phase, and before the planning of the sampling phase.

Resource estimation: The borehole logs and analytical data/results are captured into an electronic database and validated. A geological model is then developed that forms the basis for the resource estimate. The purpose of the resource estimate is to obtain an indication of the tonnage and grade of the potential precious and base metal deposit.

4.2. Invasive Activities:

Sampling Program: Samples will be taken from existing dumps, tailings, etc. Approximately 10 samples to be collected within a radius of approximately 500 m from each point. Twenty five (25) Site points have been identified. Each surface sample will not disturb more than 1 m^2. Samples will be submitted for analyses to determine the mineral content. Each sample will be logged and split and quartered where assaying is warranted. One quarter will be dispatched to the assay lab, one quarter kept for a permanent record, and the halves utilized for petrological studies or stored for future reference or metallurgical test work. Samples for analysis will be bagged and numbered on site by the geologist and field assistant, and dispatched to the contracted laboratory. Analyses to determine the mineral content and composition is conducted off site at an accredited laboratory.

Metallurgical Sampling: The mineralized portions of boreholes, as indicated by assay results, would provide sufficient material for metallurgical test work purposes.

Drilling: Drilling will only be considered after completion of sampling phase and shall only be done on existing disturbed areas such as dumps, etc. Drilling will only be considered once sampling proves successful. This BAR only covers sampling activities. Should drilling be considered than an amendment to the environmental authorization will be applied for.

Bulk sampling and testing to be carried out

Bulk sampling will only be considered if a viable target is identified, as part of a feasibility study into the establishment of a mine, in which case an amendment to the Environmental Authorization will be considered. At this stage no bulk sampling is envisaged. In the event that bulk sample is identified, a separate application in terms of the NEMA will be submitted to the competent authority.

Other prospecting methods to be applied

Normal industry practice in terms of assaying, mineralogical testing and metallurgical testing will be followed. If prospecting results indicate the need for any other method of prospecting then it will be planned and reported to the Department of Minerals and Energy via the relevant reporting structure.

4.3. Description of Pre-/Feasibility Studies

Any program such as this culminates with an overall completion study and in this case the objective would be to provide a pre-feasibility study at a suitably detailed level to enable the submittal of a Mining Right, NEMA and IWUL applications should the mineral resource be suitable for exploitation.

During the final year all data needs to be compiled, interpreted, summarized and evaluated in a final report. Several additional studies will need to be completed in order for an informed decision to be made on whether or not to proceed with development. Aside from all the information already discussed, expert input is frequently required in geohydrology, processing and plant design, engineering and infrastructure, mining and other specialized fields. In addition, extra specialized studies have been allowed for to cover provision of services (power, water, labour), logistics, consumables, and all other items necessary in a pre- feasibility study.

Consequently, while others costs decline in the final year, the cost of consultants is increased as much of the work is traditionally outsourced.

5. LISTED AND SPECIFIED ACTIVITIES

Table 5-1: Listed Activities

NAME OF ACTIVITY (E.g., For prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route	AERIAL EXTENT OF THE ACTIVITY Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORIZATION (Indicate whether an authorization is required in terms of the Waste Management Act). (Mark with an X)
Sampling site	10 x 25 Sampling Site 1 Sample site= 1 m^2 Total Sampling Site Area= 250 m^2	X	GNR 983 (as amended 07 April 2017) Listed Activity 20	
Rehabilitation and Closure	250 m^2	X	GNR 983 (as amended 07 April 2017) Listed Activity 22	

6. POLICY AND LEGISLATIVE CONTEXT

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
(a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);		*(E.g., In terms of the National Water Act a Water Use License has/ has not been applied for)*
The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) Section 2 of the Constitution states that: "This Constitution is the supreme law of the Republic; law or conduct inconsistent with it is invalid, and the obligations imposed by it must be fulfilled." Section 24 of the CA, states that 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.	The BAR and EMPr was accordingly prepared and considered within the constitutional framework set by Section 24 and 33 of the Constitution.	The prospecting application has been submitted in terms of the National Environmental Management Act

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
Section 24 guarantees the protection of the environment through reasonable legislative (and other measures) and such legislation is continuously in the process of being promulgated. Section 33(1) concerns administrative justice which includes the constitutional right to administrative action that is lawful, reasonable and procedurally fair.		
The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Assessment Regulations, 2014 (as amended) The overarching principle of the NEMA is sustainable development. It defines sustainability as meaning the integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure the development serves present and future generations. Section 2 of NEMA provides for National Environmental Management Principles. These principles include: • Environmental management must place people and their needs at the forefront of its concern. • Development must be socially, environmentally and economically sustainable. • Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated. • Environmental justice must be pursued. • Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing must be pursued. • Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle. • The participation of all Interested and Affected Parties (I&APs) in environmental governance must be promoted. • Decisions must take into account the interests, needs and values of all I&APs. The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment. • Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law. • The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage. • The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental	The Draft BAR and EMPr will be distributed for public review for periods stipulated in NEMA as part of the environmental impact assessment process. The document was also compiled to ensure compliance with the requirements as per the EIA regulations. Refer to Table 5-1 of the BAR for the listed activities applicable to the proposed project.	According to the EIA Regulations (GNR 982, 2014) the following will be submitted in support of the application for Environmental Authorisation: BAR / EMP (this document) together with the results of consultation with Interested and Affected Parties (IAPs) and State Departments, which must be submitted to the DMRE within 90 days of the acceptance of the NEMA application.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
damage or adverse health effects must be paid for by those responsible for harming the environment. The EIA process to be undertaken in respect of the authorization process of the proposed mining operations is in compliance with the MPRDA, as well as the NEMA read with the Environmental Impact Assessment Regulations of 2014 (as amended). The proposed development involves 'listed activities', as identified in terms of the NEMA and in terms of section 24(1), the potential consequences for or impacts on the environment of listed activities must be considered, investigated, assessed and reported on to the Minster of Mineral Resources or to the relevant office of the Department responsible for mineral resources, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of the NEMA.		
GNR 1147 (20 November 2015) of the NEMA - Financial Provisioning Regulations In accordance with the above legislation, the holder of a mining right must make the prescribed financial provision for the costs associated with the undertaking of the management, rehabilitation and remediation of the negative environmental impacts due to prospecting, exploration and mining activities and the latent or residual environmental impacts that may become known in future.	The Final Rehabilitation, Decommissioning and Mine Closure plan will be compiled in accordance with GNR 1147.	Section **Error! Reference source not found.** of this report (Part A) details the calculated financial liability the Salene Manganese (Pty) Ltd must provide for the rehabilitation of the area that is going to be disturbed.
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) Previously South African mineral rights were owned either by the State or the private sector. This dual ownership system represented an entry barrier to potential new investors. The current Government's objective is for all mineral rights to be vested in the State, with due regard to constitutional ownership rights and security of tenure. The MPRDA was passed in order to make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources, and to provide for matters connected therewith. The Preamble to the MPRDA inter alia affirms the State's obligation to: • protect the environment for the benefit of present and future generations; • ensure ecologically sustainable development of mineral and petroleum resources; and • promote economic and social development. The aforesaid preamble affirms the general right to an environment provided for in section 24 of the Constitution (as set out hereinabove). The objects of the MPRDA, as set out in section 2 thereof serve as a guide to the interpretation of the Act. The objects of the MPRDA are as follows:	An integrated application in terms of the MPRDA and NEMA is being undertaken. The NEMA process for the proposed project is described below.	An application for a Prospecting Right was submitted to the DMRE for which an acceptance letter was issued on 01 December 2020.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
• recognise the internationally accepted right of the State to exercise sovereignty over all the mineral and petroleum resources within the Republic; • give effect to the principle of the State's custodianship of the nation's mineral and petroleum resources; • 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 Republic; • promote employment and advance the social and economic welfare of all South Africans; • provide for security of tenure in respect of prospecting, exploration, mining and production operations; • give effect to section 24 of the Constitution 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 national environmental management principles provided for in section 2 of the NEMA apply to all prospecting and mining operations and any matter relating to such operation. These principles apply throughout the Republic to the actions of all organs of state including inter alia the Department of Mineral Resources that may significantly affect the environment. Any prospecting or mining operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects in order to ensure that exploitation of mineral resources serves present and future generations. Section 38 of the MPRDA states that the holder of inter alia, a prospecting right, mining right or mining permit: • Must at all times give effect to the general objectives of integrated environmental management laid down in Chapter 5 of NEMA; • Must consider, investigate, assess and communicate the impact of his or her prospecting or mining on the environment as contemplated in section 24(7) of NEMA; • Must manage all environmental impacts –		

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
○ In accordance with an environmental management plan or approved environmental management programme, where appropriate, and ○ As an integral part of the prospecting or mining operations, unless the Minister directs otherwise. • Must as far as reasonably practicable, rehabilitate the environment affected by the prospecting or mining operations to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and • Is responsible for any environmental damage, pollution or ecological degradation as a result of prospecting or mining operations and which may occur inside and outside the boundaries of the area to which such right, permit or permission relates.		
National Water Act, 1998 (Act No. 36 of 1998 (NWA) In terms of the NWA, the National Government, acting through the Minister of Water Affairs, is the public trustee of South Africa's water resources, and must ensure that water is protected, used, development, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons (section 3(1)). In terms of the NWA a person may only use water without a license under certain circumstances. All other use, provided that such use qualifies as a use listed in section 21 of the Act, require a water use license. A person may only use water without a license if such water use is permissible under Schedule 1 (generally domestic type use) if that water use constitutes a continuation of an existing lawful water use (water uses being undertaken prior to the commencement of the NWA, generally in terms of the Water Act of 1956), or if that water use is permissible in terms of a general authorisation issued under section 39 (general authorisations allow for the use of certain section 21 uses provided that the criteria and thresholds described in the general authorisation is met). Permissible water use furthermore includes water use authorised by a license issued in terms of the NWA. Section 21 of the NWA indicates that "water use" includes: • taking water from a water resource (section 21(a)); • storing water (section 21(b)); • impeding or diverting the flow of water in a water course (section 21(c)); • engaging in a stream flow reduction activity contemplated in section 36 (section 21(d)); • engaging in a controlled activity which has either been declared as such or is identified in section 37(1) (section 21(e)); • discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit (section 21(f));	Refer to Section 10.8 where the baseline water resource of the project area is characterised.	None of the 25 potential sampling areas and the 500 m radius for potential boreholes development will be in proximity to a watercourse or wetland, thus no listed activities in terms of the NWA are triggered by the proposed project. The appointed contractor will be responsible for providing any water requirements they may need. No abstraction boreholes will be drilled.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
• disposing of waste in a manner which may detrimentally impact on a water resource (section 21(g); • disposing in any manner of water which contains waste from, or which has heated in, any industrial or power generation process (section 21 (h)); • altering the bed, banks, course or characteristics of a water course (section 21(i)); • removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people (section 21(j)); and • using water for recreational purposes (section 21(k)). In addition to the above and in terms of section 26 of the NWA, Regulations on the Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources were published in GN R. 704 of 4 June 1999 (GN R. 704). The aforesaid GN R. 704 provides for inter alia the capacity requirements of clean and dirty water systems (Regulation 6), the protection of water resources by a person in control of a mine (Regulation 7), security and addition measures (Regulation 8) and temporary or permanent cessation of a mine or activity (Regulation 9). According to GN R. 704 “no person in charge of a mine may carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest”. Insofar as the undertaking of section 21 water uses is concerned, it is anticipated that application for registration and water use licensing will be undertaken.		
National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) The NHRA established the South African Heritage Resources Agency (SAHRA) as well as Provincial Heritage Resources Agencies. In terms of the NHRA, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site. No person may damage, disfigure, alter, subdivide or in any other way develop any part of a protected area unless, at least 60 days prior to the initiation of such changes, he/she/it has consulted with the relevant heritage resources authority. Section 34 of the NHRA provides for the protection of immovable property by providing for a prohibition on altering or demolishing any structure or part of any structure, which is older than 60 years, without a permit issued by the relevant provincial heritage resources authority. Accordingly, should the proposed activities, prospecting or mining activities or the closure and rehabilitation of mined land involve the altering or demolishing of any structure or part of any structure, which is older than 60 years, a permit issued by the relevant provincial heritage resources authority is required.	Refer to Section 10.	None of the listed activities in terms of the NHRA are triggered by the proposed project as the prospecting activities will not transform the character of the already disturbed site.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite; trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. No person may, without a permit issued by SAHRA or a provincial heritage resources authority destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves; destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or bring onto or use at the burial ground or grave referred to above any excavation equipment or any equipment which assists in the detection or recovery of metals. Section 38 of the NHRA states that any person who intends to undertake developments categorised in Section 38 of the NHRA must at the very earliest stages of initiating such development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. By way of example, the developments referred to in Section 38 of the NHRA include: • the Site Establishment of a road, wall, power-line, pipeline, canal or other similar form of linear development or barrier exceeding 300 metres in length; • the Site Establishment of a bridge or similar structure exceeding 50 metres in length; • any development or other activity which will change the character of a site as specified in the regulations; • any other category of development provided for in regulations by SAHRA or the provincial heritage resources authority. However, the abovementioned provisions are subject to the exclusion that section 38 does not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act No. 73 of 1989 (EIA) (now presumably the NEMA in view of the repeal of the listed activities under the ECA: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any		

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.		
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) The NEMBA aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. The NEMBA provides for the publishing of various lists of species and ecosystems by the Minister of Environmental Affairs and Tourism (now the Minister of Water and Environmental Affairs) as well as by a Member of the Executive Council responsible for the conservation of biodiversity of a province in relation to which certain activities may not be undertaken without a permit. In terms of Section 57 of the NEMBA, no person may carry out any restricted activity involving any species which has been identified by the Minister as "critically endangered species", "endangered species", "vulnerable species" or "protected species" without a permit. The NEMBA defines "restricted activity" in relation to such identified species so as to include, but not limited to, "hunting, catching, capturing, killing, gathering, collecting, plucking, picking parts of, cutting, chopping off, uprooting, damaging, destroying, having in possession, exercising physical control over, moving or translocating".\ The Minister has made regulations in terms of section 97 of the NEMBA with regards to Threatened and Protected Species which came into effect on 1 June 2007. Furthermore, the Minister published lists of critically endangered, endangered, vulnerable and protected species in terms of section 56(1) of the NEMBA.	The legislation was considered throughout the EIA process and in particular the Ecological Impact Assessment which will comply with the NEMBA.	Species of conservation concern which are typically associated with the prospecting area are Kuruman Thornveld, Kuruman Mountain Bushveld, Kathu Bushveld; and Olifantshoekd Plains Thornveld, however, habitat for these species within the 500 m radius of the 25-sampling area are limited due to the disturbed nature thereof. Permits may be required in terms of NEMBA in the unlikely event that species of conservation concern have habituated within the sampling footprint at any desired sampling location. Potential sampling sites (if necessary) will, however, target already disturbed areas.
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA) The NEMAQA came into power on the 24th of February 2005. Additionally, the amendment to the Minimum Emission Standards (GN R 893) also came into effect on the 12 June 2015. This Notice provides a list of activities that may cause atmospheric emissions which have or may have a significant detrimental effect on the environment as well as the minimum emission standards ("MES") for these activities as contemplated in section 21 of NEMAQA. The effect of the commencement of the NEMAQA and the listed activities, listed in GN 964 is that an atmospheric emission licence (AEL) is now required for conducting these listed activities.	There are no listed activities that require registration/permitting according to NEMAQA for the proposed prospecting activities.	No listed activities in terms of the NEMAQA are triggered by the proposed project. Therefore, no AEL is required. Activities associated with the proposed project are unlikely to result in exceedances of the air quality standards
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA) The NEMWA commenced on 1 July 2009 and as a result of its commencement the relevant provisions in the Environment Conservation Act No. 73 of 1989 (ECA) in respect of waste management, were repealed. The NEMWA sets out to reform the law regulating waste	There are no listed activities that require registration/permitting according to NEMWA for the	No Listed activities in terms of NEMWA are triggered by the proposed project. Therefore,

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
management and deals with waste management and control more comprehensively than was dealt with in the ECA. It also introduces new and distinct concepts never before canvassed within the realm of waste management in South Africa, such as the concept of contaminated land and extended producer responsibility. It also provides for more elaborate definitions to assist in the interpretation of the Act. Section 19 of the NEMWA provides for listed waste management activities and states in terms of section 19(1), the Minister may publish a list of waste management activities that have, or are likely to have a detrimental effect on the environment. Such a list was published in GNR 921 of 29 November 2013. In accordance with section 19(3), the Schedule to GNR 921 provides that a waste management licence is required for those activities listed therein prior to the commencement, undertaking or conducting of same. In addition, GNR 921 differentiates between Category A, B, and Category C waste management activities. Category A waste management activities are those which require the conducting of a basic assessment process as stipulated in the EIA Regulations, 2014 promulgated in terms of the NEMA as part of the waste management licence application and Category B waste management activities are those that require the conducting of a scoping and environmental impact assessment process stipulated in the EIA Regulations, 2014 as part of the waste management licence application. Category C waste management activities do not require a waste management licence, however a person who wished to commence, undertake or conduct a waste management activity listed under this category, must comply with the relevant requirements and standards, Section 20 of the NEMWA pertains to the consequences of listing waste management activities and states that no person my commence, undertake or conduct a waste management activity, except in accordance with the requirements or standards for that activity as determined by the Minister or in accordance with a waste management licence issued in respect of that activity, if a licence is required. In terms of the current statutory framework with regards to waste management, a waste management licence is required for those waste management activities identified in the Schedule to GNR 921. Certain of the waste management activities listed in the Schedule are governed by specific thresholds. Where any process or activity falls below or outside the thresholds stipulated, a waste management licence is not required.	proposed prospecting activities	no Waste Management Licence (WML) is required. Activities associated with the proposed project are unlikely to result in exceedances in the thresholds for waste storage. It is however noted that any minimal waste produced on site should be transferred to the nearest licensed waste disposal facility.
Integrated Development Plans and Environmental Management Frameworks		
Tsantsabane Local Municipality- Integrated Development Plan- Revised Draft 2018/19-2019/20- 2020/21	Section 10.12 discusses the socio-economic aspect of proposed prospecting project	The proposed prospecting is in line with the Gamagara mining belt corridor. The location of

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
Tsantsabane Local Municipality is situated in the ZFM District Municipality and covers geographic area of 5 887 km^2. Tsantsabane Local Municipality is bordered by Siyancuma LM, /Khara Hais LM,! Kheis LM, Gamagara LM and Kgatelopele LM. The municipal area falls in the Gamagara Corridor. The [3]NCPSDF defines the Gamagara Corridor as "comprises the mining belt of the John Taolo Gaetsewe and Siyanda (ZF Mgcawu) districts and runs from Lime Acres and Danielskuil to Hotazel in the north. The corridor focuses on the mining of iron and manganese".	which include the demographic of Tsantsabane Local Municipality. This has been taken into consideration in determining the need and desirability of the project in Section 7.	the proposed prospecting application lies about 10 km south of Kathu and stretches towards the Postmasburg area which are well-known mining towns (Figure 3-2).
Gamagara Local Municipality- Integrated Development Plan- 2019-2022 Gamagara Local Municipality is an administrative area in the John Taolo Gaetsewe Districtcomprises of an area of 2619 km^2, and is located in the North Eastern sector of the Northern Cape, on the N14 National Road between Upington and Vryburg. It is approximately 200 km North East of Upington and 280 km North West of Kimberley. The municipal area of Gamagara consists of 5 towns, Kathu, Shesheng, Dibeng, Dingleton, and Olifantshoek, a large farming area and a considerable mining area. The single largest factor that has guided the development of the Gamagara area is the iron ore mine at Sishen. Not only does the mine provide jobs to thousands of people, but it was also the reason for the establishment of the town of Kathu. Kathu is the largest town within the municipality and is also the administrative centre of the Gamagara Local Municipality. Olifantshoek is the second largest town and is of the Gamagara River to the northwest of Kathu. Dingleton is the smallest of the 5 towns and is located in the centre of the mining activities directly south of Kathu.	Section 10.12 discusses the socio-economic aspect of proposed prospecting project which include the demographic of Tsantsabane Local Municipality. This has been taken into consideration in determining the need and desirability of the project in Section 7.	The proposed prospecting is in line with the Gamagara mining belt corridor. The location of the proposed prospecting application lies about 10 km south of Kathu and stretches towards the Postmasburg area which are well-known mining towns (Figure 3-2).

[3] Northern Cape Spatial Development Framework

7. 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).

Salene Manganese will investigate the occurrence and economic viability of other minerals that may occur in areas that have been investigated in detail by many companies in the past for Manganese and Iron only. This will provide information on potential other economically viable mineral resources that would be mined to create employment. As only disturbed areas will be targeted during the prospecting phase very little or no impacts should occur. Figure 3-1 shows the 500 m radius area around 25 identified point areas for the proposed prospecting activities.

As far as possible, the areas to be prospected on will be already disturbed and at largely active mining areas or existing residue deposit areas. The least intrusive method (shovels) will be used to conduct the preliminary assessment and if needed drilling will take place within the same disturbed areas reducing the negative impacts on the environment**. Drilling will only be considered once sampling proves successful. This BAR only covers sampling activities. Should drilling be considered than an amendment to the environmental authorization will be applied for.**

8. 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.

The identification of alternatives is a key aspect of the success of the evaluation process. All reasonable and feasible alternatives was identified and screened to determine the most suitable alternative to consider and assess. There are however some significant constraints that have to be taken into account when identifying alternatives for a project of this scope. Such constraints include financial, environmental and social issues, which will be discussed in the evaluation of the alternatives.

Alternatives can typically be identified according to:

- Location alternatives;
- Process alternatives;
- Technological alternatives; and
- Activity alternatives (including the No-go option).

For any alternative to be considered feasible such an alternative must meet the need and purpose of the development proposal without presenting significantly high associated impacts.

Alternatives can also be distinguished into discrete or incremental alternatives. Discrete alternatives are overall development options, which are typically identified during the pre-feasibility, feasibility and or basic assessment phases of the EIA process. Incremental alternatives typically arise during the EIA process and are usually suggested as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives. This section provides information on the development footprint alternatives, the properties considered, as well as the type of activity, activity layout, technological and operational aspects of the activity.

8.1. Details of the alternatives considered

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

8.1.1. Property on which or location where it is proposed to undertake the activity.

The properties on which the proposed prospecting activities will be located are within various properties between Postmasburg and Kathu, see Section 2 and Figure 3-2 as outlined above.

The type of minerals to be prospected for: Aluminium, Arsenic, Barium, Bismuth, Cerium, Cobalt, Copper, Potassium, Lanthanum, Nickel, Phosphorus, Lead, Rubidium, Sulphur, Scandium, Silicon, Strontium, Titanium, Vanadium, Zinc, Rare Earth Elements and Lithium.

As a result of the above no alternatives with regards to properties were assessed.

8.1.2. Type of activity to be undertaken

Refer to Section 4 for a full description of proposed activities. Prospecting activities will follow a non-invasive and as a last option, invasive methods. The invasive methods will as far as possible be located on already disturbed areas such as existing residue deposits and the first option will be to make use of picks and shovels to collect samples. In extreme circumstances (phase two and does not form part of this application) using riggs may be required should further exploration be identified.

The option of conducting conventional prospecting activities such as trenching was not considered because of the environmental implication and that majority of the area targeted has already been disturbed by ongoing mining and bulk sampling activities.

8.1.3. Design or layout of the activity

The location of the 25 sample point areas were determined taking into consideration location of existing mining and disturbed areas and a 500 m radius will allow sufficient space to collect samples to provide a good overview of the potential resource. The proposed layout will reduce the potential environmental impact as it will be located within already disturbed areas. The alternative is to expand the location of the 25 sample sites to cover the whole of the prospecting area, this may result in environmental impacts on areas that are not currently disturbed by mining activities and is not the preferred option.

8.1.4. Technology to be used in the activity

Samples will be taken from existing residue deposits and stockpiles. Approximately 10 samples to be collected within a radius of approximately 500 m from each of the 25 sample points that have been identified (Figure 3-1). The preferred option is to use manual labour making use of picks and shovels to collect samples.

8.1.5. Operational aspects of the activity.

Operational aspects are the continuation of the existing activities at the proposed 25 sampling points, these should not be impacted by the proposed prospecting activities as arrangements with the responsible persons / entities will be made.

8.1.6. Option of not implementing the activity.

The proposed prospecting activities will have very little disturbance to the environment as the sampling will take place on/within existing rock dumps, pits and excavations.

The no go-option means that the mine dumps, pits and excavations will remain as is and there will be no further prospecting activities that will take place in the area.

9. 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.

This section of the report provides an overview of the tasks undertaken for the Public Participation Process (PPP) to date. The PPP was conducted in terms of Chapter 6 of the NEMA and included the following:

a) Identification of key Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);
b) Placement of site notices on farms, and other accessible public areas;
c) Formal notification of the application to key Interested and Affected Parties and other stakeholders;
d) Consultation and correspondence with I&APs and Stakeholders and the addressing of their comments. This appendix will be included in the Final Basic Assessment; and
e) Newspaper adverts.

The objectives of PPP include:

- Provides Interested and Affected parties (I&APs) with an opportunity to voice their support, concerns and raise questions regarding the project, application or decision;

- Provides an opportunity for I&APs, Environmental Assessment Practitioners (EAPs) and the Competent Authority (CA) to obtain clear, accurate and understandable information about the environmental, social and economic impacts of the proposed activity or implications of a decision;
- Provides I&APs with the opportunity of suggesting ways of reducing or mitigating negative impacts of an activity and for enhancing positive impacts; and
- Enables the applicant to incorporate the needs, preferences and values of affected parties into the application.

The PPP must comply with the several important sets of legislation that require public participation as part of an application for authorisation or approval; namely:

- The Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002 - MPRDA); and
- The National Environmental Management Act, 1998 (Act No. 107 of 1998 - NEMA).

Adherence to the requirements of the above-mentioned Acts will allow for an Integrated PPP to be conducted, and in so doing, satisfy the requirement for public participation referenced in the Acts.
During the process, the following methods are used to develop a stakeholder database which will be utilised to ensure a proper representation of stakeholders interested in or affected by the proposed Project.

This included the following:

- Search works and desktop searches are conducted in and around the project area to verify land ownership and obtain contact details;
- Responses received from newspaper advertisements, public notices and site notices;
- Responses received from distribution of the Background Information Document (BID);
- Identification and consultation with stakeholders including commenting authorities (local and district municipalities);
- Organs of state, other than the competent authority, such as the Department of Agriculture, Forestry and Fisheries (DAFF) having jurisdiction in respect of any aspect of the proposed project and affected authorities; and
- Consultations with affected landowners.

The PPP commenced between 5 and 6 January 2021 with a site visit which included the placing site notices in and around the fences of the various farms. A registration period commenced on 5 January 2021 and will continue until 5 February 2021. The notification includes:

- Newspaper advertisement: published in Kathu Gazzette and the Noordkaap Bulletin for the week of 10-16 January 2021
- Site Notices: erected at prominent points on 5 January 2021;
- Public Notices: distributed to identified stakeholders, landowners and residence (where possible) on 5 January 2021 and throughout the registration period;
- To allow sufficient time for pre-identified I&APs for which no email, telephone or fax was available, notices was posted using registered mail on 17 December 2020; and
- Faxes and emails were forwarded to pre-identified I&APs on 5 January 2021.

Salene Manganese also initiated correspondence with the existing mineral right holders on the applicable properties as instructed by the DMRE. This process consisted of emails, faxes and posted notifications between 18 December and 22 December 2020 to allow for sufficient time to receive comments for the submission to the DMRE on 17 January 2021 as instructed.

Consultation meetings will be held with registered I&APs on 8 February 2021 in Kathu and 9 February 2021 in Postmasburg. These meetings will follow the format of an open day to ensure that adherence to any COVID-19 restrictions are adhered to. Consultation meeting arrangements may possibly change considering the level of lockdown at the time of the proposed open days.

All pre-identified and registered I&APs will be notified of the availability of the Basic Assessment Report for public view for a period of 30 days (18 January 2021 to 18 February 2021) within which the report can be reviewed and comments forwarded to the environmental consultant. Consultation sheets and a comments and issue register will be included in the final BAR as submitted to the DMRE.

9.1. Summary of issues raised by I&Aps

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

No comments received at the time of printing of this report and the table below will be updated as required.

Table 9-1: Summary of issues raised by I &APs

Interested and Affected Parties **List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES					
Landowner/s	X				
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	X				
Municipal councillor	X				
Municipality	X				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					

Communities					
Dept. Land Affairs					
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

10.THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES.

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

10.1. Regional Location

Large portion of the prospecting area is located within the Tsantsabane Local Municipality and ZF Mgcawu District Municipality (Figure 10-1). The Farm Mashwening No 557 is the only farm that falls within Gamara Local Municipality and John Taolo Gaetsewe District Municipality.

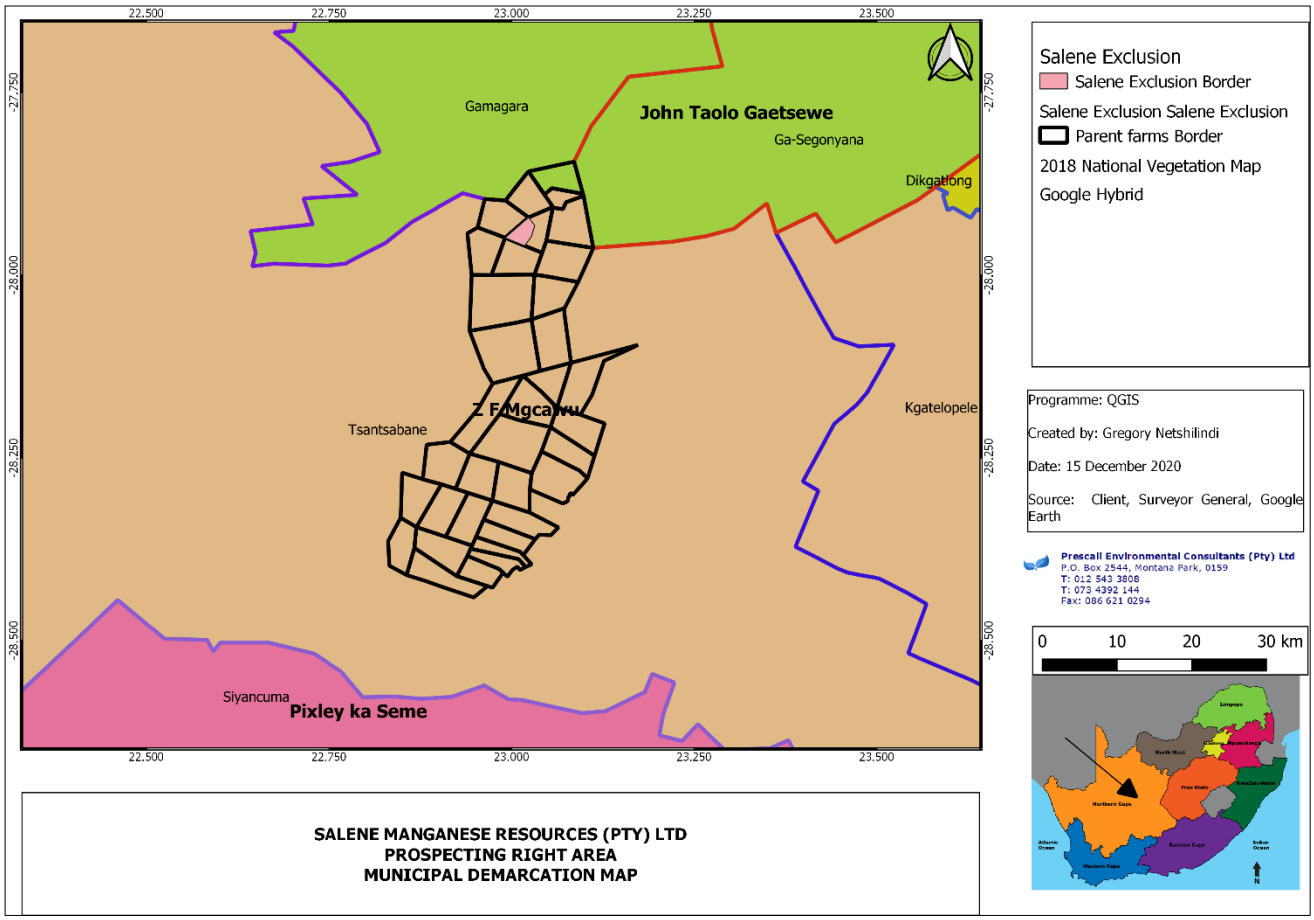

Figure 10-1: Location within District and Local Municipality

10.2. Climate

10.2.1. Regional Climate

The climate in Postmasburg is referred to as a local steppe climate and the Köppen-Geiger climate classification is BSh[4].The climate of the Sishen area is described to be semi-arid with a mean annual precipitation of 349 mm. This tends to fall in summer and early autumn. Temperatures vary between –7.3°C and +40°C, with an average of 19. 2°C (Thari Resources (Pty) ltd, 2012). Climate data from 1982 - 2020[5] indicates an average temperature of 18.6 °C, minimum, average and maximum temperatures are indicated in Figure 10-2 and Table 10-1.

[5] https://en.climate-data.org/africa/south-africa/northern-cape/postmasburg-26833/ 27 May 2020

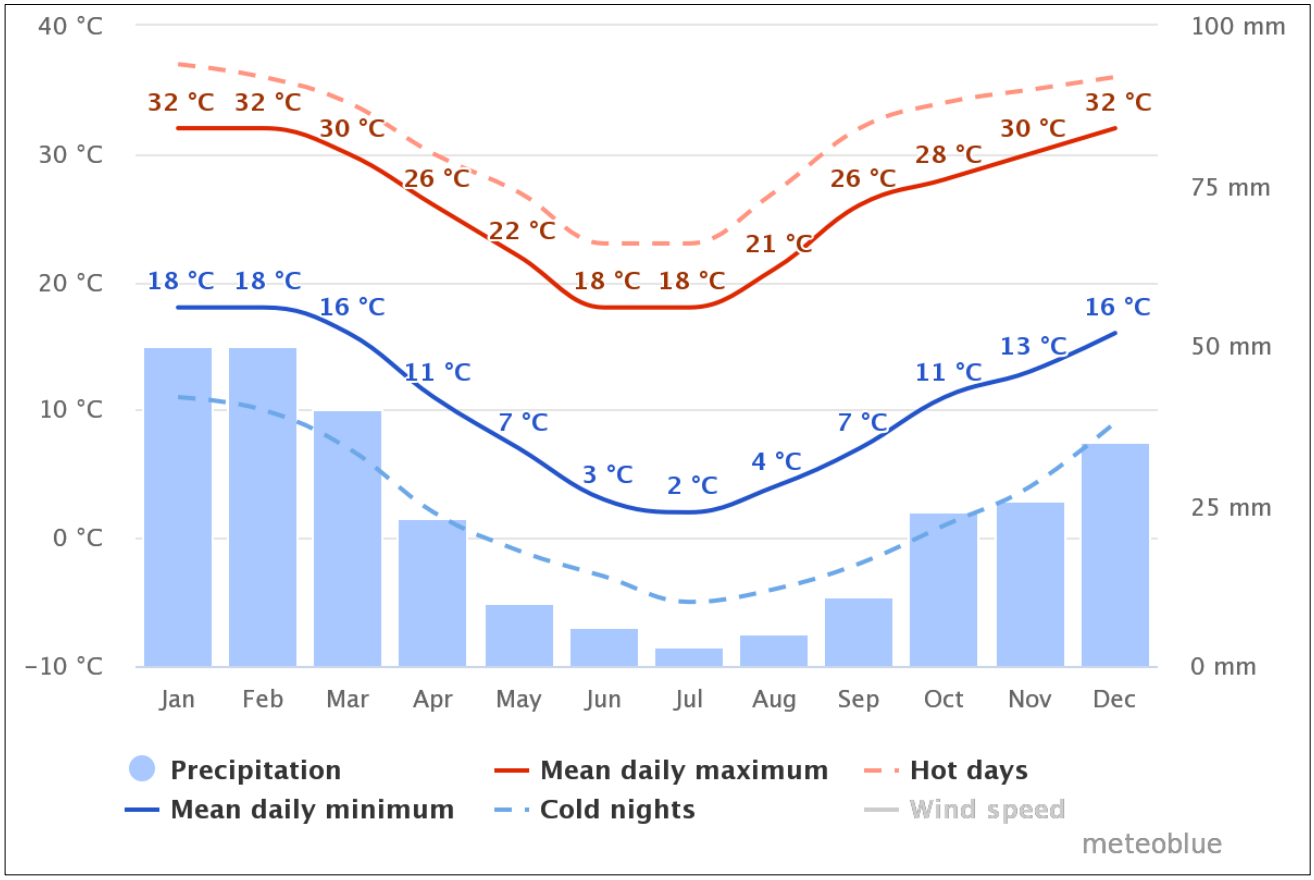

Figure 10-2: Postmasburg Climate

Table 10-1: Monthly Temperature summary (Postmasburg Nov 2011-Oct 2014)

Hourly Minimum, Maximum and Monthly Average Temperatures °C			
Months	**Minimum**	**Maximum**	**Average**
January	8.9	40	26.6
February	7.8	38.9	25.2
March	5	37.8	22.6
April	1.8	32.8	17
May	-5	32.3	14.6
June	-6.1	27.3	10
July	-7.3	28.3	10.3
August	-6.1	32.3	12.7
September	-5	35	16.3
October	1.1	36.1	20.1
November	2.3	37.7	23.5
December	6.1	40	24.3

10.2.2. Rainfall

Rainfall records extending a period of 40 years (Thari Resources (Pty) ltd, 2012) for the Sishen Weather Station (Station No. 0356857AX) show that the mean annual precipitation (MAP) is 349 mm. The majority of rain falls in the late summer months of January, February and March, whilst the lowest rainfall records are recorded for the months of June, July and August. Rainfall tends to vary widely over the years as typical of most arid and semi-arid climates. The mean monthly rainfall figures in mm for Sishen and Postmasburg are presented in Table 10-2. This is similar to the Mean Annual Precipitation as indicated in Figure 10-3.

Table 10-2: Rainfall as recorded

Rainfall	Sishen			Postmasburg
	Average	Minimum	Maximum	Average
Total	**349**	**105**	**1086**	**342**
January	70	0	418	51
February	56	0	291	60
March	62	0	275	65
April	33	0	130	40
May	12	0	101	12
June	6	0	79	9
July	2	0	18	4
August	3	0	51	5
September	8	0	51	7
October	23	0	91	23
November	31	0	132	26
December	55	0	276	40

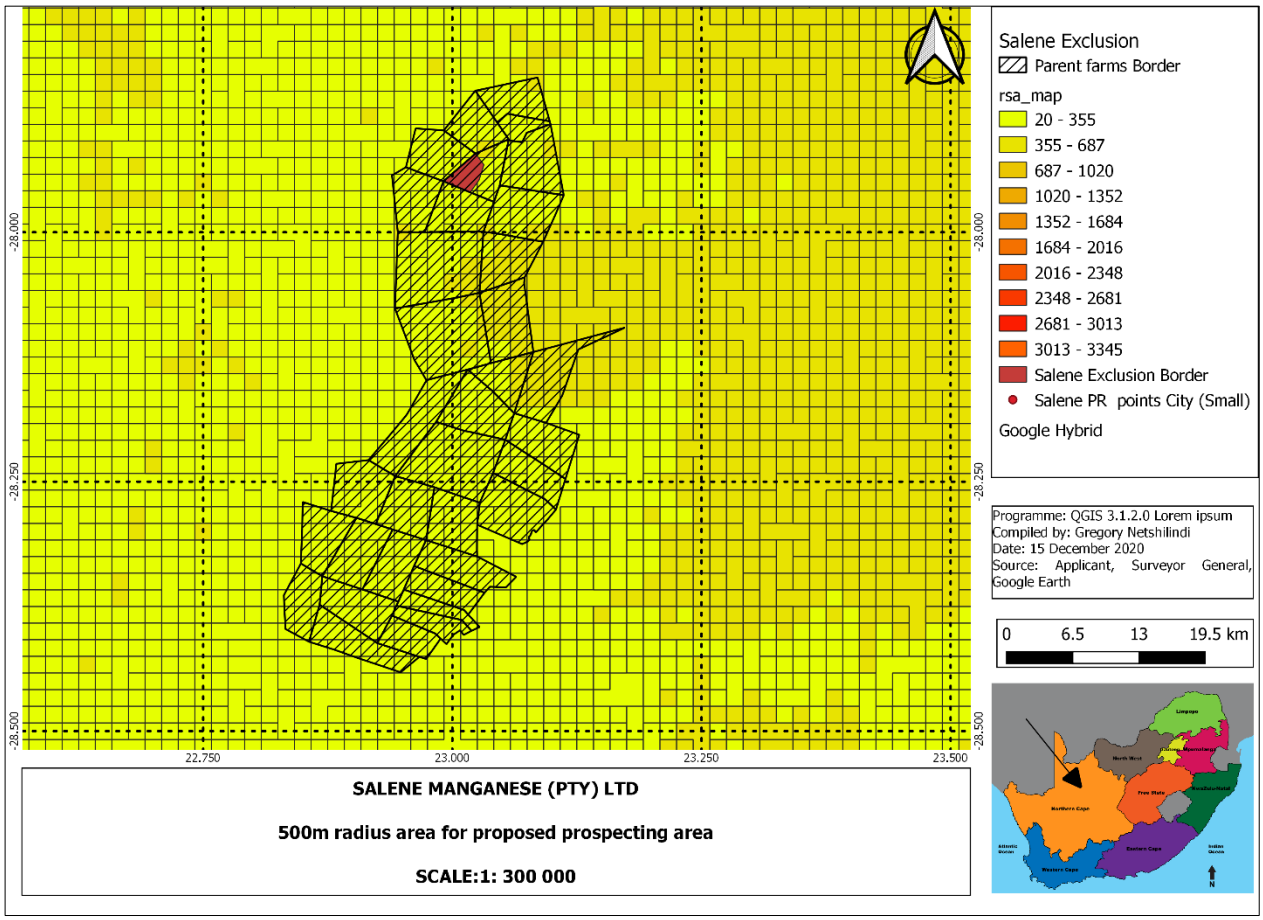

Figure 10-3: Mean Annual Rainfall Map

10.3. Evaporation

Figure 10-4 shows that the evaporation within the proposed prospecting area is greater than 2600 mm per annum which contributes to the arid conditions in the area.

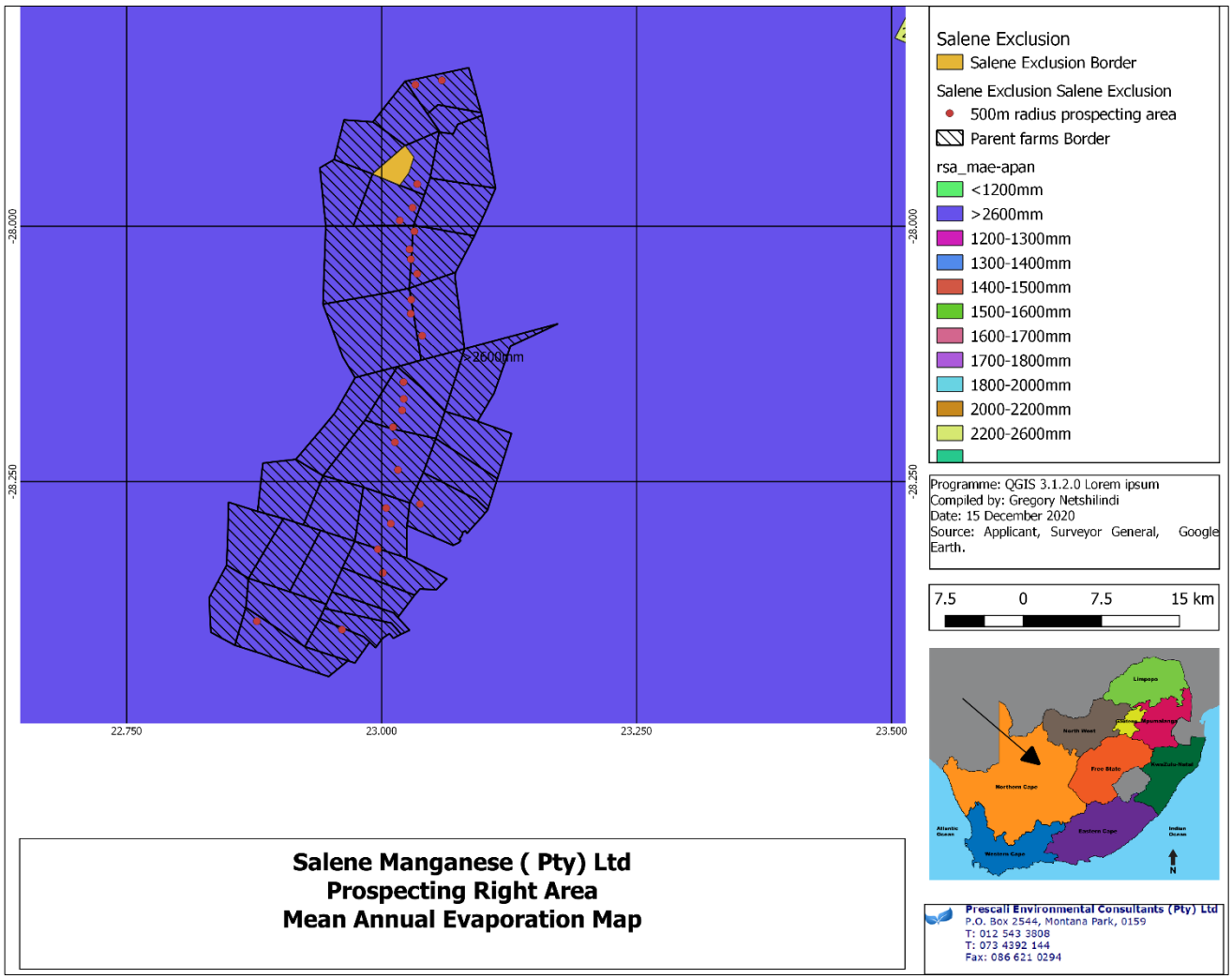

Figure 10-4: Mean Annual Evaporation Map

10.4. Topography

Topography applicable to the prospecting area is indicated in Figure 10-5. From the contour lines it can be seen that the northern and eastern areas are elevated. The prospecting area topography range from flat to undulating terrain. The 500 m radius prospecting topography is mainly mine dumps/excavated areas and no longer in its natural condition.

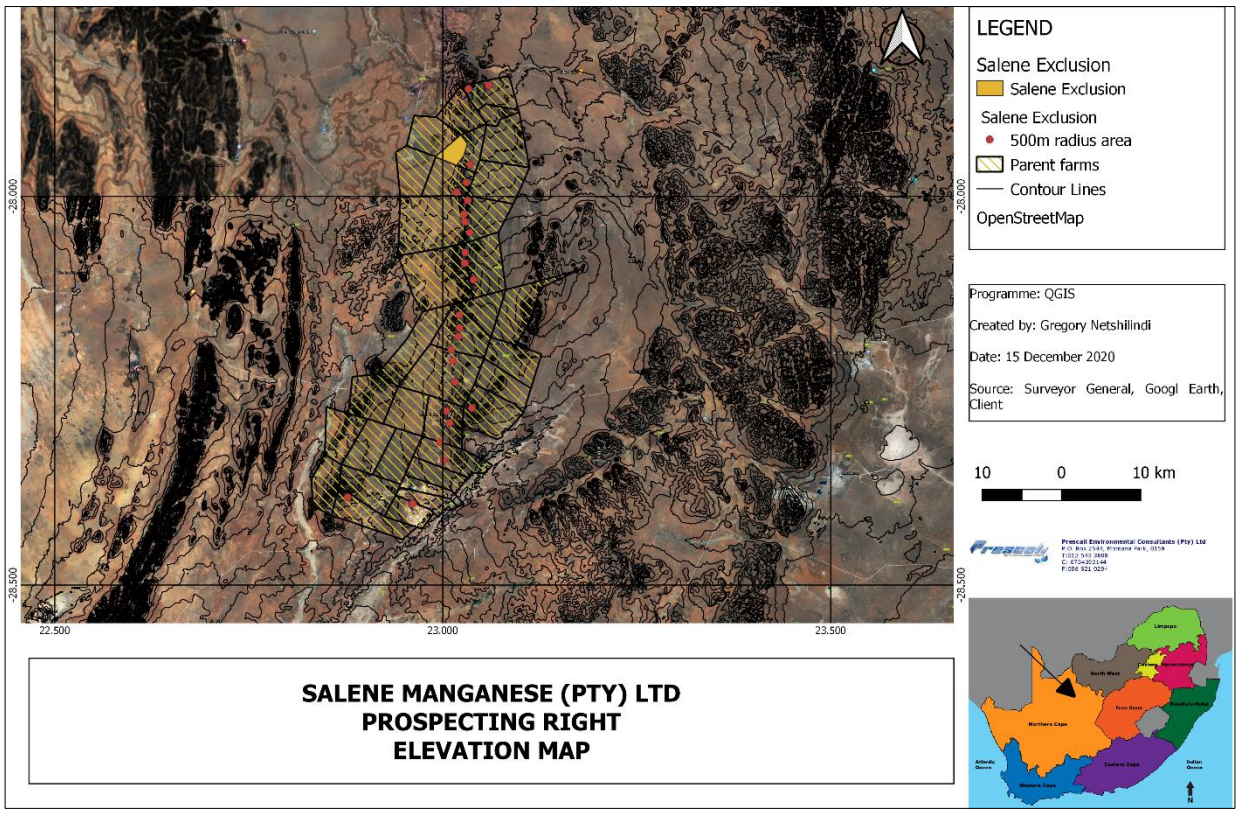

Figure 10-5 : Topography of the Prospecting Right Area

10.5. Geology

The regional geology is shown in Figure 10-6 and Figure 10-7 below.

10.5.1. Regional Geology

Iron ore in the wider project area is preserved in chemical and clastic sediments of the Proterozoic Transvaal Supergroup. These sediments define the western margin of the Kaapvaal Craton in the Northern Cape Province. The stratigraphy has been deformed by thrusting from the west and has also undergone extensive karstification. The thrusting has produced a series of open, north south plunging, anticlines, synclines and grabens. Karstification has been responsible for the development of deep sinkholes. Generally speaking, the iron ore deposits that are actively mined in the area are all located on the Maremane anticline structure.

The Transvaal Supergroup lithologies have been deposited on a basement of Archaean granite gneisses and greenstones, and/or lavas of the Ventersdorp Supergroup. In the Jenkins region, the oldest rocks of the Transvaal Supergroup form a carbonate platform sequence (dolomites with minor limestone, chert and shale) known as the Campbell Rand Subgroup. The upper part of the Transvaal Supergroup comprises a banded iron formation unit, the Asbestos Hills Subgroup, which has been conformably deposited on carbonates of the Campbell Rand Subgroup. The upper portion of the banded iron formations has in places been supergene-enriched to ore grade, i.e., Fe $\geq$ 60%. The ores found within this Subgroup comprise the bulk of the higher-grade iron ores in the region. An altered, intrusive sill (originally of gabbroic composition) usually separates the ore bodies from the underlying host iron formation. It intruded into the Transvaal Supergroup in late Proterozoic times. A thick sequence of younger clastic sediments (shale's, quartzite's and conglomerates) belonging to the Gamagara Subgroup unconformably overlies the banded iron formations. Some of the conglomerates consist almost entirely of hematite and are of lower-grade ore quality.

The unconformity separating the iron formations from the overlying clastic sediments represents a period of folding, uplift and erosion. At the time, dissolution and karstification took place in the upper dolomitic units. A residual dissolution breccia, referred to as the 'Manganese Marker' or 'Wolhaarkop Breccia', developed between the basal dolomites and overlying banded iron formations. This breccia is known to contain/yield vast volumes of groundwater. In places, deep sinkholes developed in the dolomites, into which the overlying iron formation and mineralized iron ore bodies collapsed. The sinkholes are considered to have resulted from a combination of folding and collapse of overlying iron-bearing strata. At the farm Macarthy, the iron ore has been preserved through resistance to weathering and occurs as part of a low hill similar to adjacent deposits such as the Mokaning reserves of Assmang's Khumani Mine.

Diamictite of the Makganyene Formation and lava belonging to the Ongeluk Formation have been thrusted over the Gamagara sediments. It is now preserved only within the larger synclinal structures. A considerable portion of the upper parts of the stratigraphy have been eroded during Dwyka glaciation and re-deposited as tillite. The entire, folded sequence was later truncated by Tertiary erosion.

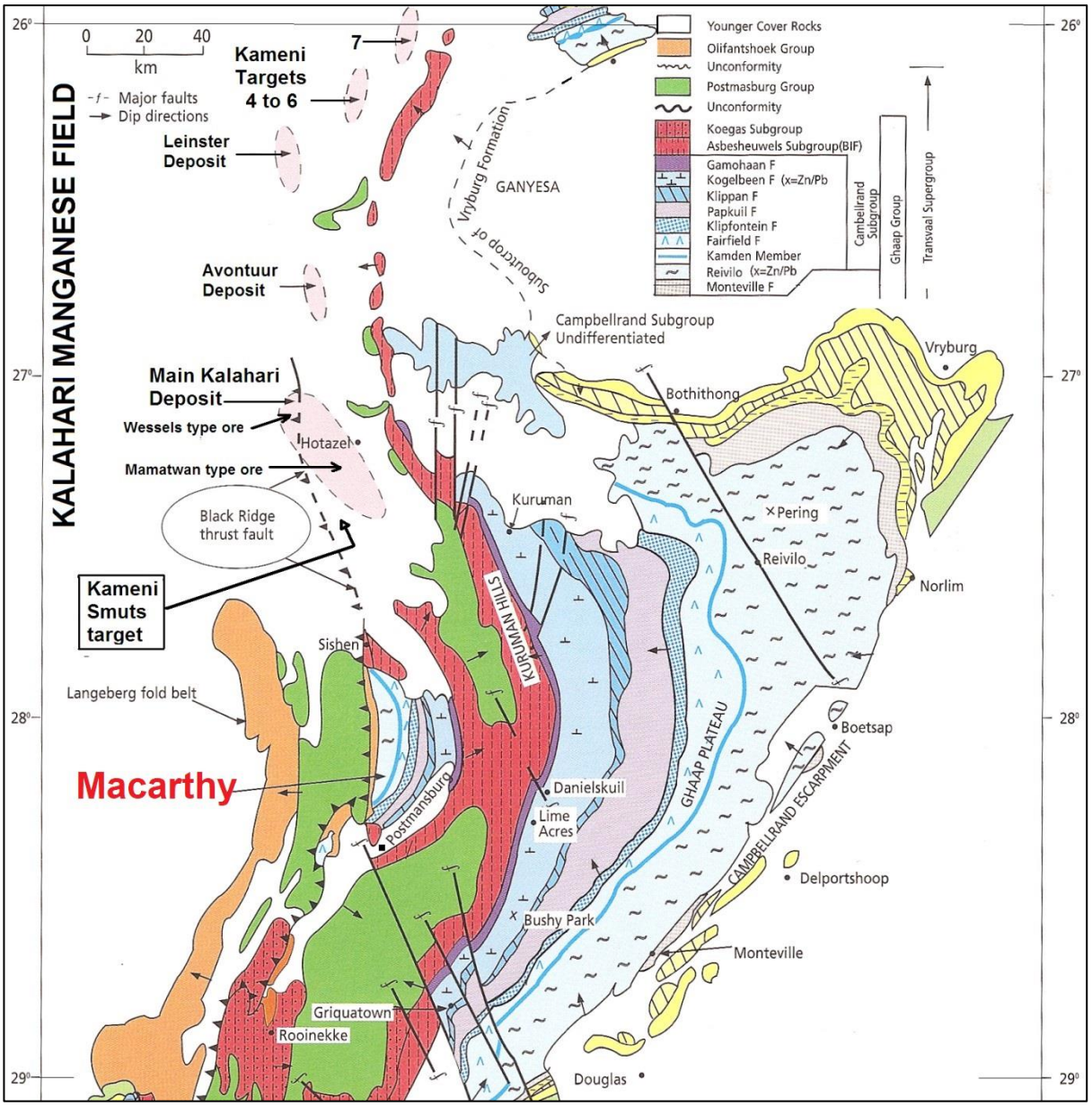

Figure 10-6: Simplified geology map of the Postmasburg and Kalahari manganese fields (Figure adapted from Cairncross et al, 1997 as cited in the Mine Works Plan)

10.5.2. Site Specific Geology (Synergistics Environmental Services, 2015)

According to Moen *(Moen HFG, 1977 as referenced by Synergistics Environmental Services)* various farms within the prospecting area is underlain by rocks of the Gamagara Subgroup (Vg), Asbestos Hills Subgroup as well as rocks of the Lime Acres Member of the Ghaap Plato Formation (Vgl) of the Campbell Rand Subgroup. The rocks of the Gamagara Subgroup underlie the eastern corner of the Jenkins farm. This subgroup consists of quartzites, conglomerates, flagstones and shales and constitutes the base of the Postmasburg Group. Lenticular basal conglomerates contain pebbles of jasper and banded iron stone and are completely ferruginised in places. The shales contain lenses of conglomerate and are also locally ferruginised or manganised. Ferruginous flagstone and white, purple and brown quartzites form the top of the Subgroup. Rocks of the Lime Acres Member of the Ghaap Plato Formation of the Campbell Rand Subgroup consist of dolomitic limestone with subordinate coarsely crystalline dolomite and chert with lenses of limestone. Stromatolitic puckered

limestone consisting of alternating dark and light bands can be found. Lenticular bodies of limestone occurring in the dolomite are probably the result of irregular dolomitisation of the original limestone.

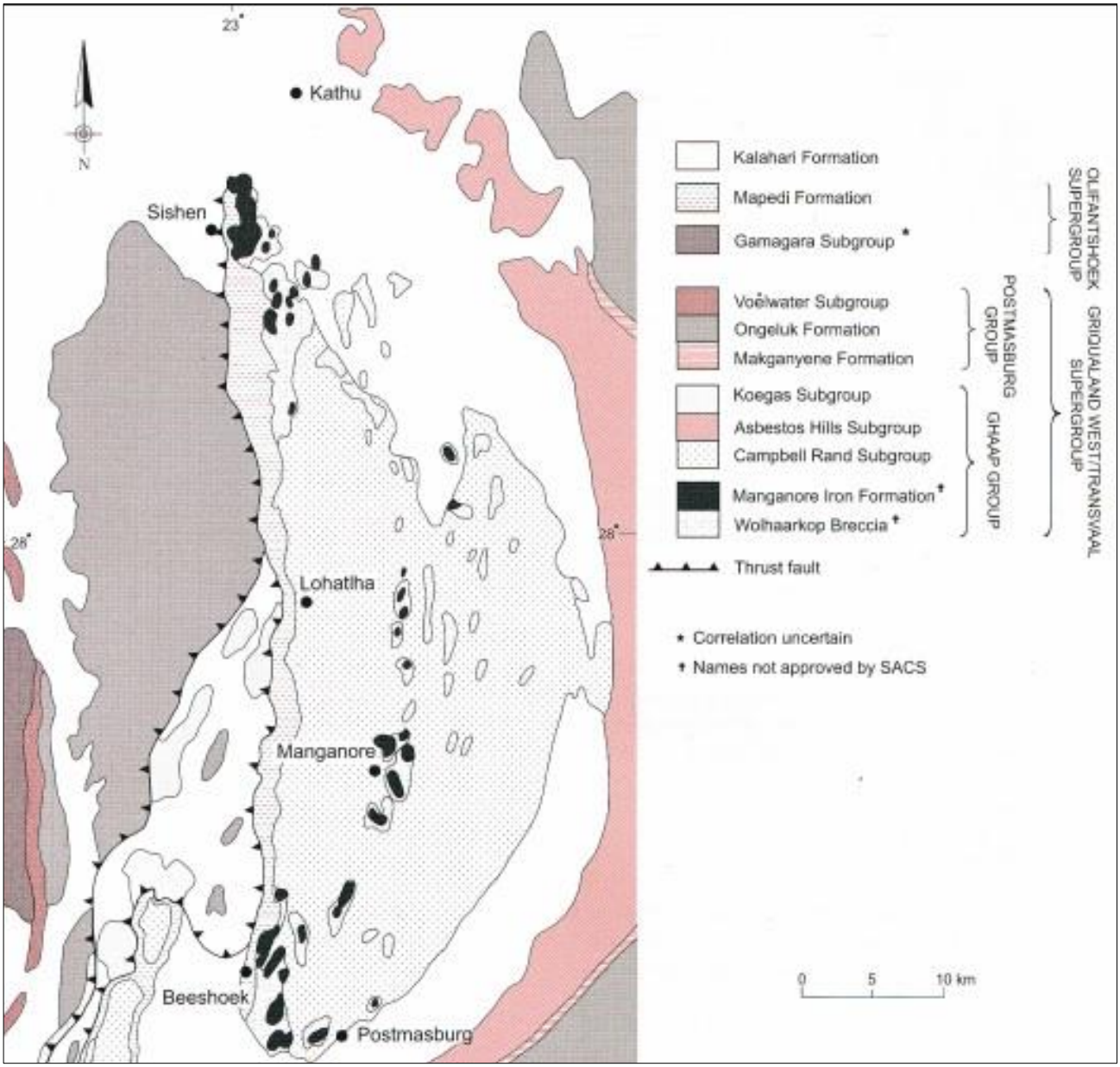

Figure 10-7: Regional geology and Structures of the Postmasburg Manganese Field indicating target zones (Manganore Iron Formation, Wolhaarkop Breccia and western edge of the Campbellrand Subgroup). (after Van Schalkwyk and Beukes 1986 as cited in the Mine Works plan)

10.6. Soil and Land Capability

The shallow soils have low agricultural potential with some minor areas comprising high agricultural potential (Hutton soils). Livestock grazing and wildlife/wilderness are the dominant land uses within the study area, with mining activities occurring in the surrounding area. The proposed prospecting areas as well as the associated is dominated by Glenrosa (Gs) and Mispah (Ms) soils, with moderately deep Hutton soils occurring in smaller patches. Other soils which were identified include the Brandvlei soil form and the Witbank (Wb) soil forms. **Error! Reference source not found.** below shows the land capability classes for soil forms identified with the proposed prospecting areas.

In terms of land capability, the study area is dominated by shallow soils which have low agricultural potential. In some cases, the Ms and GS soil forms might be suitable for grazing, and Hutton soils are considered prime agricultural soils. However, given the limited rainfall, lack of irrigation and high temperatures in the area, these soils are not likely to contribute to sustainable national food production. The soils are therefore not considered sufficient for viable cultivated commercial farming. Although the study area is dominated by soils with a land

capability which is suitable for grazing, it is only considered marginal for small scale commercial livestock farming,

Table 10-3: Land Capability Classes for soil forms within the proposed prospecting area

Land Capability	Soil Forms
Arable Class II	Hutton (Hu)
Arable Class VI	Brandvlei (Br)
Grazing- Class VI	Glenrosa Gs and Mispah (Ms)
Wildlife/Wilderness (Class VII)	Witbank (anthosols) (Wb)

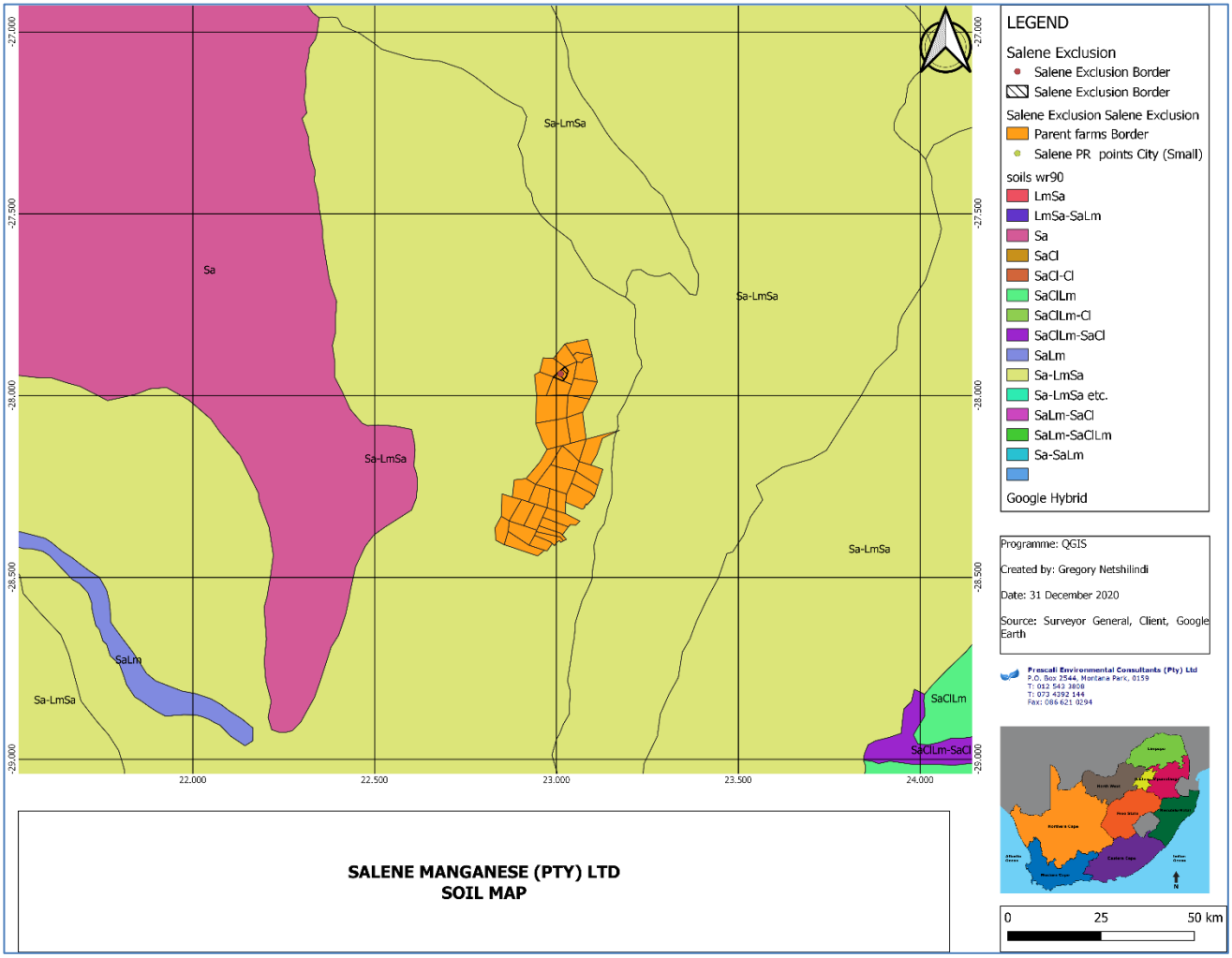

Figure 10-8: Generalised Soil Map

10.7. Biodiversity

The desktop assessment indicated that the proposed prospecting area and in particular the proposed 500 m radius prospecting area around the 25 identified points is located within areas classified as Ecological Support Area (ESA) and other natural areas (Figure 10-9). The Critical Biodiversity Areas (CBA) and Protected areas are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole.

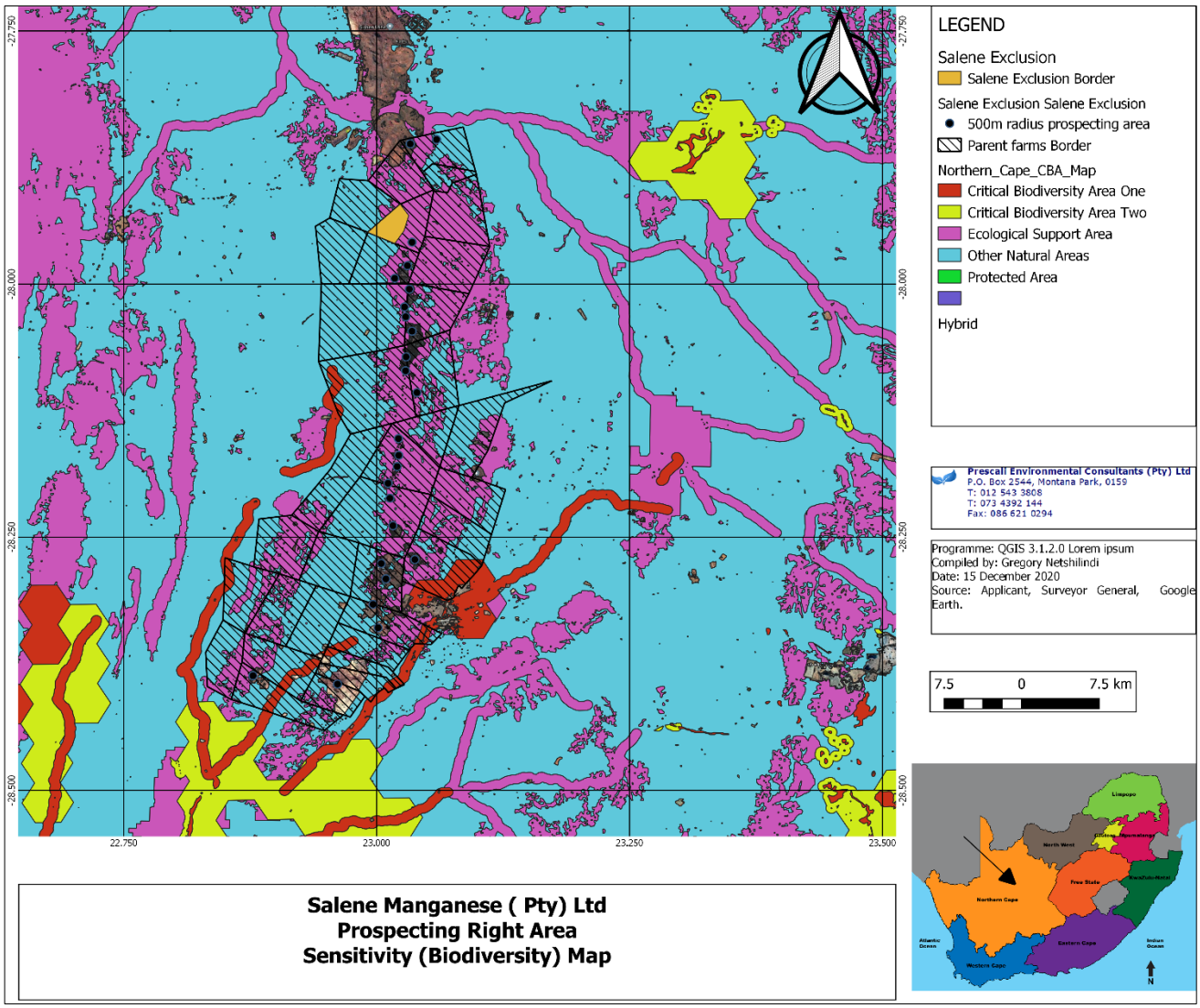

Figure 10-9: Critical Biodiversity Map

10.7.1. Flora

Based on the classification (Mucina & Rutherford, 2006) the prospecting area is located within the Savannah Biome and from the National Vegetation Map (2018) (Figure 10-10) the applicable units are:

- Kuruman Thornveld;
- Kuruman Mountain Bushveld;
- Kathu Bushveld; and
- Olifantshoekd Plains Thornveld.

As the prospecting activities will be located within disturbed areas (Residue deposits / stockpiles and mining) no vegetation is expected to be present at the locations where samples will be collected.

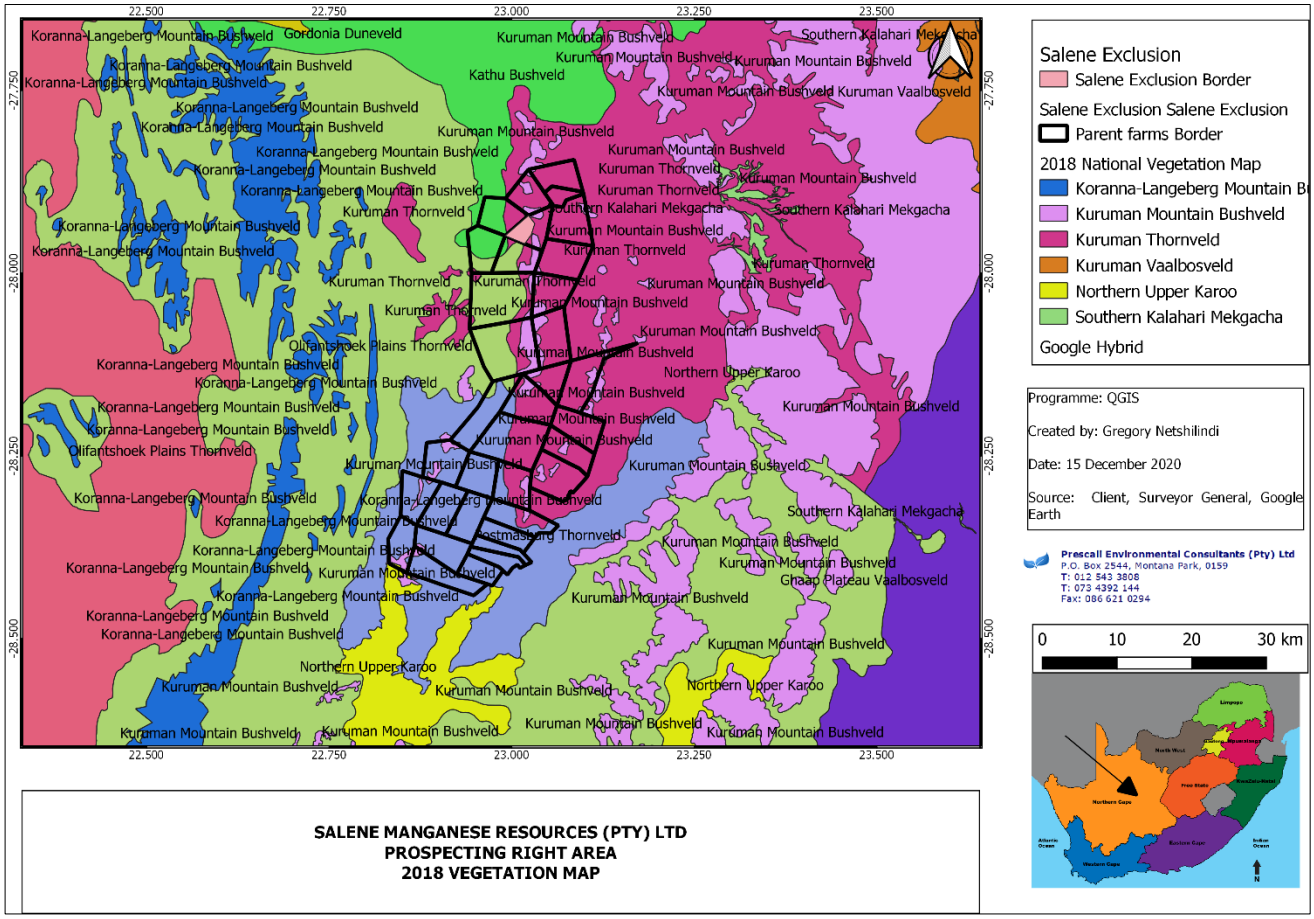

Figure 10-10: National Vegetation Map

A search on the SANBI POSA [6] website for the area as indicated in Figure 10-11, indicated the following plant species as potentially occuring (please note this is not a comprehensive list of all the flora that may occur within the prospecting area and only reflect those that has been recorded on the POSA database):

Table 10-4: Plant Species occurring within the prospecting area.

Family	***Genus***
Acanthaceae:	*Justucia thymifolia (Nees)*
Aizoacaea	Galenia pubescens
Lamiaceae	Stachys burchelliana Launert
Malvaceae	Hemannia cuneifolia var glabrescens

As the prospecting activities will be located within disturbed areas (Residue deposits / stockpiles and mining) limited vegetation is expected to be present at the locations where samples will be collected.

[6] http://posa.sanbi.org/sanbi/Explore 15 December 2020

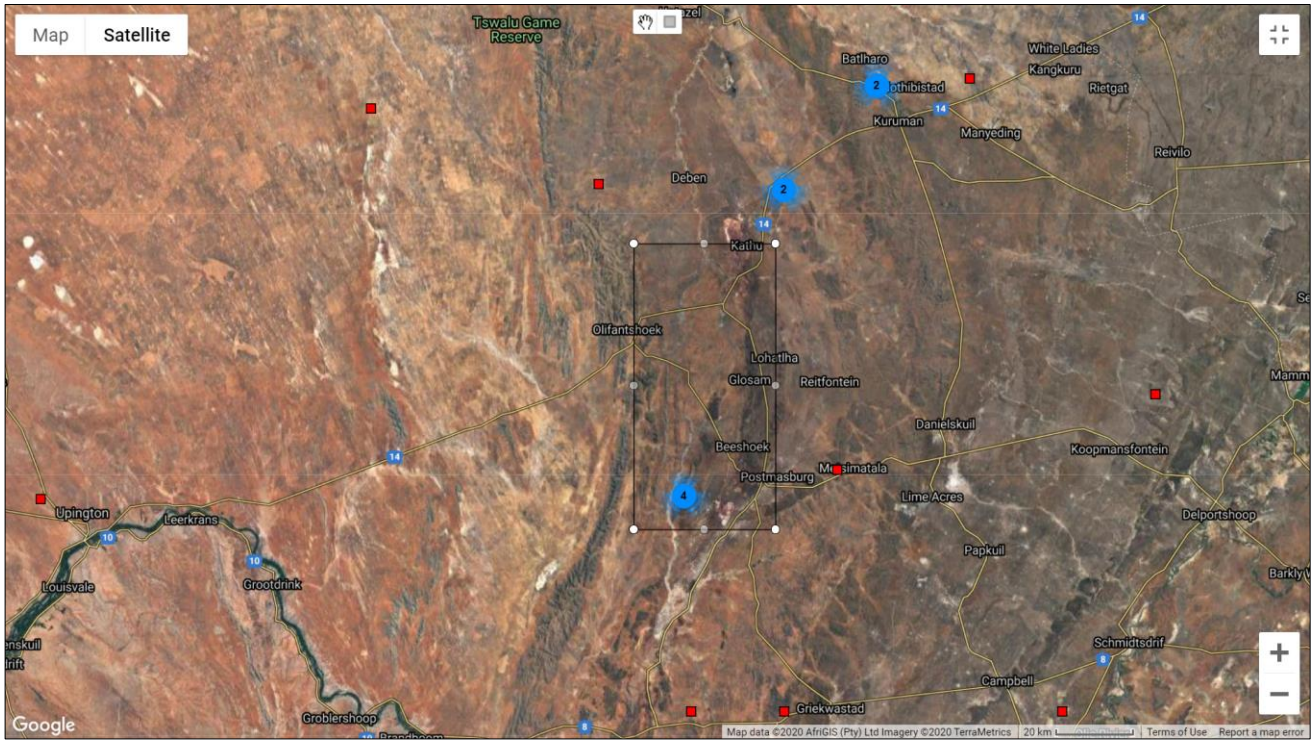

Figure 10-11: SANBI POSA grid search area.

10.7.2. Fauna

10.7.2.1. Mammals

Likely mammals to be found within the proposed prospecting area include *Tragelaphus strepsiceros* (Kudu), *Suricata suricatta* (Meerkat), *Saccostomus campestris* (Pouched Mouse) and *Aethomys namaquensis* (Namaqua Rock Mouse). The habitat conditions within the project area are still relatively intact and as such are able to support a number of large and small mammal species, notably so as a result of the ceasing of cattle grazing practices within the study area. Due to the overall aridity of the study area, as well as the lack of surface water, only mammal species which can move long distances to find water, or species that are water independent are likely to be found within the proposed prospecting area.

Mammals of Conservation Importance occurring within the prospecting area may include: *Proteles* (Aardwolf), *Otocyon megalotis* (Bat eared fox), *Eptesicus capensis* (Cape serotine bat), *Sylvicapra grimmia* (Common duiker), *Rhinolophus clivosus* (Geoffroy's horseshoe bat), *Tragelaphus strepsiceros* (Greater Kudu), *Felis nigripes* (Black footed cat), *Antidorcas* (Springbok) (Red Kite, 2020).

10.7.2.2. Reptiles

Three reptile species are likely to be observed within the study area as they were observed on the farm Jenkins 562 (SES, 2016), namely the Cape Cobra, Puff Adder and Variegated Skink. Rocky outcrops as well as dense shrub areas will provide suitable habitat for reptile species. The following may be present: *Pelomedusa subrufa* (African helmeted turtle), *Geochelone* (Tortoise), *Naja nivea* (Cape Cobra), *Pedioplanis namaquensis* (Namaqua sand lizard), *Varanus exanthematicus (Monitor lizard), Agama atral* (southern rock agama), *Pedioplanus lineoocellata* (common sand lizar), *Nucras intertexta* (potted sandveld lizard), (SLR, 2015)

10.7.2.3. Amphibians

Amphibians that are likely to be observed in the southern section of the prospecting area are *Rana fuscigula* (Cape River Frog), *Xenopus laevis* (African clawed frog) (SLR, 2015) and *Bufo gariepensis* (Karroo Toad).

10.7.2.4. Invertebrates

Invertebrate diversity throughout the application has been observed to be low based on documentation as referenced throughout the report. All the species observed are considered common and fairly widespread in Southern Africa, whilst many of them have yet to be listed by the IUCN. Many invertebrate species that are found

within arid regions of South Africa generally tend to be dictated by season and food resources. As such the arid nature of the project area and the low levels of food resources as a result of grazing pressure will preclude the occurrence of invertebrate species in large numbers from the study areas. Furthermore, no invertebrate Species of Conservation Concern (SCC) are expected to occur within the project area.

10.7.2.5. Arachnids

The general aridity of the environment combined with the lower prey (invertebrate) abundance and diversity, is likely to decrease the likelihood of arachnid detection within the project area, as well as to limit the overall abundance of species within the project area. No arachnid SCC is expected to occur within the study area. From available reports, it is believed that rocky ridges will likely provide suitable habitat for arachnid species during suitable seasonal times.

10.8. Surface Water

10.8.1. Affected River basin

The prospecting area is located within the Lower Vaal Water Management Area (WMA), specifically the Molopo Sub-WMA (DWAF, 2004). This WMA border on Botswana in the north and is semi-arid to arid (Section 10.2) resulting in endorheic rivers that typically cease to flow after some distance due to infiltration into the river bed and evaporation.

Minerals mined in this area are iron, manganese and diamonds, while farming ranges from extensive livestock production and rainfed cultivation and intensive irrigation enterprises (DWAF, 2004).

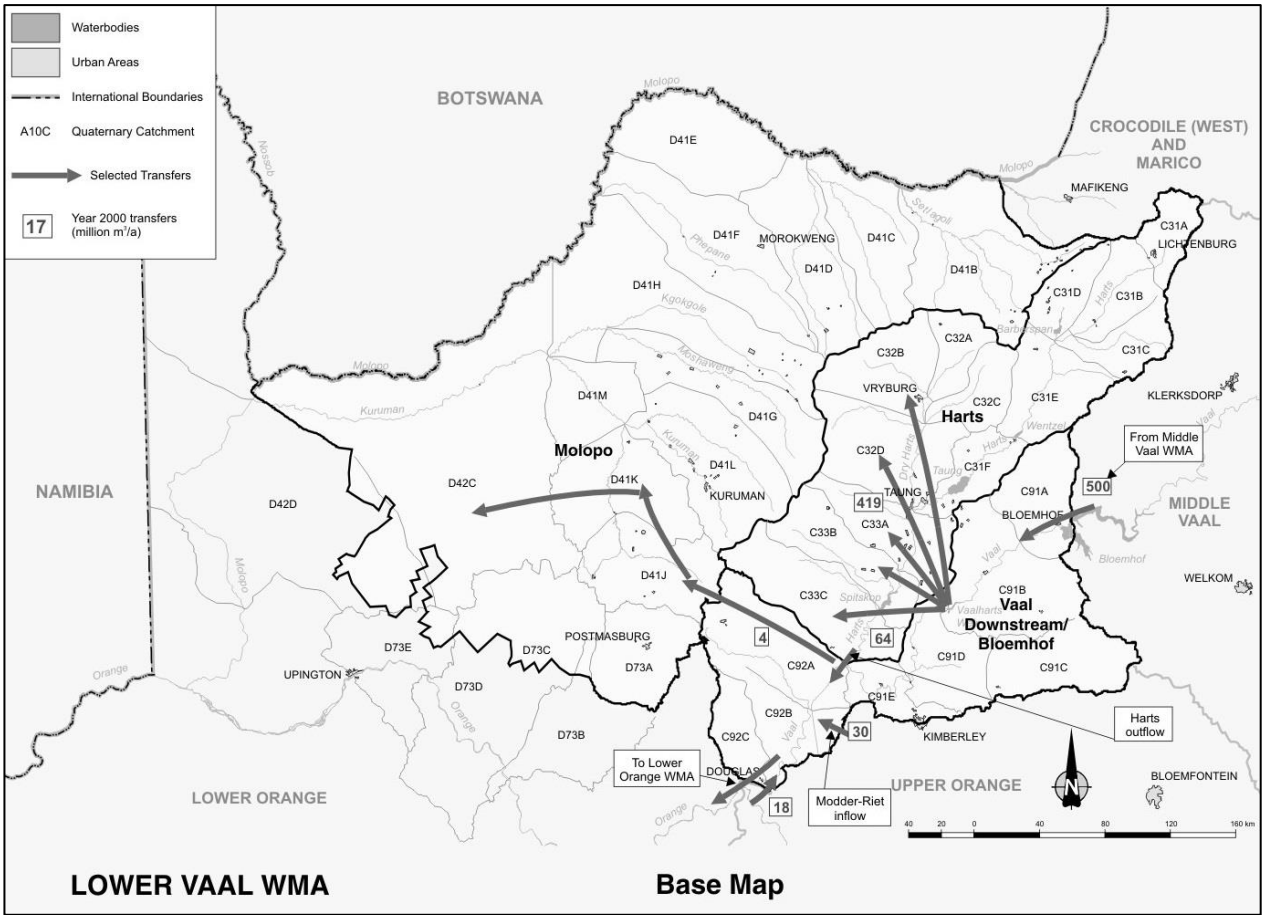

Figure 10-12: Lower Vaal Water Management Area (DWAF, 2004)

10.8.2. Quaternary catchment

The project area is located within quaternary catchment D41J and D73A the Orange River is located approximately 140 km southwest of the project area. Quaternary catchment D41J drains northwards along the Ga- Mogara River, a tributary of the Kuruman River, which eventually drains southwards along the Molopo River

and joins the Orange River at Augrabies Falls. D73A drains towards the Soutloop south of the area which merge with the Orange River at quaternary catchment D73C."

According to the Water Resources of South Africa 2012 study (WR2012), quaternary catchment D41J has a Mean Annual Runoff (MAR) of 1.75 million m^3 (MCM). The total catchment area of the quaternary catchment is 3 878 km^2, however, only 2 518 km^2 of this catchment area contributes to flows out of the catchment. The drainage flow is mainly in the form of sheet flow. The remainder of the catchment is described as endorheic (catchment area with no outlet, i.e. rainfall falling on the catchment does not exit the catchment as surface flow, but may only leave as evaporation or seepage). The MAR depth is particularly low due to the arid nature of the catchment, relatively flat topography and largely sandy soils (SES, 2016). The southern section of the prospecting area is situated within quaternary catchment area D73A, which is 3 238 km² in size. The catchment is part of a large endoreic area. The major drainage feature within the mine area is the Groenwaterspruit on the eastern boundary of the site. Groenwaterspruit has a catchment of approximately 27 km². Numerous pans occur and the only defined watercourses are close to the southern boundaries of the prospecting area. These short streams enter wide vlei areas that drain into Biesieputs located south of the prospecting area.

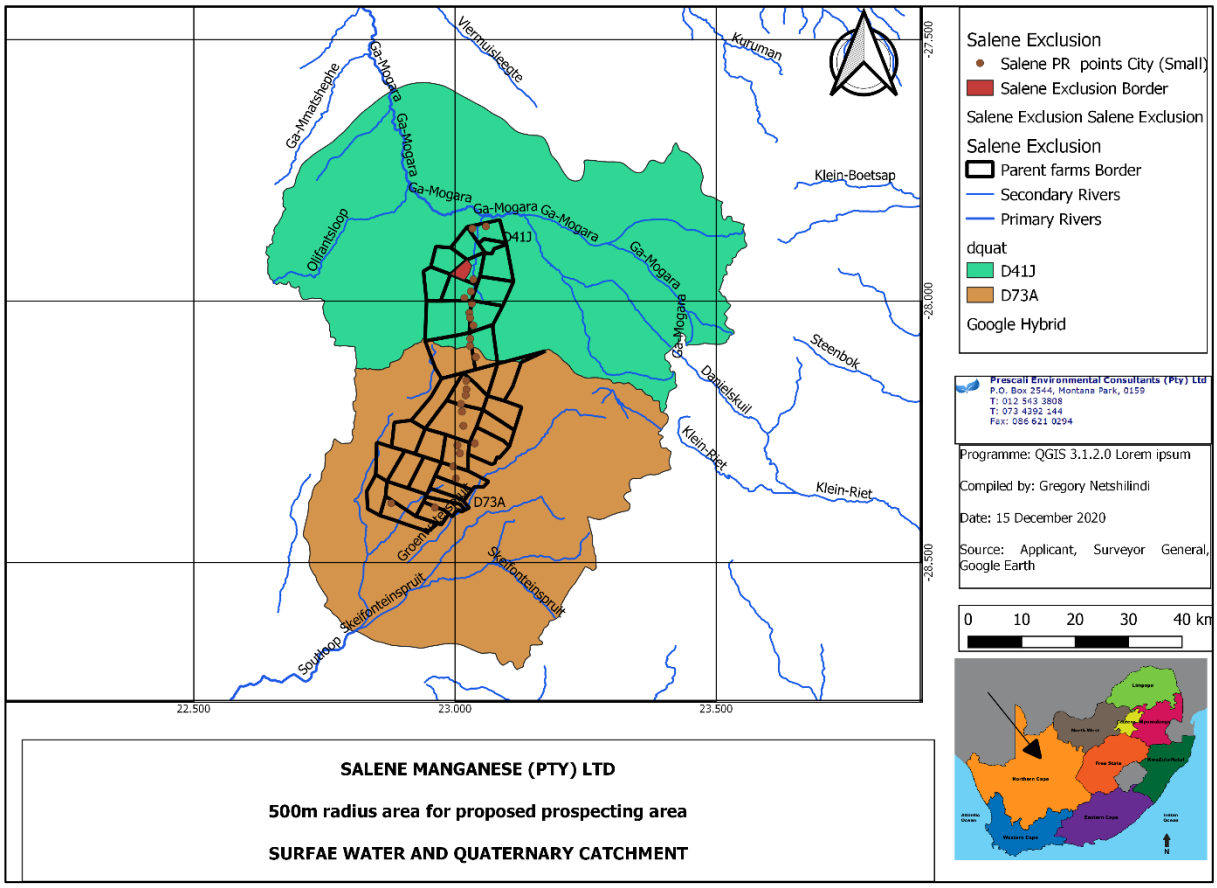

Figure 10-13: Quaternary Drainage area and watercourses

10.8.3. Site specific water resources

The Ga-Mogara River flows on the northern section of the prospecting area while the Groenwaterspruit intersects the southern section of the prospecting area (Figure 10-13). Figure 10-14 and Figure 10-15 shows the 25 sites 500m radius sampling area relative to the surface water and it shows that there is a buffer area between the sampling radius and the Ga-Mogara River.

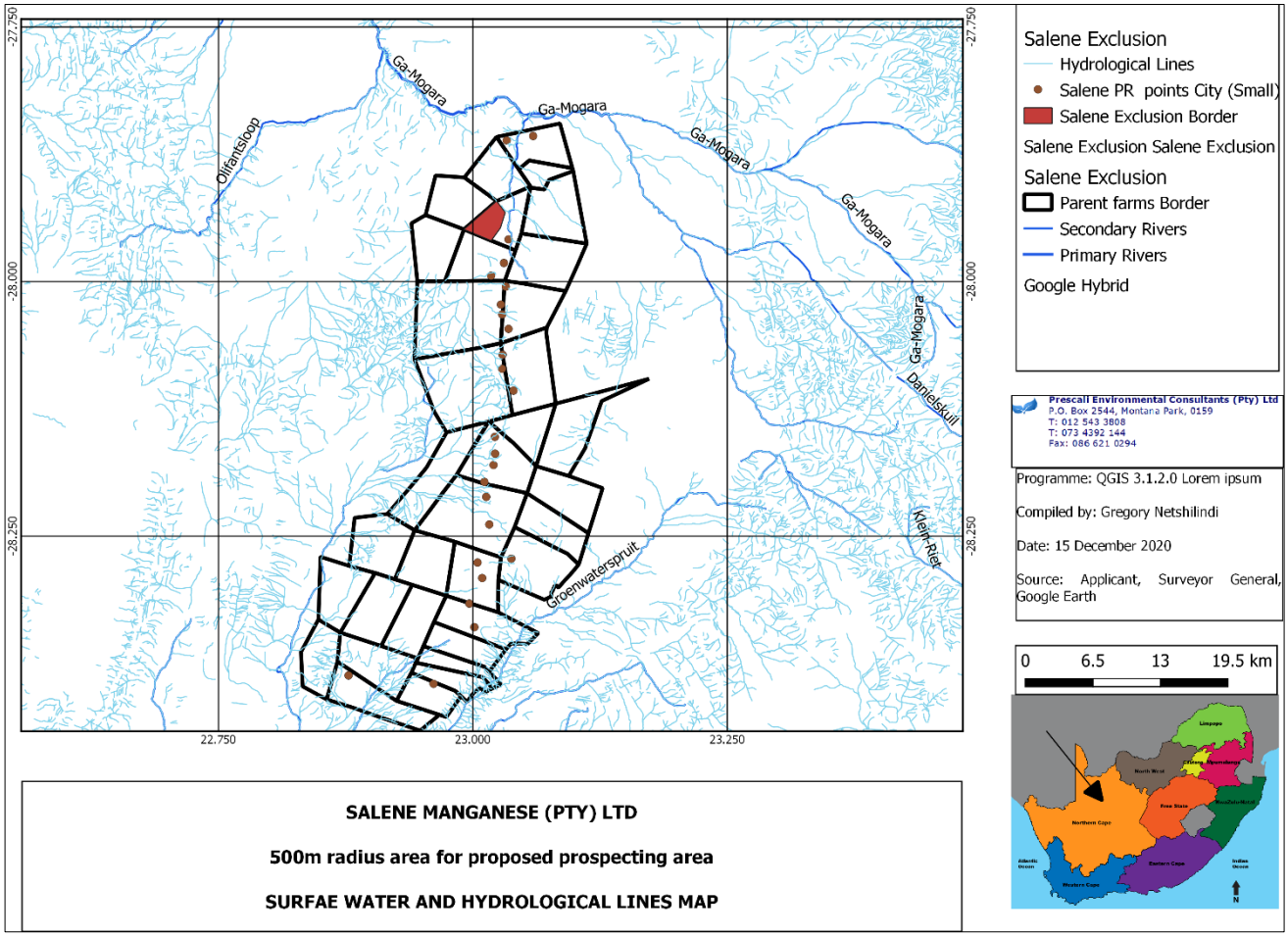

Figure 10-14: Sampling Area buffer

10.8.4. Wetland areas

Numerous endorheic pans are prevalent within the Kolomela area (southern section of the prospecting area). Endorheic pans make up 21% of South Africa's wetlands. The pans of the Ghaap plateau occur in an area of approximately 1 000 km^2 extending from the Kolomela area in the west to the Ghaap escarpment in the east. The pans that occur on surface limestone west of the Asbestos Hills, which includes the Kolomela site, however, only cover an area of approximately 100 km^2. The panveld occurring in the Postmasburg area is classified as the 'western Ghaap lime panveld' for the purposes of this study and should be distinguished from other lime pans occurring further to the east. This classification was based on climate (lower rainfall on the western section of Ghaap plateau), geology (pans occur on surface limestone) and plant species composition (occur within the Postmasburg Thornveld). Approximately 60% of the western Ghaap lime pans are estimated to occur within the Kolomela area (SLR, 2015). Figure 10-15 shows other undocumented artificial wetlands within and around the proposed prospecting area.

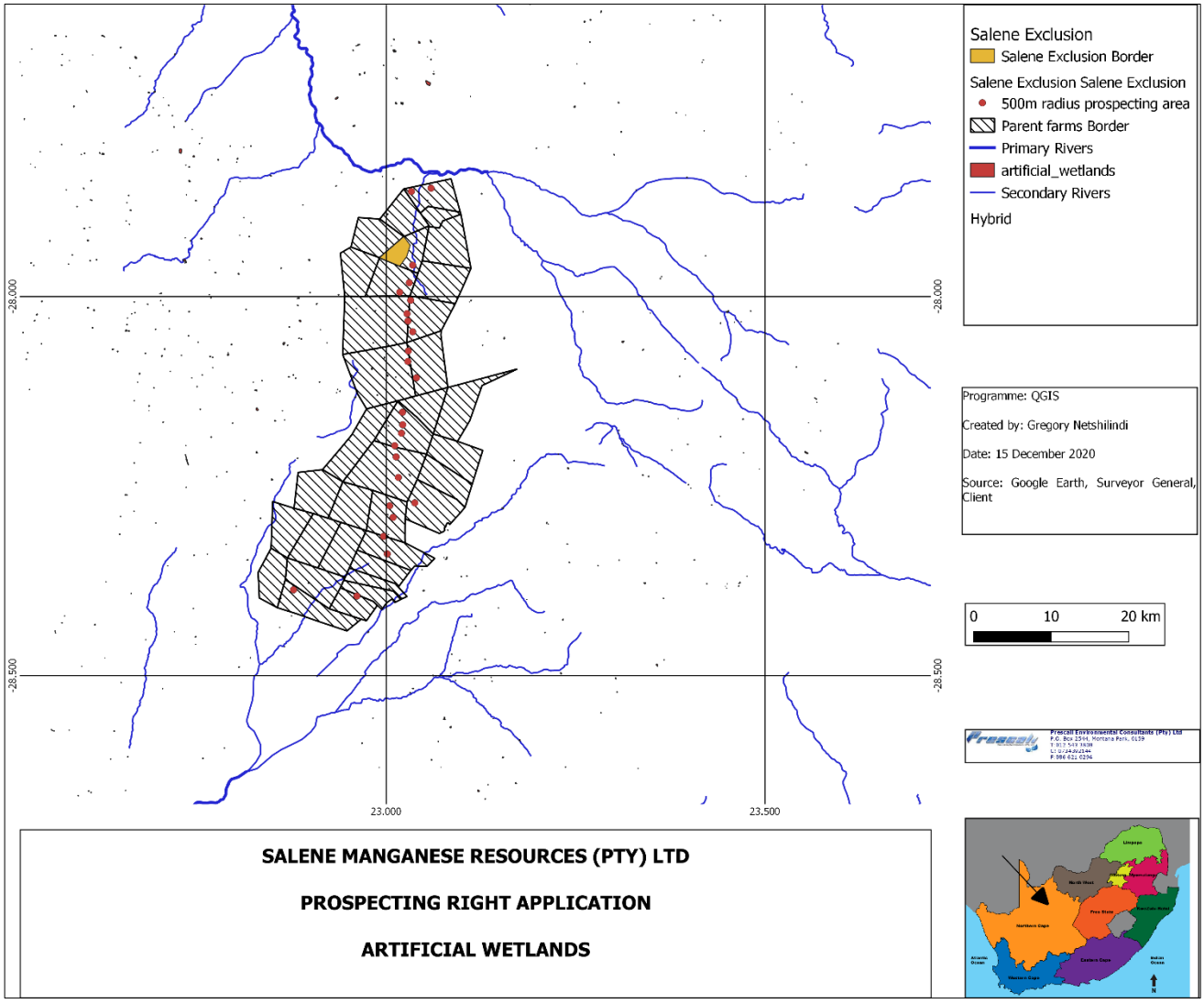

Figure 10-15: Artificial Wetlands within the prospecting area

10.9. Groundwater

Figure 10-16 shows average groundwater levels of the proposed prospecting right area. The entire proposed prospecting area has an average groundwater level of 26,12 mbgl. The groundwater transmissivity range from 25 to 100, a small section of the proposed prospecting area has transmissivity values of 250 towards the northwest of the prospecting area.

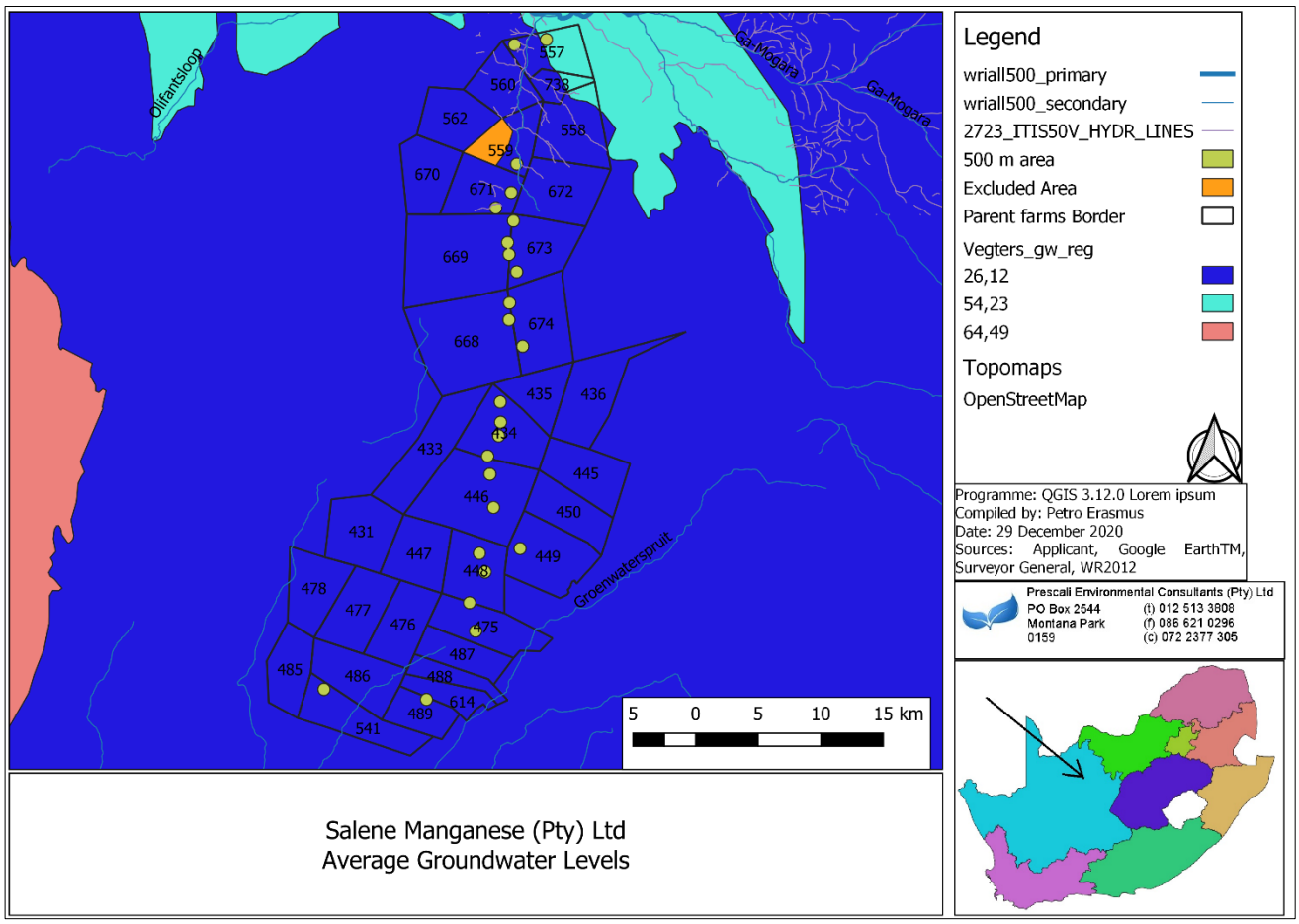

Figure 10-16: Average groundwater Levels

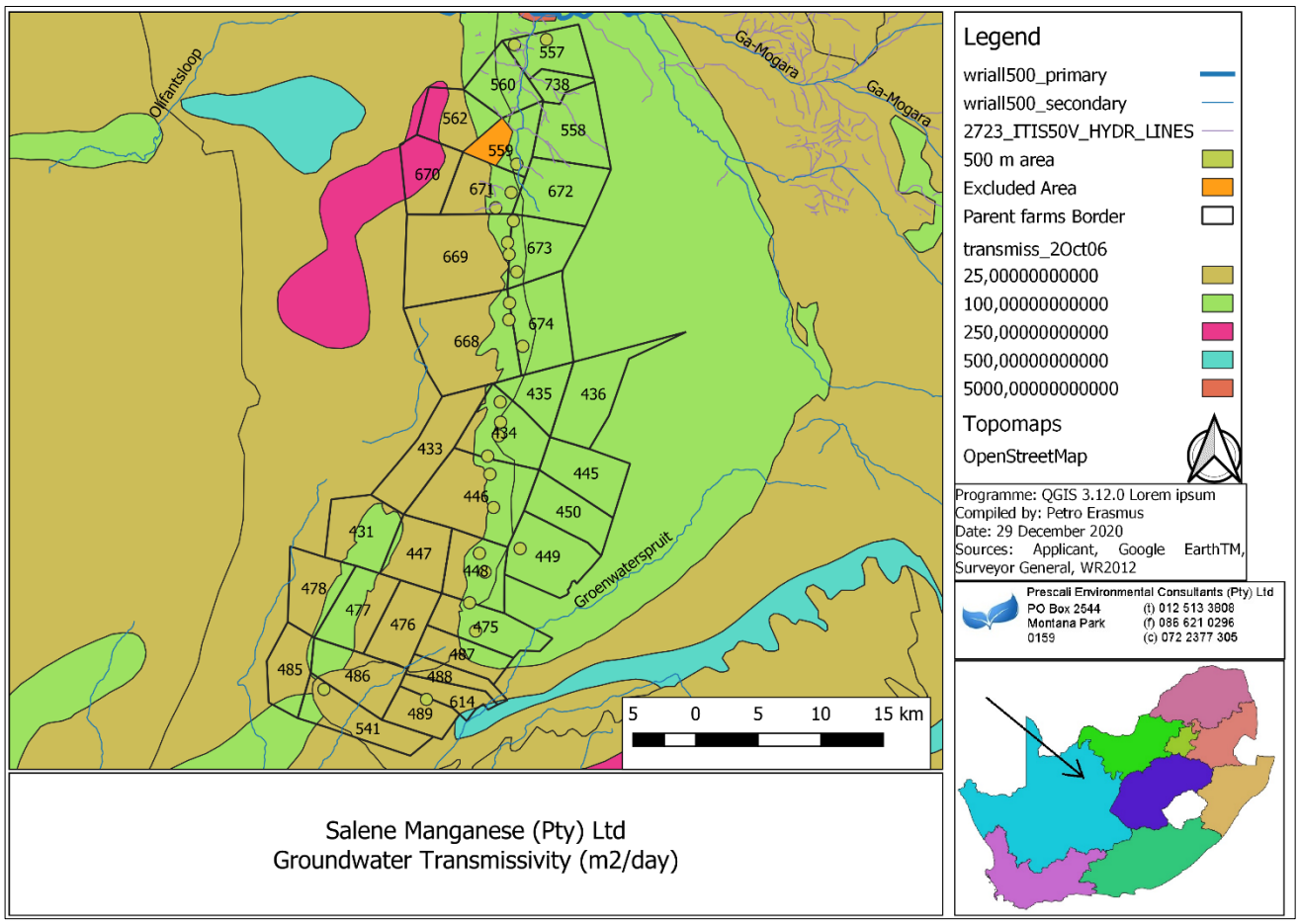

Figure 10-17: Groundwater Transmissivity

10.10. Air Quality

There are several mining operations around the proposed prospecting area which presently contribute to the existing levels of atmospheric pollution. Given the arid nature of the area in combination with existing mining operations, current levels of particulate matter (PM) in the atmosphere are expected to be elevated. Existing land uses such as mining and agriculture contribute to baseline pollutant concentrations via the following sources:

- Mining sources: Particulates represent the main pollutant of concern at mining operations. The amount of dust emitted by these activities depends on the physical characteristics of the material, the way in which the material is handled and the weather conditions.
- Unpaved and paved roads: Emissions from unpaved roads constitute a major source of emissions to the atmosphere in the South African context. Dust emissions from unpaved roads vary in relation to the vehicle traffic and the silt loading on the roads. Emission from paved roads is significantly less than those originating from unpaved roads, however they do contribute to the particulate load of the atmosphere. Particulate emissions occur whenever vehicles travel over a paved surface. The fugitive dust emissions are due to the re-suspension of loose material on the road surface.
- Wind erosion and open areas: Windblown dust generates from natural and anthropogenic sources. Erodible surfaces may occur as a result of agriculture and/or grazing activities.
- Vehicle tailpipe emissions: Emissions resulting from motor vehicles can be grouped into primary and secondary pollutants. While primary pollutants are emitted directly into the atmosphere, secondary pollutants form in the atmosphere as a result of chemical reactions. Significant primary pollutants emitted combustion engines include carbon dioxide (CO_2), carbon (C), sulphur dioxide (SO_2), oxides of nitrogen (mainly NO), particulates and lead. Secondary pollutants include NO_2, photochemical oxidants such as ozone, sulphur acid, sulphates, nitric acid, and nitrate aerosols (particulate matter).

10.11. Heritage and Cultural Resources

The proposed activities will (as far as possible) take place within existing mining / residue deposit and stockpile areas at 25 locations between Postmasburg and Kathu there it is unlikely that areas of heritage and palaeontological significance will be affected by the sampling activities.

The Gamagara municipal area owns an endemic camel-thorn tree forest, which enjoys a National Heritage status. The tree gave Kathu its name; the “town under the trees”. The Kathu forest situated north of the town of Kathu has been declared a protected woodland in terms of section 12(1) (c) of the National Forests Act (1998) by the Minister of Agriculture, Forestry and Fisheries. This was confirmed in the Government gazette dated 10 July 2009. The Kathu Forest is a unique woodland of exceptionally large camel thorn trees (Acacia erioloba). The woodland of approximately 4000 hectares is one of only two such woodlands in the world. The Kathu forest was registered as a national heritage site in 1995. The farms and portions that make up the forest are currently privately owned.

10.12. Socio Economy

10.12.1. Tsantsabane Local Municipality

A large portion (97%) of the prospecting area is located within the Tsantsabane Local Municipality and ZF Mgcawu District Municipality (Figure 10-1). Farm Mashwening No 557 is the only farm that falls within Gamara Local Municipality and John Taolo Gaetsewe District Municipality. The Tsantsabane Local Municipality (TLM) is situated in the Z.F Mgcawu District Municipality and covers geographic area of 5 887 km^2 (Surveyor General, 2008). Tsantsabane Local Municipality is bordered by Siyancuma LM, //Khara Hais LM,! Kheis LM, Gamagara LM and Kgatelopele LM (TLM, 2018). The municipal area falls in the Gamagara Corridor. The Gamagara Corridor “comprises the mining belt of the John Taolo Gaetsewe and Siyanda (ZF Mgcawu) districts and runs from Lime Acres and Danielskuil to Hotazel in the north. The corridor focuses on the mining of iron and manganese”.

Table 10-5 shows population of Tsantsabane Local Municipality (2016) by gender. The number of females recorded was 18 256 persons in 2016 and the males recorded was 9 785 persons. Gender proportions show that there are more females than males in the municipality 54% males and 46% females Table 10-5.

Table 10-5: Population distribution by Sex for the Tsantsabane Local Municipality

Gender	Population	Percentage %
Female	18 256	46,40%
Male	21 088	53,60%

Table 10-6 summarizes the number of persons by population group type. Black Africans make up 46.8% of the TLM followed by Coloureds who make up 44%, Indian and Asian group make up the smallest number (0,6%) of the municipality.

Table 10-6: Population distribution by Race for Tsantsabane Local Municipality

Race	Number	Percentage
Black African	18413	46,80%
Coloured	17311	44%
Indian or Asian	127	0,60%
White	1835	8,70%

Table 10-7 shows that 67.4% of the population in TLM have completed grade 9 or higher, 38.7 % have completed matric or higher. Less than 5% of the population has a tertiary qualification this is said to have an impact on the employability of the population.

Table 10-7: Education Level for Tsantsabane Local Municipality

Level of education	Percentage
Bachelors degree/Occupational certificate NQF Level	0.7%
Certificate with less than Grade 12/Std 10	0%
Diploma with Grade 12/Std 10/Occupational certificate	1%
Diploma with less than Grade 12/Std 10	0.2%

Level of education	Percentage
Do not know	1.2%
Grade 0	0%
Grade 10/Standard 8/Form 3/Occupational certificate	10.4%
Grade 11/Standard 9/Form 4/NCV Level 3/ Occupation...	10.6%
Grade 12/Standard 10/Form 5/Matric/NCV Level 4/ Oc...	34.2%
Grade 1/Sub A/Class 1	0.4%
Grade 2/Sub B/Class 2	1%
Grade 3/Standard 1/ABET 1	1.2%
Grade 4/Standard 2	2%
Grade 5/Standard 3/ABET 2	2.2%
Grade 6/Standard 4	2.2%
Grade 7/Standard 5/ABET 3	5.9%
Grade 8/Standard 6/Form 1	8%
Grade 9/Standard 7/Form 2/ABET 4/Occupational certificate	6.2%
Higher Diploma/Occupational certificate NQF Level	0.3%
Higher/National/Advanced Certificate with Grade 12	0.5%
Honours degree/Post-graduate diploma/Occupational	0.4%
Masters/Professional Masters at NQF Level 9 degree	0.1%
N4/NTC 4/Occupational certificate NQF Level 5	0.7%
N5/NTC 5/Occupational certificate NQF Level 5	0.5%
N6/NTC 6/Occupational certificate NQF Level 5	0.3%
No schooling	7.3%
NTCIII/N3	0.7%
NTCII/N2	0.5%
NTC I/N1	0.1%
Other	1%
PHD (Doctoral degree/Professional doctoral degree	0.1%
Post-Higher Diploma (Masters)	0%
Unspecified	0.1%

Table 10-8: Language spoken in households

	Tsantsabane		Z F Mgcawu	
Afrikaans	57%	22,42	83%	209,81
Setswana	36.3%	14,277	10.5%	26,527
Not applicable	2.1%	825	1.7%	4,366
English	1.6%	614	1.3%	3,168
Sesotho	1.2%	469	0.7%	1,833
Isixhosa	0.9%	352	1.9%	4,801
Other	1%	387	0.9%	2,186

45.3% of the economically active population is employed within the TLM, this number is slightly lower than the ZF Mgcawu District Municipality. 16% of the population is unemployed according to the 2011 census.

Table 10-9: TLM and ZF Mgcawu Employment Status

	Tsantsabane		ZF Mgcawu	ZF Mgcawu
Discouraged work-seeker	1.8%	419	3.2%	4,961
Employed	45.3%	10,76	47.3%	74,449
Other not economically active	36.9%	8,764	38.3%	60,21
Unemployed	16%	3,795	11.3%	17,696

10.12.2. Gamagara Local Municipality

According to Statistics of South Africa Community survey, the Gamagara local Municipality has a tremendous increase of population size since 2011 to 2016. The population increased from 41,617 to 53 656 resulting in a percentage increase of 28.93 within 5 years. Population density (people per square kilometre) increased from 8.9 to 15.9. The Gamagara Municipality has a high urbanisation rate of 97.6%, which is significantly higher than that of the District (24.9%). the main reason for such could be because Gamara is a mining hub and individual are flooding in with the hope of getting employment.

2016 indicates that Gamagara local Municipality has a total population of 53 656 as compared to 41,617 in 2011. Thus, translating to a population increase of 22,48% (12,039 individuals) from 2011 to 2016. Population is growing at a rate of 6.68% per year. Population density (people per square kilometre) increased from 8.9 to 15.9. The Gamagara Municipality has a high urbanisation rate of 97.6%, which is significantly higher than that of the District (24.9%).

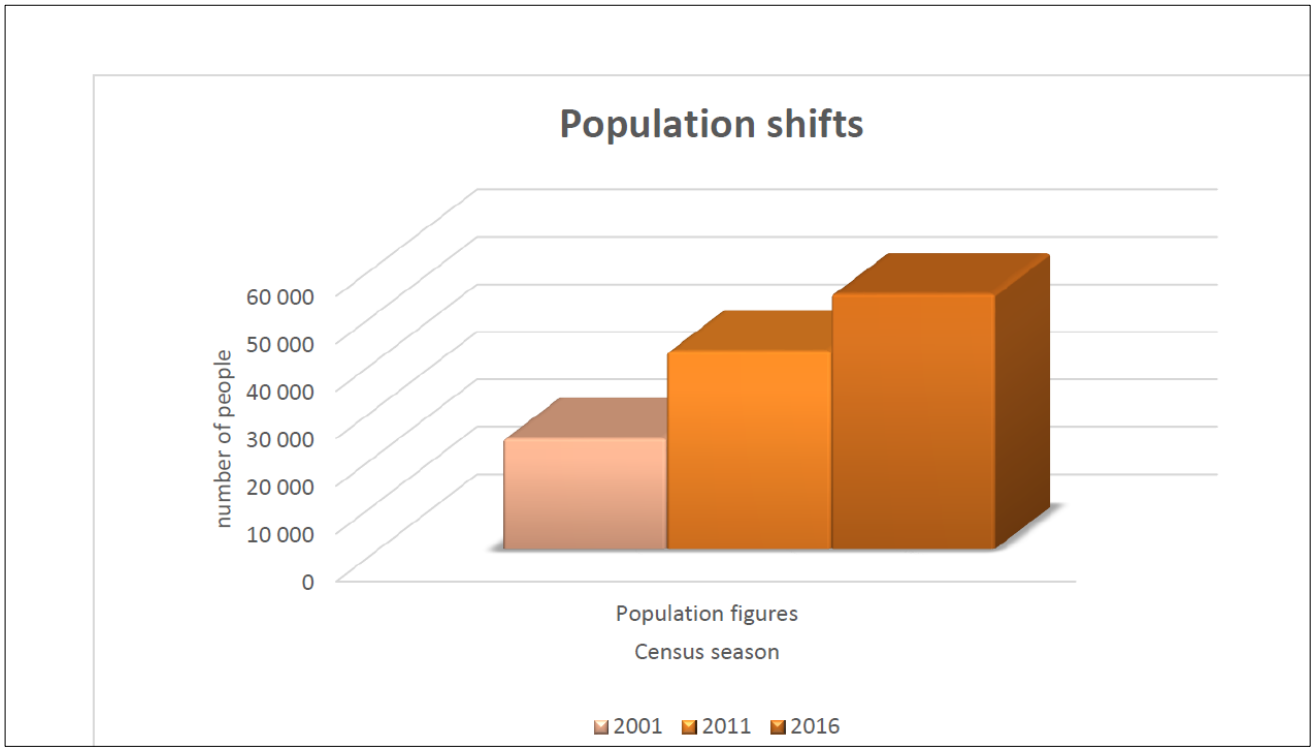

Figure 10-18 Population Increases.

Gamagara Municipality composition is characterised by African, Coloured, Whites and Indian or Asian people. Population is comprised of 48, 6% African, 32, 6% Coloured, 18% Whites and 0, 82 % Indian/Asian. Population growth by race dynamics suggests that the coloured community experienced the highest growth in Gamagara at a growth rate of 31,7% followed by African community at 22%, Asian community grew by 9% and the white community grew least at 4,1%. Gender ratio was recorded at 120,1:100 male to females and mean age was 27 years as captured in census 2011. The literacy level is low and only 24, 9 % have gone through matric and 3, 6% has through higher education. This explains the type of job-opportunities in the municipal area, i.e., mining and related industries (Gamagara, 2019) .

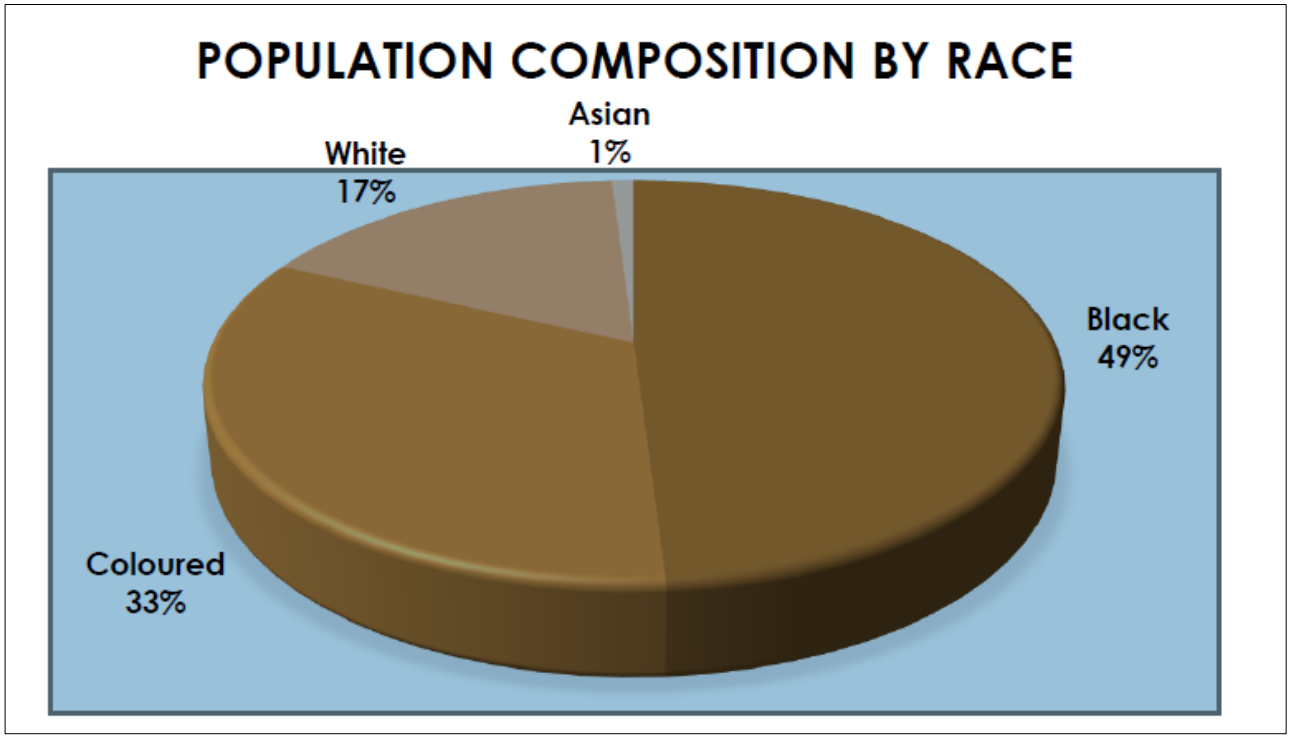

Figure 10-19: Population by race.

The most significant portion of Gamagara's population is resident in Kathu (27.7% or 11,511 individuals), followed by Sesheng (26.5% or 11,033 individuals), Olifantshoek (24.6% or 10,235 individuals), and Dibeng (18.9% or 7,848 individuals). Another 2.4% (991 individuals) of the Municipality's population is resident in the Gamagara Non-Urban (NU)8 area.

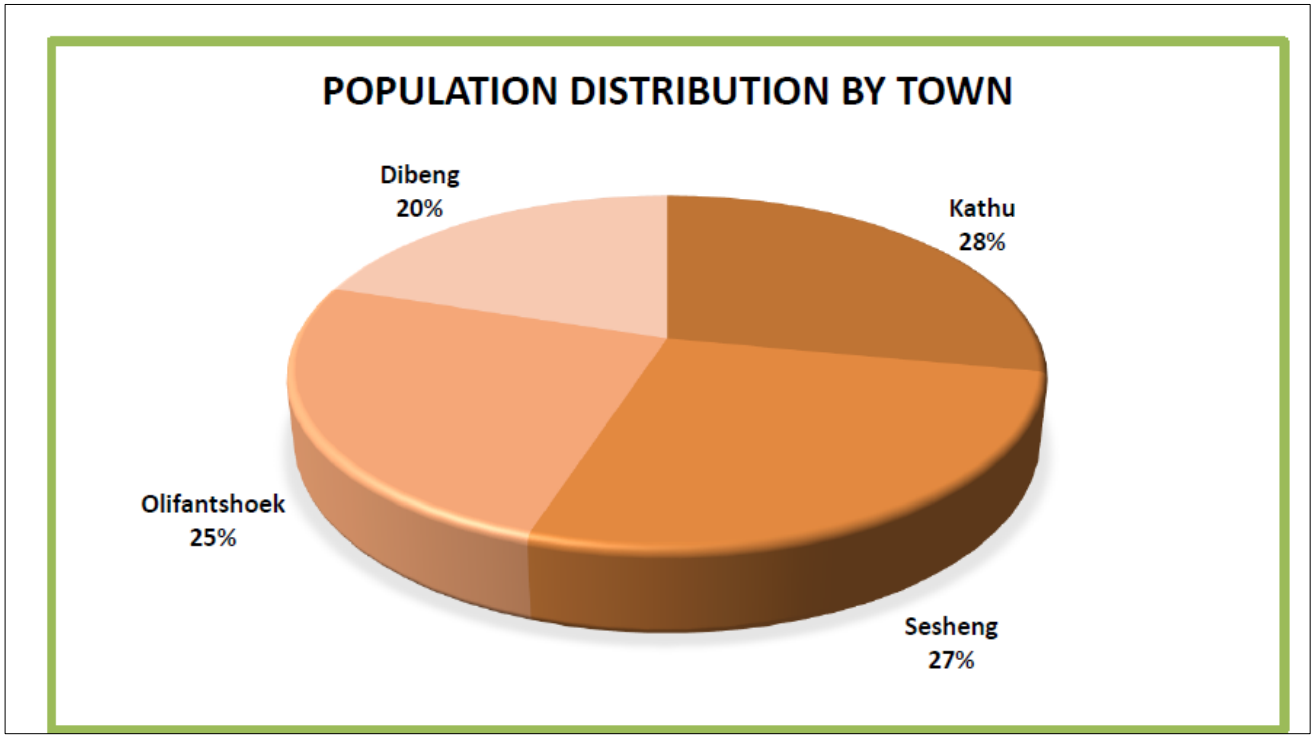

Figure 10-20: Population distribution by town

In terms of population growth, all the main places experienced a positive growth from 2001 to 2011 except the Gamagara NU mail place. Sesheng and Dibeng experienced the most significant growth rate of 125.7% and 95.9% respectively. In terms of numbers, the main place that experienced the most significant growth is Sishen (6,144 individuals) and Kathu (5,232 individuals). The Gamagara NU area covers 89.6% of the Gamagara Municipality's total geographical area. The second largest geographical area and largest urban area is Sishen, which covers 6.9% of the Municipality. Dependency ratio was 50.9% in 2001 and has now decreased to 39% in 2011. This can be attributed to more people being economically active.

10.12.3. Employment

The district is largely reliant on mining, with mining contributing 55.5% to the district and 77.5% to the local municipal economy. The mining sector is also the largest employer in the local economy. Trade is a major driver in both the district and local municipality economies. This illustrates the importance of the mining industry in the area. There are approximately 50 000 people living in the Gamagara municipal area of which 65% are economically active and 82.3% are formally employed. The sending municipalities show lower economically active segments with approximately 51% and 26% of persons being economically active in Ga- Segonyana Local Municipality and Joe Morolong Local Municipality, respectively. Unemployment in these municipalities is also high at 33% and 39%, respectively. Similarly, the living standards in the sending municipalities are far lower than in Gamagara.

The Gamagara Local Municipality has a lower unemployment level than the national average of approximately 25.0%. High employment rate, coupled with a large percentage of people who are economically active, are indicative of lower dependency ratios. The two sending municipalities have a higher unemployment rate. This, coupled with a low percentage of people who are economically active and larger household sizes, means high dependency ratios will prevail. A large number of the households in the district municipality rely on employees in the Gamagara Local Municipality

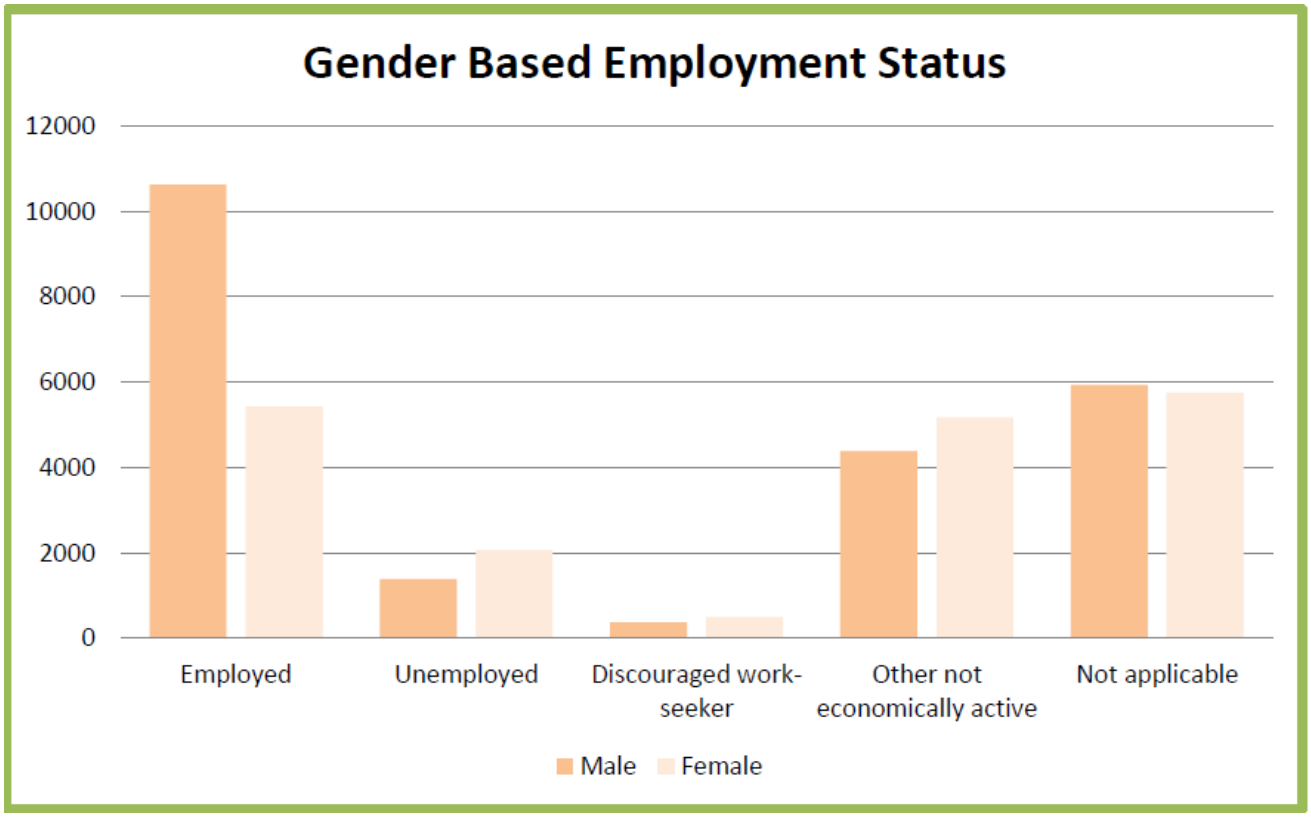

Figure 10-21: Employment Status by Gender

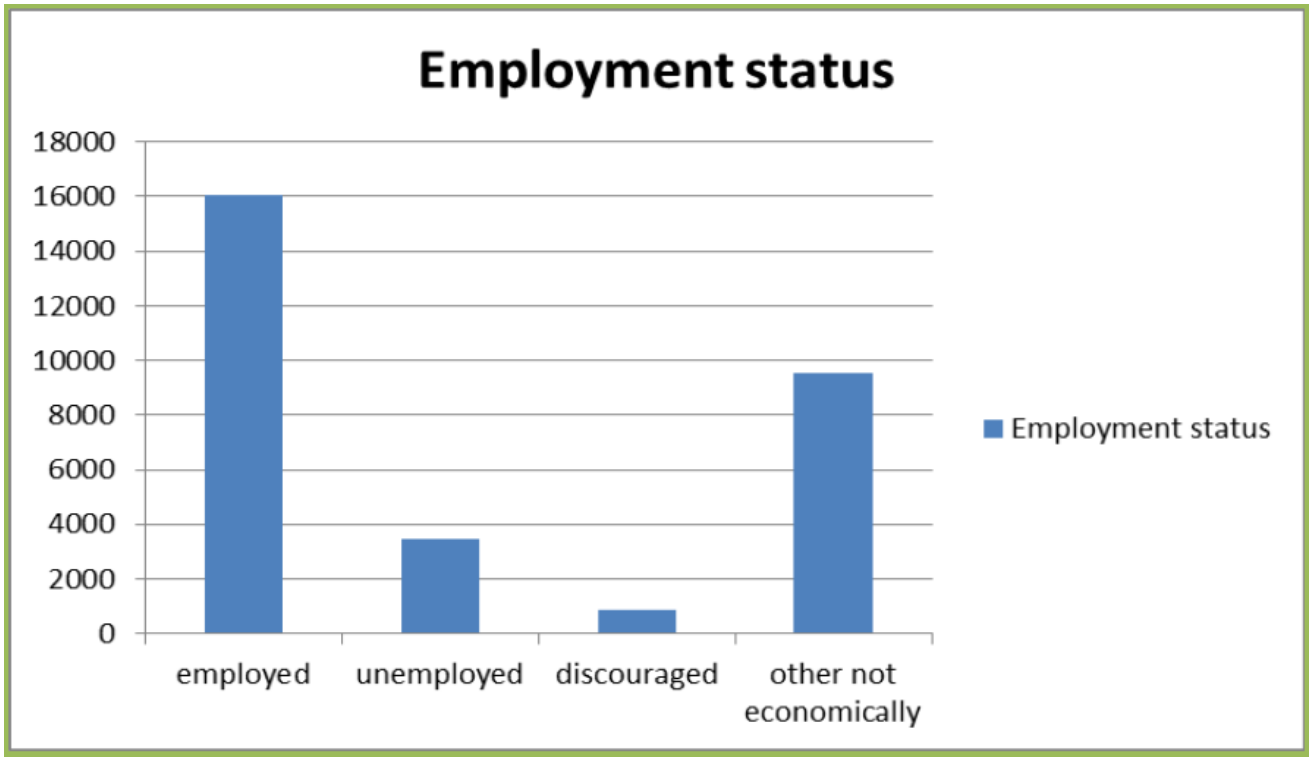

Figure 10-22: Employment Status

10.12.4. Education levels

Education is often a means to expand the range of career options a person may choose from and influence a person's income and ability to meet their basic needs. Education levels and income levels thus become important indicators of human development. From the table below it is clear that there is a high number of people who has a secondary school education, followed by those who have matric. The number of those with no schooling has increased from the 2007 survey to 2011. The implication of the level of education indicates the type of job opportunities that can be accessed by the local communities. 10.5% of the population have no schooling background while 26.5% have completed their matric, 12.6% of the population has some form of higher education.

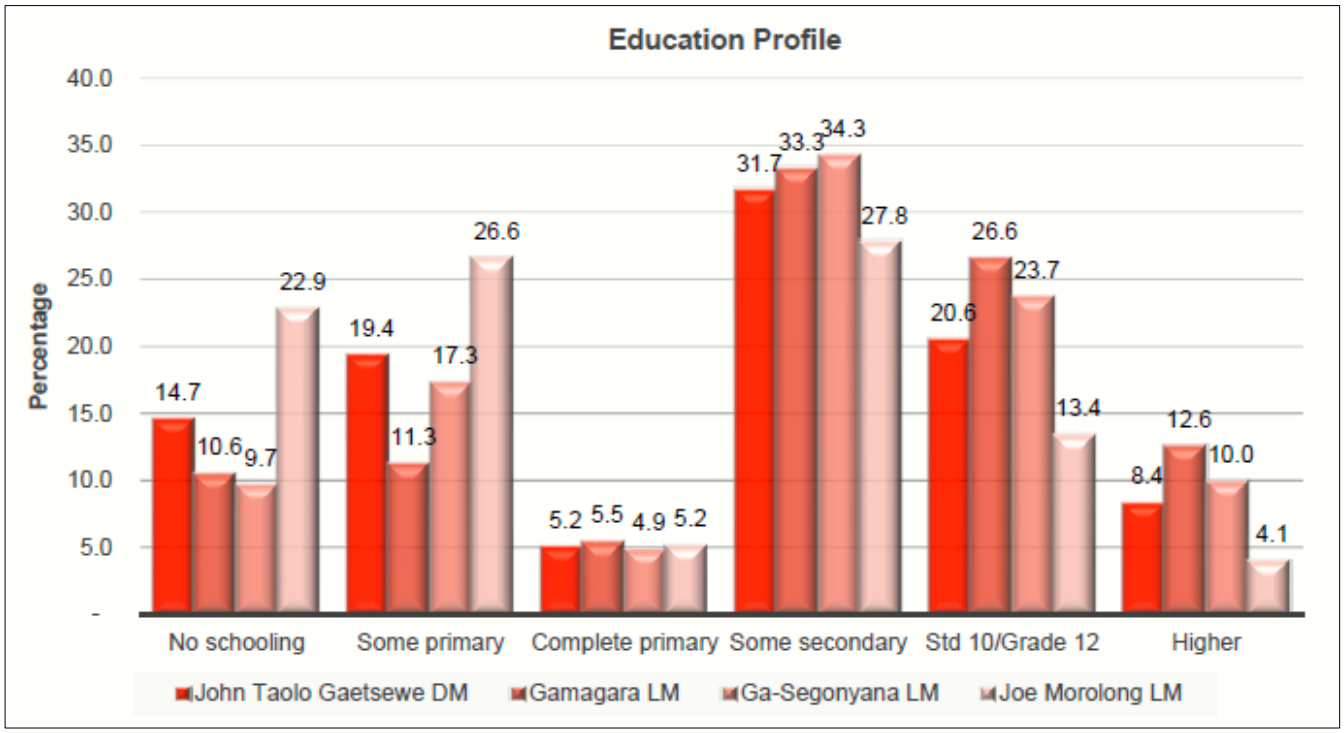

Figure 10-23: Highest level of education of population (Population Segment Aged 20 years and older)

10.13. Description of the current land uses

The predominant land use in this area is bare unused land (low shrubland) mining and agricultural. Residential areas in and around townships area also applicable.

10.14. Description of specific environmental features and infrastructure on the site

The proposed sampling activities will take place mainly in already disturbed areas such as mining residue stockpiles / excavations, tailings. Existing access roads will be used to access the site. Other existing infrastructure that will be utilised during the sampling program will vary across different farms.

10.15. Environmental and current land use map

(Show all environmental, and current land use features)

Please refer to Figure 10-24.

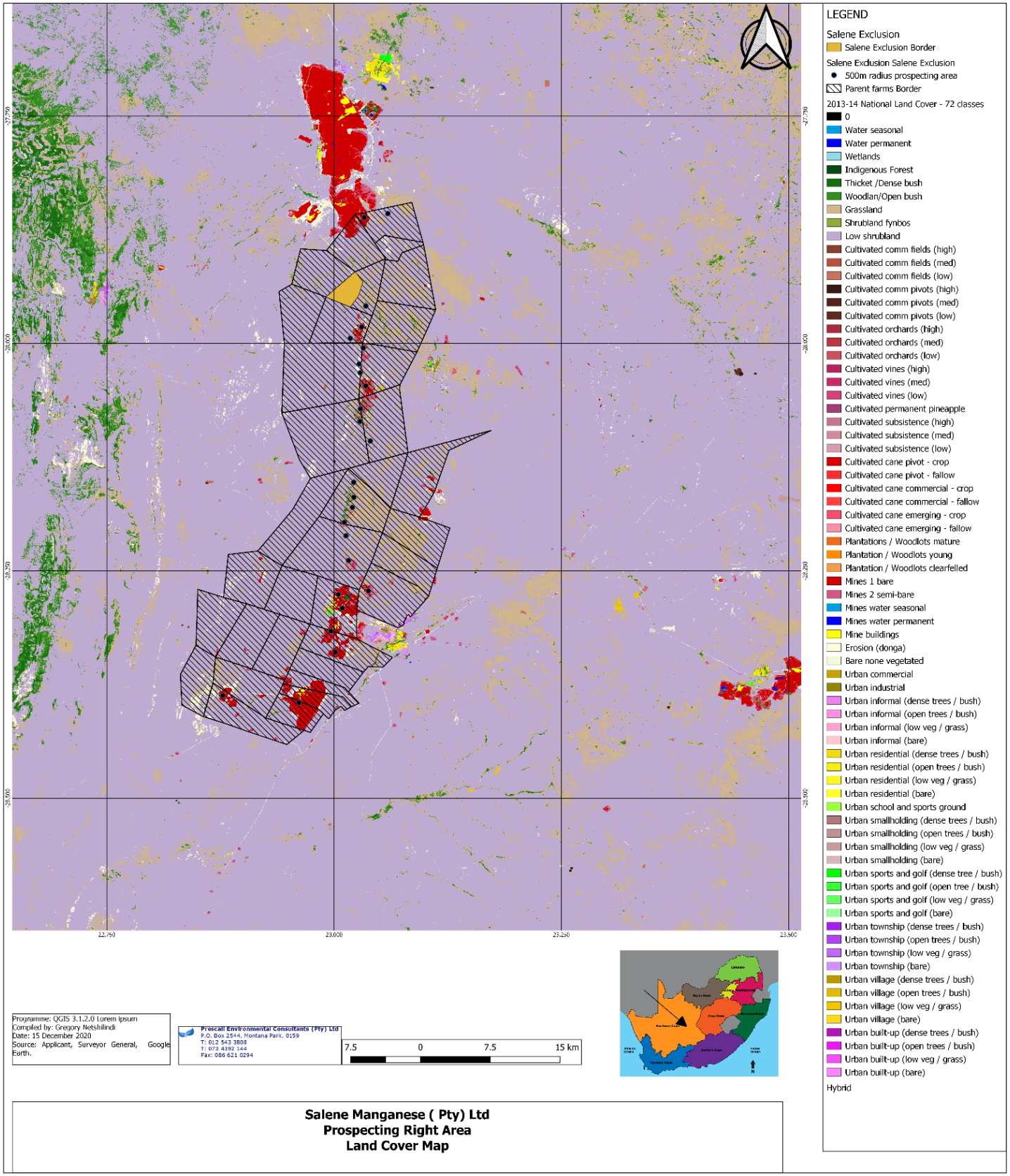

Figure 10-24: Identified land uses

11.POSITIVE AND NEGATIVE IMPACTS IDENTIFIED THAT THE PROPOSED ACTIVITY AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED

The proposed prospecting activities to be undertaken include the use of both invasive and non-invasive prospecting techniques. There will therefore be physical disturbance to selected areas within the application area although this disturbance will be limited to the identified sampling sites and not the entire application area.

Samples will be taken from existing dumps, tailings, etc. Approximately 10 samples to be collected within a radius of approximately 500 m from each of the 25 sample points that have been identified. Each surface sample will not disturb more than 1 m^2. Initial sampling collection will be done using picks and shovels.

The positive impact of the proposed activity is the discovery of economically viable mineral resources within Tsantsabane and Gamara Local Municipalities, whose economy is very dependent on the mining industry.

It should be noted that this report made available to I&AP's for review and comment and their comments and concerns will be taken into account in this BAR. Furthermore, it should be noted that the impact scores themselves will include the results of the public response and comment. Please refer to Section 11.1 for the Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.

The access roads may over time and continuous use deteriorate and become damaged. The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the topographical and geophysical surveys.

The removal of natural vegetation to accommodate the drill holes and their associated access roads may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area, at least temporarily. Access to the application area for the topographical and geophysical survey, sampling and will be required which may interrupt the existing land uses, such as grazing and residential developments. However, this impact will be minimal as it is of short duration. Provisions have been made for the rehabilitation of all areas disturbed during prospecting, including access tracks.

The prospecting activities will generate general waste during the operational phase. This waste must be collected during site visits to be disposed of at appropriate landfill sites.

A summary of the positive and negative impacts of the proposed activity are provided in below.

Table 11-1: Identified Positive and Negative Impacts

ASPECT	IMPACT	PHASE	POSITIVE/ NEGATIVE
Biodiversity	Temporary Disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	C	Negative
	Destruction of and fragmentation of portions of vegetation community (note that most of the sampling activities will take place on previously disturbed areas)	C	Negative
	Loss of CBA1 and ESA and other sections of area classed as other natural Areas	C	Negative
	Displacement of Faunal community due to temporary habitat loss, disturbance (noise, dust, and vibration) and/or direct mortalities	C	Negative
Biodiversity	Continued disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	O	Negative
	Encroachment by alien invasive plant species	Cl	Negative
	Disturbance and mortalities of reptiles and other herpetofauna due to rock and soil sampling	O	Negative
	Ongoing displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbance because of sampling.	O	Negative
	Further impacts due to the spread and/or establishment of alien and/or invasive species	O	Negative
	Displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbances such as dust, vibrations, poaching and noise.	C, O	Negative
Groundwater	Degradation of aquifers	O	Negative
	Impacts of existing groundwater users	O	Negative
Heritage Resources	Impacts on potential burial grounds and graves	C, O	Negative
	Impacts on archaeological resources	C, O	Negative
Noise	Noise nuisance	C, O	Negative

ASPECT	IMPACT	PHASE	POSITIVE/ NEGATIVE
Soil	Pollution of soil	O	Negative
Air	Air Quality	O	Negative
	Deterioration and damage to existing access roads and tracks	COD	Negative
Socio- economic	Potential job creation	COD	Positive
	Safety and security to existing landowners and lawful occupier	C, O, D	Negative
	Interference with existing land uses	C, O, D	Negative
Waste	Generation and disposal of waste	C	Negative
Soil	Erosion due to improper rehabilitation	D	Negative

11.1. 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).

11.1.1. Assessment Criteria

The criteria for the description and assessment of environmental impacts were drawn from the EIA Guidelines (DEAT, 1998) and as amended from time to time (DEAT, 2002).

The level of detail as depicted in the EIA Guidelines (DEAT, 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 11-2: Impact Assessment Criteria

EXTENT	
Classification of the physical and spatial scale of the impact	
Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
Site	The impact could affect the whole, or a significant portion of the site.
Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
National	The impact could have an effect that expands throughout the country (South Africa).
International	Where the impact has international ramifications that extend beyond the boundaries of South Africa.
DURATION	
The lifetime of the impact that is measured in relation to the lifetime of the proposed development.	
Short term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the Site Establishment phase.
Short to Medium term	The impact will be relevant through to the end of a Site Establishment phase (1.5 years).
Medium term	The impact will last up to the end of the development phases, where after it will be entirely negated.
Long term	The impact will continue or last for the entire operational lifetime i.e. exceed 30 years of the development, but will be mitigated by direct human action or by natural processes thereafter.
Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
INTENSITY	
The intensity of the impact is considered by examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. The intensity is rated as	
Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.

High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
PROBABILITY	
This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:	
Improbable	The possibility of the impact occurring is none, due either to the circumstances, design or experience. The chance of this impact occurring is zero (0 %).
Possible	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25 %.
Likely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50 %.
Highly Likely	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75 %.
Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100 %.

The status of the impacts and degree of confidence with respect to the assessment of the significance must be stated as follows:

- **Status of the impact:** A description as to whether the impact would be positive (a benefit), negative (a cost), or neutral.
- **Degree of confidence in predictions:** The degree of confidence in the predictions, based on the availability of information and specialist knowledge.

Other aspects to take into consideration in the specialist studies are:

- Impacts should be described both before and after the proposed mitigation and management measures have been implemented.
- All impacts should be evaluated for the full-lifecycle of the proposed development, including Site Establishment, operation and decommissioning.
- The impact evaluation should take into consideration the cumulative effects associated with this and other facilities which are either developed or in the process of being developed in the region.
- The specialist studies must attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.

11.1.2. Mitigation

The impacts that are generated by the development can be minimised if measures are implemented in order to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.

11.1.3. Determination of Significance-Without Mitigation

Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance is rated on the following scale:

Table 11-3: Significance-Without Mitigation

NO SIGNIFICANCE	The impact is not substantial and does not require any mitigation action.
LOW	The impact is of little importance, but may require limited mitigation.
MEDIUM	The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
HIGH	The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

11.1.4. Determination of Significance- With Mitigation

Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation is rated on the following scale:

Table 11-4: Significance-With Mitigation

NO SIGNIFICANCE	The impact will be mitigated to the point where it is regarded as insubstantial.
LOW	The impact will be mitigated to the point where it is of limited importance.
LOW TO MEDIUM	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels.
MEDIUM	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
MEDIUM TO HIGH	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
HIGH	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

11.1.5. Assessment Weighting

Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. In order to establish a defined base upon which it becomes feasible to make an informed decision, it was necessary to weigh and rank all the criteria.

11.1.6. Ranking, Weighting and Scaling

For each impact under scrutiny, a scaled weighting factor is attached to each respective impact (refer Table 11-5).

The purpose of assigning weights serves to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist's element of bias is taken into account. The weighting factor also provides a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance.

Table 11-5: Description of assessment parameters with its respective weighting

EXTENT		**DURATION**		**INTENSITY**		**PROBABILITY**		**WEIGHTING FACTOR (WF)**		**SIGNIFICANCE RATING (SR)**	
Footprint	1	Short term	1	Low	1	Improbable	1	Low	1	Low	0-19
Site	2	Short to Medium	2			Possible	2	Low to Medium	2	Low to Medium	20-39
Regional	3	Medium term	3	Medium	3	Likely	3	Medium	3	Medium	40-59
National	4	Long term	4			Highly Likely	4	Medium to High	4	Medium to High	60-79
International	5	Permanent	5	High	5	Definite	5	High	5	High	80-100

MITIGATION EFFICIENCY (ME)		**SIGNIFICANCE FOLLOWING MITIGATION (SFM)**	
High	0.2	Low	0 - 19
Medium to High	0.4	Low to Medium	20 - 39
Medium	0.6	Medium	40 - 59
Low to Medium	0.8	Medium to High	60 - 79
Low	1.0	High	80 - 100

11.1.7. Identifying the Potential Impacts Without Mitigation Measures (WOM)

Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

Equation 1:

Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x Weighting Factor

11.1.8. Identifying the Potential Impacts with Mitigation Measures (WM)

In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it was necessary to re-evaluate the impact.

11.1.8.1. Mitigation Efficiency (ME)

The most effective means of deriving a quantitative value of mitigated impacts is to assign each significance rating value (WOM) a mitigation efficiency (ME) rating (refer to *Table* 11-5).

The allocation of such a rating is a measure of the efficiency and effectiveness, as identified through professional experience and Empirical evidence of how effectively the proposed mitigation measures will manage the impact.

Thus, the lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

Equation 2:

Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency
or WM = WOM x ME

11.1.9. Significance Following Mitigation (SFM)

The significance of the impact after the mitigation measures are taken into consideration. The efficiency of the mitigation measure determines the significance of the impact. The level of impact is therefore seen in its entirety with all considerations taken into account

11.2. 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).

The mitigation measures have addressed in the Section 12 under Environmental Impact Assessment. This is the draft report and consultation is still on-going.

11.3. Motivation where no alternative sites were considered

Minerals are site specific and accordingly alternative sites were not selected for this project. The locations for the proposed sampling areas (25) were based on the potential location of existing mining impacts such as residue deposits / stockpiles / excavations. If prospecting does not indicate the desired mineral to be mined, alternative sites will be considered by the applicant. All sensitive features have been considered and will be excluded from the prospecting activities.

11.4. Statement motivating the alternative development location within the overall site

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

Since exploration is temporary in nature no permanent structures will be constructed, negotiations and agreements will be made with the farm owners / surface right users to use any existing infrastructure like accommodation for the explorers, access roads, etc. In addition to the information provided, each of the phases is dependent on the results and success of the preceding phase. The location and extent of sampling will be determined based on information derived from the surveys. Sampling sites will be selected to avoid water courses where practicable.

As discussed above, the proposed application area has been selected due to the geology of the site and the anticipated favourable tectono-stratigraphic setting of the prospect area. There are no protected areas within the application area. No prospecting will occur in close proximity to watercourses. The land or properties affected are mostly mined out areas/dumps and therefore the potential discovery of viable minerals within the application area would be beneficial in terms of the potential resuscitation of the mining activities in the area.

The impacts of the development alternative are low-medium to low and would reduce to low should the proposed mitigation measures be implemented accordingly.

11.5. 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.)

In order to identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

- The stakeholder consultation process is currently undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This is a key focus, as the local residence has capabilities of providing site specific information, which may not be available in desktop research material. Stakeholders are requested to provide their views on the project and any potential concerns which they may have. All comments and concerns are captured and formulated into the impact assessment.
- A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:
  - Detailed mapping based on existing data sources applicable to the study area;
  - Geographic Information System base maps;
  - Literature and existing data/reports for the study area
- A site visit will be conducted to ensure that the information gathered as part of the desktop investigation reflects the current status of the land.
- The ratings of the identified impacts were undertaken in a quantitative manner as provided in Impact Assessment Section. The ratings were undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views.
- The identification of management measures are done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

12. 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).

ASPECT	IMPACT	EXTENT		DURATION		INTENSITY		PROBABILITY		WEIGHTING FACTOR		SIGNIFICANCE		MITIGATION EFFICIENCY		SIGNIFICANCE WITH MITIGATION	
Biodiversity	Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	Footprint	1	Short term	1	Low	1	Likely	3	Low to medium	2	Low	12	Medium to high	0,4	Low	4,8
	Destruction of and fragmentation of portions of vegetation community (note that most of the sampling activities will take place on previously disturbed areas)	Site	2	Short term	1	Low	1	Possible	2	Low to medium	2	Low	12	Medium to high	0,4	Low	4,8
	Loss of CBA1 and ESA and other sections of area classed as other natural Areas	Site	2	Short to Medium term	2	Low	1	Possible	2	Low to medium	2	Low	14	High	0,2	Low	2,8
	Displacement of Faunal community due to temporary habitat loss, disturbance (noise, dust, and vibration) and/or direct mortalities	Site	2	Short term	1	Medium	3	Likely	3	Low to medium	2	Low	18	Medium to high	0,4	Low	7,2
Biodiversity	Continued disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles	Footprint	1	Short to Medium term	2	Low	1	Possible	2	Low to medium	2	Low	12	Medium to high	0,4	Low	4,8
	Encroachment by alien invasive plant species	Footprint	1	Medium term	3	Low	1	Possible	2	Low to medium	2	Low	14	Medium	0,6	Low	8,4
	Disturbance and mortalities of reptiles and other herpetofauna due to rock and soil sampling	Site	2	Short to Medium term	2	Low	1	Likely	3	Low to medium	2	Low	16	Medium to high	0,4	Low	6,4

ASPECT	IMPACT	EXTENT		DURATION		INTENSITY		PROBABILITY		WEIGHTING FACTOR		SIGNIFICANCE		MITIGATION EFFICIENCY		SIGNIFICANCE WITH MITIGATION	
	Ongoing displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbance because of sampling.	Site	2	Short term	1	Low	1	Possible	2	Low to medium	2	Low	12	Medium to high	0,4	Low	4,8
	Further impacts due to the spread and/or establishment of alien and/or invasive species	Site	2	Medium term	3	Low	1	Possible	2	Low to medium	2	Low	16	High	0,2	Low	3,2
	Displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbances such as dust, vibrations poaching and noise.	site	2	Short to Medium term	2	Low	1	Possible	2	Low to medium	2	Low	14	High	0,2	Low	2,8
Groundwater	Degradation of aquifers	Regional	3	Medium term	3	Low	1	Possible	2	Low to medium	2	Low	18	Medium to high	0,4	Low	7,2
	Impacts of existing groundwater users	Regional	3	Medium term	3	Low	1	Possible	2	Low to medium	2	Low	18	Medium	0,6	Low	11
Heritage Resources	Impacts on potential burial grounds and graves	Site	2	Short to Medium term	2	Low	1	Possible	2	Low to medium	2	Low	14	High	0,2	Low	2,8
	Impacts on archaeological resources	Site	2	Short to Medium term	2	Low	1	Possible	2	Low	1	Low	7	High	0,2	Low	1,4
Noise	Noise nuisance	Site	2	Short to Medium term	2	Low	1	Likely	3	Low to medium	2	Low	16	Medium to high	0,4	Low	6,4
Soil	Pollution of soil	Site	2	Short to Medium term	2	Low	1	Possible	2	Low	1	Low	7	High	0,2	Low	1,4
Air	Air Quality	Site	2	Short to Medium term	2	Low	1	Likely	3	Low to medium	2	Low	16	Medium	0,6	Low	9,6

ASPECT	IMPACT	EXTENT		DURATION		INTENSITY		PROBABILITY		WEIGHTING FACTOR		SIGNIFICANCE		MITIGATION EFFICIENCY		SIGNIFICANCE WITH MITIGATION	
	Deterioration and damage to existing access roads and tracks	Regional	3	Medium term	3	Low	1	Likely	3	Low to medium	2	Low to medium	20	High	0,2	Low	4
Socio-economic	Potential job creation	National	4	Medium to long term	4	Medium	3	Likely	3	Medium	3	Medium	42	n/a		Medium	42
	Safety and security to existing landowners and lawful occupier	Regional	3	Medium term	3	Medium	3	Possible	2	Low to medium	2	Low to medium	22	Medium to high	0,4	Low	8,8
	Interference with existing land uses	Site	1	Medium term	3	Medium	3	Possible	2	Low to medium	2	Low	18	Medium	0,6	Low	10,8
Waste	Generation and disposal of waste	Site	2	Short term	1	Low	1	Possible	2	Low	1	Low	6	High	0,2	Low	1,2
Soil	Erosion due to improper rehabilitation	Footprint	1	Short term	1	Low	1	Possible	2	Low to medium	2	Low	10	High	0,2	Low	2

13.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.
No specialists were appointed for this project and all information is based on available documentation for the area			

14.ENVIRONMENTAL IMPACT STATEMENT

14.1. Summary of the key findings of the environmental impact assessment

The findings are that the proposed prospecting activities will result in low to medium impact for all aspects of the physical and socio-economic environment. Low impacts in terms of disturbances such as dust, lighting and noise may arise from the sampling activities. All-natural areas including watercourses/wetlands and primary vegetation should be excluded from sampling sites; all historical features such as buildings and graves/graveyards should be excluded from sampling sites. There is a risk of hydrocarbon pollution due to leakage from vehicles and machinery, but this can be managed and mitigated to acceptable levels.

Monitoring of the required mitigation measures is to take place on site at a continuous basis by the project manager, contractors and ECO. Annual monitoring audits are to take place by an appointed independent environmental assessment practitioner.

14.1.1. 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. Attach as Appendix 4

Figure 14-1 shows the location of the 25 sampling sites where about 10 samples will be taken from each sampling site within a 500 m radius. The exact location of sampling points cannot be pinpointed as the prospecting activities are conducted in phases, and each phase depends on the success of the previous phase. Should drilling be needed for phase two, the drill points will be identified after the sampling phase have confirmed the presence of the ore body. The sensitive areas will be identified during the planning phase of the project and no activities will be undertaken at any sensitive area. A detailed map can be produced after the sampling surveys has been undertaken, although the map will be subjected to changes depending on the results of the preliminary sampling.

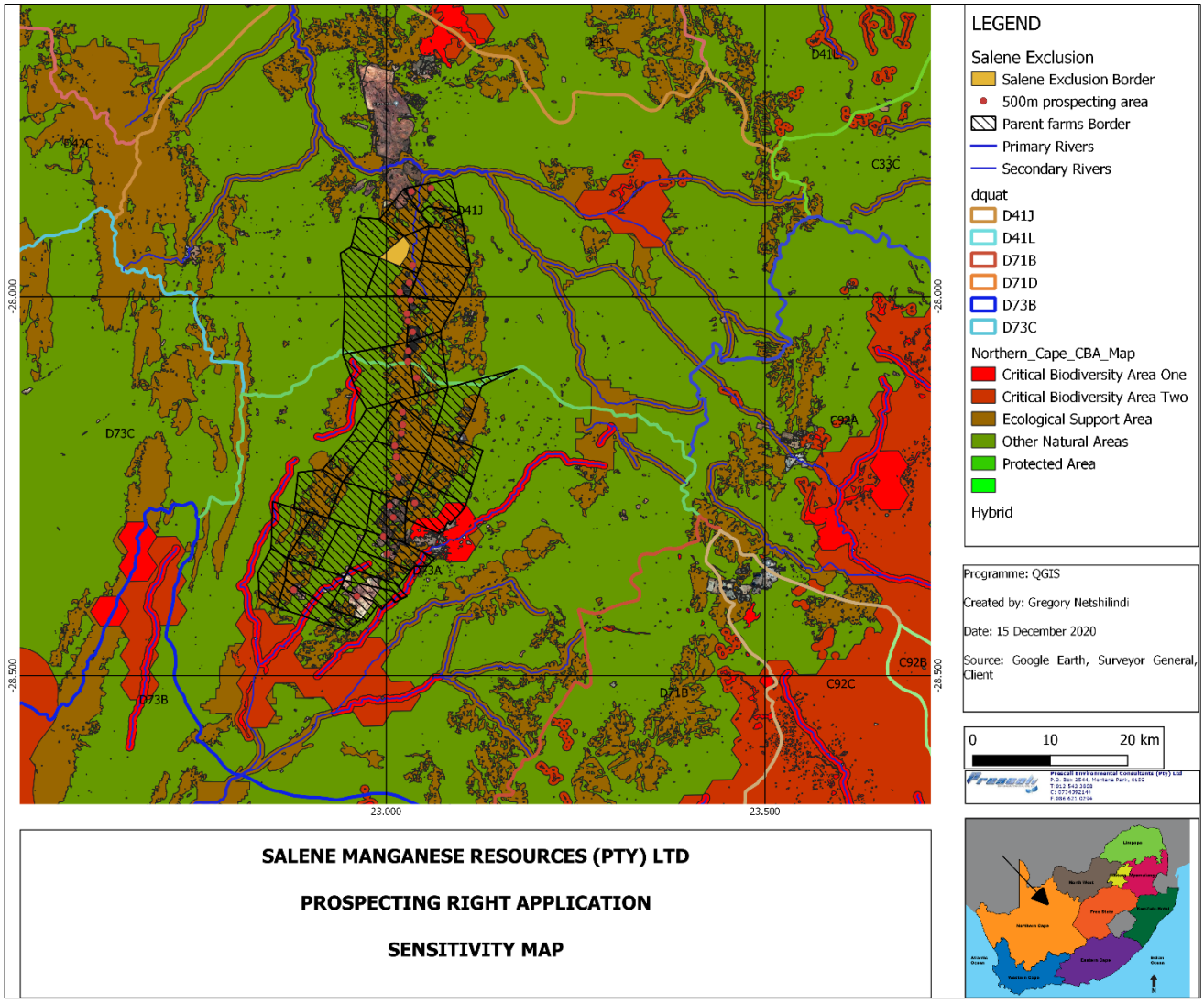

Figure 14-1: Final Site Map showing location of the 500m radius prospecting area within the proposed prospecting area superimposed on critical biodiversity, surface water and quaternary catchment areas

14.1.2. Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Refer to Table 11-1 which highlights all the positive and negative impacts for the proposed prospecting activities. The proposed activities have low significance since these are short term activities, however socio-economic impacts such as employment has a medium significance. The probability of occurrence of an impact was determined and most of these activities can be controlled and impacts can be reduced or avoided. Generally prospecting activities have low impact on the environment. The planned activities negative impacts can be controlled and avoided or minimised therefore the layout does not require revision. Mitigation measures will be utilised to control, avoid and/or minimise all identified potential impacts.

15.PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

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

Impact management objectives are described in terms of the Mitigation Hierarchy of Prescali Environmental Consultant Impact Assessment Standard. The mitigation hierarchy is as follows:

- **Avoid at Source:** Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by placing or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).
- **Abate on Site:** add something to the design to abate the impact (e.g., pollution control equipment, installation of noise silencers, operate in daylight hours).

- **Abate at Receptor:** if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).
- **Repair or Remedy:** some impacts involve unavoidable damage to a resource (e.g. agricultural land due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.
- **Compensate in Kind; Compensate Through Other Means:** where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of resources, recreation and amenity space)

The EMPr will seek to achieve a required end state and describe how activities could have an adverse impact on the environment will be mitigated, controlled and monitored. The EMPr will address the environmental impacts during the Site Establishment, Operational, and Decommissioning Phases of the proposed project. Due regard will be given to environmental protection during the entire project. A number of environmental recommendations will therefore be made to achieve environmental protection. The environmental and social objectives will be set to allow prospecting in an environmental and socially responsible manner while ensuring that sustainable closure can be achieved. To achieve closure, the correct decisions need to be taken during the planning phase of the project.

The overall goal for environmental management for the proposed is to manage and operate the project in a manner that:

- Minimises the ecological footprint of the project on the local environment;
- Facilitates harmonious co-existence between the project and other land uses in the area;
- Contributes to the environmental baseline and understanding of environmental impacts of Prospecting activities in a South African context.

The following environmental management objectives are recommended for the proposed mineral prospecting development and associated infrastructure:

- Monitor soils so as to avoid unnecessary erosion, and implement erosion control measures to preserve the quality of the soil for rehabilitation;
- Development planning must restrict the area of impact to minimum and designated areas only;
- Monitor and prevent contamination, and undertake appropriate remedial actions;
- Limit the visual and noise impact on receptors;
- Avoid impact on possible heritage and archaeological resources;
- Ensure that accurate information regarding the prospecting activities to be undertaken and the resultant lack of requirements for site access and labour is communicated to I&APs;
- Prevent the unnecessary destruction of, and fragmentation, of the vegetation community (including portions of a CBA1, CBA2 and ESA and a section classed as high and highest biodiversity importance);
- Adhere to an open and transparent communication procedure with stakeholders at all times;
- Enhance project benefits and minimise negative impacts through consultation with stakeholders;
- To limit interference with existing land uses as far as possible during prospecting;
- Limit the impact on the groundwater and surface water features through the implementation of the EMPr and the impact mitigation measures;
- Promote health and safety of workers; and
- Limit dust and other emissions to within allowable limits.

16. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

Any aspects which must be made conditions of the Environmental Authorisation

Refer to Section 18.2 for the main management measures that should be included in the authorisation. In addition, the appointed contractors should adhere and be compliant with the health and safety requirements of the different mining areas in which the sampling will be conducted. Should drilling be required the correct procedure will be followed to obtain the required permissions and work instructions from the relevant surface occupiers. **Drilling will only be considered once sampling proves successful. This BAR only covers sampling activities. Should drilling be considered, an amendment to the environmental authorization will be applied for**

17. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

- The EAP does not accept any responsibility in an event that additional information comes to light at a later stage of the process;
- All information provided by the EAP was correct at the time it was provided;
- The data from unpublished researches is valid and accurate;
- The scope of this investigation is limited to accessing the potential environmental impacts associated with the proposed project;
- The public participation process has sought to involve key stakeholders and individual landowners. It is assumed that where participation has been sought from the organisational representative/s, that these parties have the authority to comment on behalf of their organisation;
- Third party information provided by the applicant is correct at the time of writing this report;
- Prospecting activities will take place in phases and each phase is determined and dependent on the previous phase. Accordingly, the final drilling locations will only be determined later and an application for an amendment of the environmental authorisation will be lodged.

18.REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

18.1. Reasons why the activity should be authorized or not.

No fatal flaws were identified in terms of this project as long as the mitigation and recommendations proposed are adhered to. The impact assessment indicated no critical issues that cannot be lowered to an acceptable level through the suggested mitigation measures, resulting in a fatal flaw. All sensitive areas identified throughout the process will be excluded from the proposed development.

It is recommended by the EAP that the proposed prospecting could be authorised, on the assumption that the environmental and social management commitments included in this BA/EMPr are adhered to, the project description remains as per the description provided in this document and considering the positive social impacts associated with the project. It should also be ensured that proper rehabilitation is provided for and that risks are controlled by having emergency plans in place.

It is therefore the opinion of the EAP that the proposed activity should be authorised.

18.2. Conditions that must be included in the authorisation

Salene Manganese (Pty) Ltd should comply with all Environmental legislations. Specific environmental legislation to be adhered to include; National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended in 2017 and Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA)

- Access agreements will be entered into with all holders of existing Mining Rights in order to comply with respective access and MHS standards.
- Notice must be given to landowners and surrounding landowners 1 month prior to any prospecting activities being conducted on their areas of responsibility;
- Landowners and land occupiers should be engaged at least 1 month prior to any site activities being undertaken;
- A map detailing the sampling locations should be provided to the landowners as well as the DMRE prior to commencement of prospecting activities;
- A record must be kept of the implementation of the EMPr measures and monitoring of the efficiency of the implemented measures;
- Measures and recommendations suggested by specialist should be followed;
- An Environmental Control Officer should be appointed to do regular monitoring as suggested in the EMPr;
- In the unlikely event that graves are identified, these should be protected *in situ* and a 30 m buffer area should be applied where no prospecting activities may take place;
- All wetlands and watercourses should be protected *in situ* and a 30m buffer area should be applied where no prospecting activities may take place;
- The combined sensitivity map should be followed where no activity may take place within highly sensitive areas; and
- Rehabilitation should take place immediately after work has ceased and should be done in a responsible manner.

19. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The Prospecting Right has been applied for a period of five (5) years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

20. 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 EAP undertakes that the information provided is correct, and that the comments and inputs from stakeholders and Interested and Affected parties have been correctly recorded in the report.

21. FINANCIAL PROVISION

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

The preliminary estimate of the rehabilitation cost is (inclusive of contingencies and VAT): **R 25 941**.

Table 21-1: Quantum calculations

CALCULATION OF THE QUANTUM

Applicant:	**SALENE MANGANESE (PTY) LTD**	**Ref No.:**	**NC 30/5/1/1/2/12630 PR**
EAPs:	**PRESCALI ENVIRONMENTAL CONSULTANTS (PTY) LTD**	**Date:**	**Dec-20**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	**Dismantling of processing plant and related structures (including overland conveyors and powerlines)**	**m3**	**0**	**6,82**	**1**	**1**	**0**
2 (A)	**Demolition of steel buildings and structures**	**m2**	**0**	**95**	**1**	**1**	**0**
2(B)	**Demolition of reinforced concrete buildings and structures**	**m2**	**0**	**140**	**1**	**1**	**0**
3	**Rehabilitation of access roads**	**m2**	**1000**	**17**	**1**	**1**	**17000**
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	165	1	1	**0**
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	90	1	1	**0**
5	**Demolition of housing and/or administration facilities**	**m2**	**0**	**190**	**1**	**1**	**0**
6	**Opencast rehabilitation including final voids and ramps**	**ha**	**0**	**96700**	**1**	**1**	**0**
7	**Sealing of shafts adits and inclines**	**m3**	**0**	**51**	**1**	**1**	**0**
8 (A)	**Rehabilitation of overburden and spoils**	**ha**	**0**	**66400**	**1**	**1**	**0**
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	82700	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	240200	1	1	**0**
9	Rehabilitation of subsided areas	ha	0	55600	1	1	**0**
10	**General surface rehabilitation**	**ha**	**0,025**	**52600**	**1**	**1**	**1315**
11	River diversions	ha	0	52600	1	1	**0**
12	**Fencing**	**m**	**0**	**60**	**1**	**1**	**0**
13	**Water management**	**ha**	**0**	**20000**	**1**	**1**	**0**
14	**2 to 3 years of maintenance and aftercare**	**ha**	**0,025**	**7000**	**1**	**1**	**175**
15 (A)	**Specialist study**	**Sum**	**0**	**65000**	**1**	**1**	**0**
15 (B)	Specialist study	Sum	0	0	1	1	**0**
					Sub Total 1		**18490**
1	Preliminary and General		2218,8		**weighting factor 2** 1		**2218,8**
2	Contingencies		1849				**1849**
					Subtotal 2		**22557,80**
					VAT (15%)		**3383,67**
					Grand Total		**25941**

21.1. Explain how the aforesaid amount was derived.

The Regulations Pertaining to the Financial Provision for Prospecting, Mining or Production Operations promulgated under section 44(aE), (aF), (aG), (aH) read with sections 24(5)(b)(ix), 24(5)(d), 24N, 24P and 24R of the National Environmental Management Act, 1998 (Act No.107 of 1998) (20 November 2015) have been considered and this is anticipated to result in an increase in the rehabilitation costs estimated using above mentioned quantum.

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

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

The Applicant has direct access to sufficient financial resources required as per the budget to enable it to conduct the proposed prospecting operation optimally in accordance with the Prospecting Work Program. The applicant has provided proof of financial ability during the application phase on the DMR SAMRAD system.

22.SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

22.1. 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: -

22.1.1. 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.

Current land uses inside the prospecting area, such as existing mining areas, mined out areas, grazing, may be temporarily impacted. These are however, small areas. These areas will be rehabilitated post sampling and activities and the areas will once again become available for grazing. The farmers may have issues like leaving the gates open which poses security concerns and opening of many access roads.

The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities; however, the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the sampling and phase.

The consultation process will allow directly affected parties to raise their concerns. Further to this, it must be noted that I&AP's, including directly affected parties such as landowners, have the opportunity to review and comment on this report. The results of the public consultation have been included in the final report submitted to the department for adjudication.

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

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

Mitigation measures proposed in this report include that no sample site will be located within 30 m of any identified heritage site (which may occur during the prospecting programme) based on the desktop work undertaken. Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA is contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA.

22.1.3. 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)**.

This Draft BAR and EMPr has been compiled in accordance with the NEMA (1998), EIA Regulations (2014, amended April 2017) and MPRDA (2002). The EAP managing the application confirms that this BAR and EMPr is being submitted for Environmental Authorisation in terms of the National Environmental Management Act, 1998 in respect of listed activities that have been triggered by application in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (as amended). Should the DMRE require any additional information, this will be provided upon request. No reasonable or feasible alternatives exist for this Prospecting Right Application and as such, motivation for no alternatives has been provided in the relevant sections above**.**

PART B
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1 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).

The details of the EAP are provided in section 1.1 of part A of this document.

23. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

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

The requirement to describe the aspects of the activity that are covered by the final environmental management programme is already included in PART A.

24. 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)

Refer to Figure 14-1 and Appendix 4.

25. DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

25.1. Determination of closure objectives.

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

- Rehabilitation of areas disturbed as a consequence of prospecting to a land capability that will support and sustain a predetermined post-closure land use;
- Removal of all infrastructure/equipment that cannot be beneficially re-used, as per agreements established, and returning the associated disturbed land to the planned final land use;
- Removal of existing contaminated material from affected areas;
- Establishment of final landforms that are stable and safe in the long run;
  Establishment and implementation of measures that meet specific closure related performance objectives.

Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

25.2. Volumes and rate of water use required for the operation.

It is unlikely that water will be required for the initial sampling.

25.3. Has a water use licence has been applied for?

No, a WULA is not required. The volume of water to be used during prospecting activities will not trigger any NWA listed activities. The Department of Water and Sanitation will be consulted as a project stakeholder.

26.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	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Site Clearance	Site Establishment and Operation	0.025 Ha, short term and localized	• Demarcation of sensitive areas in consultation with relevant specialists and ECO; • Utilise local labour if possible; • Minimise removal of vegetation as far as possible; • Identification and relocation of protected species by a qualified ecologist (and application or the relevant biodiversity permits where required); • Minimize dust generation; • Limit vehicle access; • Implement alien vegetation management; • Ongoing identification of risks and impacts; • Emergency preparedness; • Monitoring and review; and • Avoid disturbance of fauna as much as possible, especially bird nesting sites	NEMA, MPRDA, NEMBA, NEMAQA, Dust regulations, NWA, DWAF Best Practice Guideline	Throughout Site Establishment and operation
Site Access	Site Establishment Operation	115 330 Ha, short term and localized	• All employees and visitors to the site must undergo a site induction which shall include basic environmental awareness and site-specific environmental requirements; • Landowners/lawful occupiers must be notified prior to accessing properties. A date and time that is suitable to landowners/lawful occupiers and is reasonable to the applicant should be negotiated and agreed upon; • The number, identity of workers, work location and work to be done must be provided to the landowner/lawful occupier prior to going on site; • Consideration must be taken by the applicant and/or contractors when on site not to interfere with the existing land uses and practices.	NEMA, OHS and MHSA	Throughout Site Establishment and operation
Establishment of site infrastructure	Site Establishment	0.1 ha short term and localised	• Minimise physical footprint of site establishment; • Ensure Site Establishment is consistent with occupational health and safety requirements; • Minimise vegetation clearance;	NEMA, MPRDA, NEMBA, NEMAQA, Dust regulations, NWA, DWAF Best	Throughout Site Establishment and operation

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Ensure proper and adequate drainage; • Minimise waste and control waste disposal; • Establish waste storage areas for recycling; • Ensure adequate containment of waste to prevent pollution; • Minimise dust generation; Limit vehicle access to approved access roads; • Prepare contingency plans for spillage and fire risks.	Practice Guidelines	
Storage of vehicles	Site Establishment	0.1 ha short term and localised	• Any equipment that may leak, and does not have to be transported regularly, must be placed on watertight drips trays to catch any potential spillages of pollutants. The drip trays must be of a size that the equipment can be placed inside it; • Drip trays must be cleaned regularly and shall not be allowed to overflow. All spilled hazardous substances must be collected and adequately disposed of at a suitably licensed facility; and • Compacting of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed exploration sites to reduce the compaction of soils.	NEMA, NEMBA, CARA, NEMAQA, Dust Regulations, Road Traffic Act	Throughout Site Establishment and operation
Transportation/ access to and from sampling sites	Site Establishment and operation	0.15 Ha, short term and localized	• Where possible, sampling sites should be located along existing access roads to reduce the requirement for additional access roads; • Any new temporary access routes to a sample site should result in minimal disturbance to existing vegetation; • Prior to accessing any portion of land, the Applicant must enter into formal written agreements with the affected landowner. This formal agreement should additionally stipulate landowners' special conditions which would form a legally binding agreement; All farm gates must be closed immediately upon entry/exit; • Under no circumstances may the contractor damage any farm gates, fences, etc.; • On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic (where relevant); • All Site Establishment and vehicles using public roads must be in a roadworthy condition and their loads secured. They must adhere to the speed limits and all local, provincial and national regulations with regards to road safety and transport;	NWA, NEMWA, NEMA, DWAF Best Practice Guideline	Throughout Site Establishment and operation

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Damage caused to public roads as a result of the Site Establishment activities must be repaired in consultation with the relevant municipal authorities; and • All measures should be implemented to minimize the potential of dust generation.		
Storage of hazardous substances	Site Establishment and Operation	0.1 ha, Short term and localised	• All hazardous substances (e.g., fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner so as to prevent pollution of the environment or harm to people or animals. • Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill in a way that does not pose any danger of pollution even during times of high rainfall; • Hazardous substances must be confined to specific and secured areas, and stored at all time within bunded areas; • Adequate spill prevention and clean-up procedures should be developed and implemented during the prospecting activities; and • Should any major spills of hazardous materials take place, such should be reported in terms of the Section 30 of the NEMA.	NWA, NEMWA, DWAF Best Practice Guideline, NEMA	Throughout Site Establishment and operation
Waste Management	Site Establishment and Operation	Short-medium term. Localized	• Waste generated on site must be recycled as far as possible. Recyclable waste must not be stored on site for excessive periods to reduce risk of environmental contamination; and • A Waste Management System must be implemented, and provide for adequate waste storage (in the form of enclosed containers) waste separation for recycling, and frequent removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility. No waste material is to be disposed of on site.	DWAF Minimum requirements for waste disposal, NEMWA	Throughout Site Establishment and operation
Sampling	Site Establishment, operation and decommissioning	0.025 Ha	• Vegetation clearing for prospecting sites should be kept to a minimum in order to reduce the disturbance footprint; • Compaction of soil must be avoided as far as possible, and the use of heavy machinery must be restricted in areas outside of the proposed prospecting sites to reduce the compaction of soils; • All measures should be implemented to minimize the potential of dust generation; • Local residents should be notified of any potentially noisy activities or work and these activities should be undertaken at	SANS 10103, ECA Noise Regulations, NEMAQA, Dust Regulations, NWA	Throughout Site Establishment and operation and decommissioning

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			reasonable times of the day. These works should not take place at night or on weekends; • Noise attenuation on engines must be adequate, and the noisy activities must be restricted as far as is possible to times and locations whereby the potential for noise nuisance is reduced; • Ensure proper storage of fuels; • On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental disturbance to the soil and vegetation on site, and to minimize disruption of traffic; • Workforce should be kept within defined boundaries and to agreed access routes; • No invasive prospecting activities to be undertaken within 500 m of a watercourse; • Should any watercourse be affected, then the necessary water use licences should be obtained from the Department of Water and Sanitation; • No ablution or site laydown areas are to be located within 500 m of a watercourse; and • Where drinking water/ livestock watering boreholes are to be affected, and where a pollution event occurs at a particular borehole, then the advice of a geohydrologist should be sought with regards to the need for plugging and casing of the prospecting boreholes.		
Prospecting	Site Establishment and Operation	115 330 ha, short term	• Workers must be easily identifiable by clothing and ID badges. Workers should carry with them, at all times a letter from the applicant stating their employment, title, role and manager contact details.	OHS and MHSA	Throughout Site Establishment and operation
Sampling	Planning, Site Establishment and Operation	0.025 ha, short term	• Local residents (landowners and directly adjacent landowners) should be notified of any potentially noisy activities or work and these activities should be undertaken at reasonable times of the day. This work should not take place at night or on weekends; • The contractor must attempt to restrict noisy activities as far as is possible to times and locations whereby the potential for noise nuisance is reduced; • On-site vehicles must be limited to approved access routes and areas on the site so as to minimize excessive environmental	MPRDA, Regulations GN R527, SANS 10103, ECA Noise Regulations ,NEMAQA, Dust Regulations, NWA DWAF BPG, NHRA	Planning Phase Throughout Site Establishment and operation

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			disturbance to the soil and vegetation on site, and to minimize disruption of traffic; • Workforce should be kept within defined boundaries and to agreed access route; • Should any artefacts be uncovered during the Site Establishment phase, these must be handled in accordance with the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA); and • If a possible heritage site (including graves) or artefact is discovered during Site Establishment, all operations in the vicinity of the discovery (at least 30 m buffer) should stop and a qualified specialist contracted to evaluate and recommend appropriate actions; • Any spills of hydrocarbons or fluids used during operation, must be cleaned up immediately; and • Soils in sampling areas where disturbances will be encountered must be stripped and stockpiled outside affected areas for use after completion of the sampling program.		
Refuelling	Site Establishment and Operation	Short term and localized	• Refuelling may only take place within demarcated areas that is subject to appropriate spill prevention and containment measures refuelling and transfer of hazardous chemicals and other potentially hazardous substances must be carried out so as to minimize the potential for leakage and to prevent spillage onto the soil; and • Drip trays should be utilized in relevant locations (inlets, outlets, points of leakage, etc.) during transfer so as to prevent such spillage or leakage. Any accidental spillages must be contained and cleaned up promptly.	NWA, DWAF BPG	Throughout Site Establishment and operation
Maintenance and repair	Site Establishment and Operation	Short term and localized	• Trucks, machinery and equipment must be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks must be cleaned up immediately using spill kits or as per the emergency response plan. For large spills a hazardous materials specialist shall be utilized; • Accidental hydrocarbon spillages must be reported immediately, and the affected soil should be removed, and rehabilitated or if this is not possible, disposed of at a suitably licenced waste disposal facility	NWA, DWAF BPG, NEMA	Throughout Site Establishment and operation

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Removal of Waste	Decommissioning	Small scale and localized	• Any excess or waste material or chemicals, including domestic waste etc. must be removed from the site and must preferably be recycled and • Any waste materials or chemicals that cannot be recycled must be disposed of at a suitably licensed waste facility	NWA, DWAF BPG	Decommissioning
Rehabilitation	Rehabilitation	All disturbed areas	• Restoration and rehabilitation of disturbed areas must be implemented as soon as prospecting activities are completed; • Sites must be restored to the original condition with vegetation cover (where applicable) equalling the surrounding vegetation cover; • All debris and contaminated soils must be removed and suitably disposed of; • Contours and natural surrounding must be reformed; • Natural drainage patterns must be restored; • Temporary access routes/roads must be suitably rehabilitated; and • Sites must be monitored by the ECO (including relevant specialist's inputs if, necessary) for adequate rehabilitation until the desired rehabilitation objectives have been achieved.	MPRDA, Rehab Plan, NEMA	Rehabilitation
Consultation	Planning, Site Establishment, operation and decommissioning phase.	Landowners and surrounding landowners/ lawful occupiers	• Stakeholder engagement will continue throughout the prospecting activities to ensure the community and landowners are kept informed and allowed to raise issues. The Applicant shall attend applicable community meetings with the affected communities. Any issues raised will then be addressed through a grievance mechanism.	NEMA, OHS and MHSA	Planning Phase Throughout Site Establishment and Operation

27.IMPACT MANAGEMENT ACTIONS AND OUTCOMES

Table 27-1: Summary of Impact Management Actions and Outcomes

ACTIVITIES	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Site Clearance	Site Establishment and Operation	• Deterioration and damage to existing access roads and tracks; • Dust generation; • Clearance of vegetation; • Invasion by alien species;	• Topography; • Soil; • Air Quality; • Surface Water; • Groundwater;	Avoid and control through implementation of EMP mitigation measures (e.g.	NEMA, NEMBA, CARA, Threatened or Protected Species (TOPS)

ACTIVITIES	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		• Sedimentation Erosion • Impact on Fauna; • Sampling impact on heritage resources; and • Loss of fossil heritage.	• Transportation	speed limit enforcement, vehicle maintenance)	regulations, NEMAQA
Site Access	Site Establishment Operation	• Interference with existing land uses Safety and security risks to landowners and lawful occupiers; • Deterioration and damage to existing access roads and tracks; • Dust generation; • Clearance of vegetation; and • Pollution of soils Contamination on surface and ground	• Topography; • Soil disturbance; • Fauna and Flora; • Air Quality; • Surface Water; • Groundwater; • Socioeconomics	Avoidance and control through preventative measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	NEMA, MPRDA, NEMBA, CARA, Threatened or Protected Species (TOPS) regulations, NEMAQA, Dust regulations, NWA, DWAF best Practice Guidelines
Establishment of site infrastructure	Site Establishment	• Interference with existing land uses Safety and security risks to landowners and lawful occupiers; • Deterioration and damage to existing access roads and tracks; • Dust generation; • Clearance of vegetation; • Pollution of soils Contamination on surface and ground	• Topography; • Soil disturbance; • Fauna and Flora; • Air Quality; • Surface Water; • Groundwater; • Socioeconomics	Avoidance and control through preventative measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	NEMA, MPRDA, NEMBA, CARA, Threatened or Protected Species (TOPS) regulations, NEMAQA, Dust regulations, NWA, DWAF best Practice Guidelines
Storage of vehicles	Site Establishment	• Pollution of surface and groundwater resources from potential hydrocarbon spills; and • Compaction of soils.	• Surface water; • Groundwater; • Soils.	Avoid through implementation of EMP mitigation measures (e.g. communication with landowners) Control through implementation of ESMS	Protected Species (TOPS) regulations, NEMAQA, Dust regulations, NWA, DWAF best Practice Guideline
Transportation/access to and from sampling sites	Site Establishment and operation	• Soil compaction; • Disturbance and Loss of fauna and flora; • Wearing and tearing of existing roads; and • Dust generation from increased traffic.	• Soil disturbance; • Fauna and Flora; • Air quality.	Avoid and control through implementation of EMP mitigation measures (e.g.	NEMA, NEMBA, CARA, Threatened or Protected Species (TOPS) regulations,

ACTIVITIES	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				speed limit enforcement, vehicle maintenance)	NEMAQA, Dust regulations, NWA, DWAF best Practice Guidelines
Storage of hazardous substances	Site Establishment and Operation	• Potential hydrocarbon spills that could pollute surface and ground water resources.	• Surface water; • Groundwater.	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	NEMA, NEMBA, NWA, DWAF best Practice Guidelines
Waste Management	Site Establishment and Operation	• Pollution of habitats and surrounding areas.	• Pollution	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	DWAF minimum requirement for waste disposal
Prospecting boreholes	Site Establishment, operation and decommissioning	• Vegetation clearance; • Possible erosion; • Changes in drainage and surface hydrology; • Soil disturbance and compaction; • Emissions from vehicles; • Land use conflict; • Noise disturbance due to acoustic sources; • Dust generation; • Potential spills of hydrocarbons; • Influx of people; impact on heritage resources Loss of fossil heritage.	• Ecology; • Topography; • Access/footprint; • Soil disturbance; • Noise; • Air Quality; • Socio economics; Groundwater	Control through implementation of EMPR mitigation measures	SANS10103, ECA, Noise Regulations, NEMAQA, Dust regulations, NWA
Sampling	Operation	• Vegetation clearance Removal of topsoil; • Changes in drainage and surface hydrology; • Drainage and soil contamination; • Land use conflict; • Dust generation; • Disturbance of wildlife and communities in close vicinity;	• Air Quality; • Noise; • Surface water; • Groundwater,	Control through implementation of EMPR mitigation measures	SANS10103, ECA, Noise Regulations, NEMAQA, Dust regulations, NWA, DWAF best Practice Guidelines

ACTIVITIES	PHASE	POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		• Damage to local infrastructure; • Disturbance or damage of palaeontological resources; • Influx of people; • Waste water discharge; • Spillage and leaks of hydrocarbons; • Pollution or interplay between groundwater aquifers; • Waste disposal. • Changes in drainage and surface hydrology; Drainage and soil contamination; Land use conflict;			
Refuelling	Site Establishment and Operation	• Potential hydrocarbon spills that could pollute soil or surface and/or groundwater resources	• Pollution; • Surface water; • Groundwater	Control through implementation of EMPR mitigation measure	NWA, DWAF best Practice Guidelines
Maintenance and repair	Site Establishment and Operation	• Potential hydrocarbon spills that could pollute surface and groundwater resources	• Pollution; • Surface water; • Groundwater	Control through implementation of EMPR mitigation measures	NWA
Rehabilitation	Rehabilitation	• Soil compaction; • Soil and Water contamination; • Erosion; • Change is drainage and surface hydrology; • Loss of habitat; and • Disturbance to wildlife and communities in close vicinity	• Topography; • Land use Soil; disturbance; • Ecology; • Surface water, and • Groundwater	Control through implementation of EMPR mitigation measures	MPRDA In accordance with Rehabilitation plan
Consultation	Planning, Site Establishment, operation and decommissioning phase.	• Safety and security of the landowners and surrounding community, and • Potential for job creation.	Socio-economic	Avoid through implementation of EMP mitigation measures (e.g. communication with landowners) Control through implementation of ESMS	MPRDA in accordance with mine SLP and MHS

28.FINANCIAL PROVISION

28.1. Determination of the amount of Financial Provision.

On the 20th of November 2015 the Minister promulgated the Financial Provisioning Regulations under the NEMA, which will come into effect in 2021. The regulations aim to regulate the determine and making of financial provision as contemplated in the NEMA for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, prospecting, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. These regulations provide for, *inter alia*:

- Determination of financial provision: An applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, prospecting, mining or production operations, as contemplated in the Act and to the satisfaction of the Minister responsible for mineral resources.
- Scope of the financial provision: Rehabilitation and remediation; decommissioning and closure activities at the end of operations; and remediation and management of latent or residual impacts.
- Regulation 6: Method for determining financial provision – An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for:
    - Annual rehabilitation – annual rehabilitation plan
    - Final rehabilitation, decommission and closure at end of life of operations – rehabilitation, decommissioning and closure plan; and
    - Remediation of latent defects.
- Regulation 10: An applicant must:
    - Ensure that a determination is made of the financial provision and the plans contemplated in regulation 6 are submitted as part of the information submitted for consideration by the Minister responsible for mineral resources of an application for environmental authorisation, the associated environmental management programme and the associated right or permit in terms of the MPRDA; and
    - Provide proof of payment or arrangements to provide the financial provision prior to commencing with any prospecting, prospecting, mining or production operations.
- Regulation 11: Requires annual review, assessment and adjustment of the financial provision. The review of the adequacy of the financial provision including the proof of payment must be independently audited (annually) and included in the audit of the EMPR as required by the EIA regulations.

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

Considering the relatively limited impact of the proposed prospecting activities, the closure objectives are aimed at re-instating the landform, land use and vegetation units to the same as before prospecting operations take place unless a specific, reasonable alternate land use is requested by the landowner. As such, the intended end use for the disturbed prospecting areas and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to prospecting. This shall be achieved with a number of specific objectives.

i. **Making the area safe**. i.e., Decommission prospecting activities so as to ensure that the environment is safe for people and animals. This entails refilling excavations, sealing boreholes, etc.
ii. **Recreating a free draining landform**. This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.
iii. **Re-vegetation.** This involves either reseeding or allowing natural succession depending on the area, climate etc.

iv. **Storm water management and erosion control**. Management of stormwater and prevention of erosion during rehabilitation. E.g., cut off drains, berms etc. and erosion control where required.
v. **Verification of rehabilitation success**. Entails monitoring of rehabilitation.
vi. **Successful closure.** Obtain closure certificate.

29.CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES.

The environmental objectives in relation to closure will be consulted with the farmers and affected parties. It will be explained that should the prospecting yield negative results, then the end use for area will revert to its pre-prospecting land use (minutes to be incorporated on the final report). The end-use of the area will therefore not be changed by the prospecting operations.
As such, the purpose of the PPP and stakeholder engagement process is to:

- Introduce the proposed project;
- Explain the environmental authorisations required;
- Explain the environmental studies already completed and yet to be undertaken (where applicable);
- Determine and record issues, concerns, suggestions, and objections to the project;
- Provide opportunity for input and gathering of local knowledge;
- Establish and formalise lines of communication between the I&AP's and the project team;
- Identify all significant issues for the project; and
- Identify possible mitigation measures or environmental management plans to minimise and/or prevent negative environmental impacts and maximize and/or promote positive environmental impacts associated with the project.

30.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.

30.1. Integrated rehabilitation and closure plan

The main aim in developing this rehabilitation plan is to mitigate the impacts caused by the prospecting activities and to restore land back to a satisfactory standard. It is best practice to develop the rehabilitation plan as early as possible so as to ensure the optimal management of rehabilitation issues that may arise. It is important that the project's closure plan is defined and understood from before starting the process and is complementary to the rehabilitation goals. Rehabilitation and closure objectives need to be tailored to the project at hand and be aligned with the EMPR. The overall rehabilitation objectives for this project are as follows:

- Maintain and minimise impacts to the ecosystem within the prospecting area;
- Re-establishment of the pre-developed land capability to allow for a suitable post-prospecting land use;
- Prevent soil, surface water and groundwater contamination;
- Comply with the relevant local and national regulatory requirements; and
- Maintain and monitor the rehabilitated areas.

Successful rehabilitation must be sustainable, and requires an understanding of the basic baseline environment, as well as project management to ensure that the rehabilitation program is a success.

It is noted that a separate application for environmental authorisation must be submitted for closure in accordance with EIA Regulations, 2014 Listing Notice 1 Activity 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 permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.

30.2. Phase 1: Making safe

In line with the DWAF (2008) Best Practice Guideline A6: Water Management for Underground Mines: all prospecting boreholes that will not be required for later monitoring or other useful purposes should be plugged and sealed with cement to prevent possible cross flow and contamination between aquifers. Cement and liquid concrete are hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. As a result, the contractor shall ensure that:

- Concrete shall not be mixed directly on the ground;
- The visible remains of concrete, either solid, or from washings, shall be physically removed immediately and disposed of as waste, (Washing of visible signs into the ground is not acceptable); and
- All excess aggregate shall also be removed.

30.3. Phase 2: Landform design, erosion control and revegetation

Landform, erosion control and re-vegetation is an important part of the rehabilitation process. Landform and land use are closely interrelated, and the landform should be returned as closely as possible to the original landform. Community expectations, compatibility with local land use practices and regional infrastructure, or the need to replace natural ecosystems and faunal habitats all support returning the land as closely as possible to its original appearance and productive capacity. This requires the following:

- Shape, level and de-compact the final landscape after removing all the project infrastructure, dress with topsoil and, where necessary, vegetate with indigenous species. Commission specialists to assist in planning re-vegetation and the management of environmental impact, as required.
- Remove access roads with no beneficial re-use potential by deep ripping, shaping and levelling after the removal and disposal of any culverts, drains, ditches and/or other infrastructure. Natural drainage patterns are to be reinstated as closely as possible.
- Shape all channels and drains to smooth slopes and integrate into the natural drainage pattern.
- Construct contour banks and energy dissipating structures as necessary to protect disturbed areas from erosion prior to stabilisation.
- Promote re-vegetation through the encouragement of the natural process of secondary succession.
- Natural re-vegetation is dependent on de-compaction of subsoils and adequate replacement of the accumulated reserves of topsoil (for example, over the sampling sites), so as to encourage the establishment of pioneer vegetation.
- Remove alien and/or exotic vegetation.
- Undertake a seeding programme only where necessary, and as agreed with the re-vegetation specialist

30.4. Phase 3: Monitoring and maintenance

The post-operational monitoring and management period following decommissioning of prospecting activities must be implemented by a suitable qualified independent party for a minimum of one (1) year unless otherwise specified by the competent authority. The monitoring activities during this period will include but not be limited to:

- Biodiversity monitoring; and
- Re-vegetation of disturbed areas where required.

Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed prospecting activities and incorporated into post closure monitoring and management.

30.5. Post-closure monitoring and maintenance

Prior to decommissioning and rehabilitation activities, a monitoring programme shall be developed and submitted to the relevant authority for approval, as a part of the Final Rehabilitation Plan. It is recommended that the post-closure monitoring include the following:

- Confirmation that any waste, wastewater or other pollutants that is generated as a result of decommissioning will be managed appropriately, as per the detailed requirements set out in the Final Rehabilitation Plan,

- Confirmation that all de-contaminated sites are free of residual pollution after decommissioning.
- Confirmation that acceptable cover has been achieved in areas where natural vegetation is being re-established. 'Acceptable cover' means re-establishment of pioneer grass communities over the disturbed areas at a density similar to surrounding undisturbed areas, non-eroding and free of invasive alien plants.

Annual environmental reports will be submitted to the Competent Authority and other relevant Departments for at least one-year post-decommissioning. The frequency and duration of this reporting period may be increased to include longer term monitoring, at intervals to be agreed with the Designated Authority. The monitoring reports shall include a list of any remedial action necessary to ensure that infrastructure that has not been removed remains safe and pollution free and that rehabilitation of project sites are in a stable, weed and free condition.

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

The rehabilitation plan is compatible with the closure objectives in that is seeks to ensure that negative impacts on the receiving environment that could not be prevented or mitigated during prospecting are rehabilitated. The use of indigenous species during re-vegetation will ensure that ecosystem restoration is initiated and prevent invasion by alien species, the capping of boreholes will prevent future environmental issues related to fluid leakage or lateral movement through the borehole, as well as protect water resources. The appropriate disposal of waste will ensure that land is usable, in alignment with surrounding land uses and that no hazardous materials are left on site post-prospecting.

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

Operational rehabilitation has been catered for in the Budget lodged with the application in the Prospecting Work Programme. In terms of decommissioning rehabilitation (or the so-called Rehabilitation Quantum the preliminary estimate of the rehabilitation cost is (inclusive of contingencies and VAT): **R 25 941**.

30.7. Confirm that the financial provision will be provided as determined.

The Budget has been prepared by the applicant as part of the Prospecting Work Programme and that includes a provision for Rehabilitation in the prospecting budget. The applicant confirms herewith that the amount can be (and will be) provided from operating expenditure. The quantum must be approved by the DMRE after which the applicant will provide for the quantum by way of bank guarantee.

31.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

Table 31-1: Mechanisms for monitoring compliance

SOURCE ACTIVITY MONITORING AND REPORTING	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Site Establishment /Site Establishment.	• Dust • Noise • Removal of vegetation • Disruption of animal life • Habitat destruction • Loss of geology • Change in topography	• Daily dust suppression • Monthly dust bucket monitoring	ECO, Geologist and Project Manager	Daily and monthly
Traffic management	• Dust • Noise • Animal life disruption • Traffic Congestion	• Monitor dust fallout levels monthly and • Noise level • Monitor the time frames in which heavy vehicles travel on main roads and national roads.	ECO, Geologist and Project Manager	Monthly and when necessary
Ablution Facility	• Land contamination • Water contamination • Health hazard	• Service the toilet facility monitor water quality	Geologist and Project Manager	When necessary and monthly
Existing/Access routes	• Dust • Animal life disruption • Monitor dust.	• Monitor dust fall out levels • Monitor speed on the road	Geologist and Project Manager	Monthly and when necessary

32.INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT.

Regular monitoring of all the environmental management procedures and mitigation measures shall be carried out by Salene in order to ensure that the provisions of this EMPr are adhered to. Formal monitoring and performance assessment of the EMP will be undertaken on an annual basis.

33.ENVIRONMENTAL AWARENESS PLAN

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

The following Environmental Awareness Training will be implemented by Salene Manganese in order to inform employees and contractors of the environmental risk that may result from their work, or the risk of their interaction with the sensitive environment. The training will be conducted as part of the induction process for all new employees (including contractors) that will perform work in terms of the proposed activities. Proof of all training provided must be kept on-site. The Environmental Awareness Training will, as a minimum cover the following topics within Table 33-1

Table 33-1: Environmental Awareness Plan

Air Quality	Activities that may result or mitigate impact on air quality; speeding on roads, the requirements for dust suppression, etc. Negative impacts on the receiving environment if mitigation measures are not implemented.
Surface and groundwater	Risks to surface and groundwater, e.g., fuel and chemical handling and further risks of erosion or damage to riparian vegetation. How incidents should be reported, and emergency requirements. The importance to re-use water and to prevent spillages.
Cultural Heritage	To respect all cultures and believes. How to report any sightings of heritage importance as identified during operation activities (e.g., fossils).
Fauna	Overview of the fauna found on/around site and the uniqueness thereof. Mitigation measures that all contractors and employees need to abide by. No contractor or personnel allowed to catch or kill any species, and how any sightings should be reported if further actions are required (e.g., to catch and release).
Flora	Overview of the flora diversity on site, and the rare and endangered nature thereof. Measures taken by the company to protect species. No contractor or personnel allowed to remove, harvest or destroy any flora species unless clearly instructed based on the Site Establishment and operational plans.
Waste management	Measures to avoid waste generation and to participate in waste minimisation/reduction.
Traffic strategies.	To stay on designated roads and not create new roads on areas that will not be used for prospecting purposes. To be aware of the fauna species and to be on the lookout and avoid collisions.
Emergency Preparedness and Response	How to report any emergency or incident. Incident and emergency reporting requirements.
General rules and conduct	Respect for the sensitive environment. Do not litter. Respect for each other and for different cultures. Safety and health requirements

33.2. 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. Employees should be provided with environmental awareness training before prospecting operations start. All new employees should be provided with environmental awareness training. Induction courses will be provided to all employees by a reputable trainer.

34.SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

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

All potential risks have been identified within this document and are to be communicated to all contractors and all contractors and is indicated in the EMPr which will be available to all staff. Environmental training needs for each section should be identified and addressed to ensure environmental management is part of day-to-day operations. The environmental risk responsibilities guide the training requirements of each individual. Environmental training recommended for the different levels of management guide the training needs identification process. This is a minimum guideline and any additional training can be added where section specific issues or high-risk items require training and awareness. It is the responsibility of the line manager to ensure environmental training needs for individual staff members are identified, agreed to, facilitated and tracked.

An environmental audit report will be submitted annually as per DMRE requirements.

The financial provision will be updated on an annual basis and submitted to the DMRE.

35.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: Gregory Netshilindi

Name of company: Prescali Environmental Consultants (Pty) Ltd

Date: 05 January 2021

-END-

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37.APPENDICES

Appendix 1: Qualifications of the EAP

Appendix 2: Experience of the EAP

Appendix 3: Locality Map

- Locality map at a scale not smaller than 1:250000
- Proposed location of prospecting areas with 500 m radius

Appendix 4: Final Site map

Appendix 5: Rehabilitation Plan