



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT
And
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: Lengana Health SA (Pty) Ltd.

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FILE REFERENCE NUMBER SAMRAD: FS 30/5/1/1/2/10541 PR

1. IMPORTANT NOTICE

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

Unless an Environmental Authorization 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 authorization 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 Authorization being refused.

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

2. Objective of the basic assessment process

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

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:
 - (e) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (i) the degree to which these impacts—
 - (aa) can be reversed;
 - (b) may cause irreplaceable loss of resources; and
 - (c) 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
Identify residual risks that need to be managed and monitored.

TABLE OF ACRONYMS

Acronym	Expanded Name
AEL	Atmospheric Emission License in terms of NEM:AQA
BA	Basic Assessment (process or report)
BID	Background Information Documents
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983) as amended
COP	Codes of Practice
DMR	Department of Mineral Resources
DWS	Department of Water Affairs and Sanitation
EA	Environmental Authorisation in terms of NEMA
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act (Act 73 of 1989) as amended
EIA	Environmental Impact Assessment (process or report)
EIA Regulation	Environmental Impact Assessment Regulation published under NEMA
EMPr	Environmental Management Programme report
GDP	Gross Domestic Product
GIS	Geographical Information Systems
GN	General Notice (issued under an Act, providing notice or information)
GNR	General Notice Regulation (issued under an Act, providing instruction)
I&AP	Interested and Affected Parties
IAIA SA	International Association of Impact Assessment South Africa
MHSA	Mine Health and Safety Act (Act 29 of 1996) as amended
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002) as amended
MR	Mining Right in terms of the MPRDA
MRA	Mining Right Application in terms of the MPRDA
NAEIS	National Atmospheric Emissions Inventory System
NEM:AQA	National Environmental Management: Waste Act (Act 39 of 2004) as amended
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004) as amended
NEM:PAA	National Environmental Management: Protected Areas Act (Act 57 of 2003) as amended
NEM:WA	National Environmental Management: Air Quality Act (act 59 of 2008) as amended
NEMA	National Environmental Management Act (Act 107 of 1998) as amended
NFEPA	National Freshwater Ecology Priority Areas
NHRA	National Heritage Resources Act (Act No. 25 of 1999) as amended
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act (Act 35 of 1998) as amended
PPP	Public Participation Process
PRA	Mining Right Application in terms of the MPRDA

PR	Mining Right in terms of the MPRDA
PWP	Mining Work Programme
RoD	Record of Decision (for specific application)
S&LP	Social and Labor Plan
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resource Agency
SAMRAD	South African Mineral Resources Administration System
SANBI	South African National Biodiversity Institute
SANS	South African National Standard (followed by standard number)
SAWIS	South African Waste Information System
SEMA	Specific Environmental Management Acts
SOP	Standard Operating Procedure
SPLUMA	Spatial Planning and Land Use Management Act (Act No.16 of 2013)
Stats SA	Statistics South Africa
WMA	Water Management Area
WML	Waste Management License in terms of NEM:WA

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PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of:

Name of Practitioner: Asanda Mthembu

Tel No.: 016 428 2566

Fax No.: 0865739702

Email address: asanda@minmet.co.za

Registered Candidate Natural Scientist-Geological Sciences and Environmental Management

SACNASP Registration Number: 120275

- **The qualifications of the EAP**
(With evidence).

2013	University of South Africa Advanced Certificate in Environmental Management
2011	University of KwaZulu Natal BSc Geological Sciences Majoring in Engineering Geology and Environmental Sciences.
2019	BSc Honors in Environmental Management University of South Africa (in progress)

- **Summary of the EAP's past experience.**
(In carrying out the Environmental Impact Assessment Procedure)

Asanda Mthembu has experience in the environmental field, and has been involved in numerous projects ranging in environmental compliance, environmental impact assessment and environmental management thereof.

The following is a short list of projects which he has been involved with over recent years
(For a more a more comprehensive list please refer to Appendix 1- Curriculum Vitae)

- **Environmental Control Officer at Melron Group (MPG Projects).**
- Project Name : The Construction of a Canteen Facility at Transnet Port Terminals (TPT).
 - Responsible for the implementation and environmental compliance according to Transnet's Construction Environmental Management Plan (CEMP), Site Environmental Specifications (SES).
 - Making sure all work is done according to approved Method Statements.
 - Daily, weekly and monthly inspections of the work area(s) as per schedule.
 - Preparing project specific-activity/ aspect based on Environmental Method Statements.
 - Identifying local, provincial and national legislation that applies to site activities.
 - Responsible for ongoing Environmental Awareness, Training and Induction.
 - Waste and water management. Toolbox talks and taking required actions within specified time frame for non-conformance.
 - Enforcing Environmental legislations and policies. NEMA, National Conservation Acts, OHS Acts
 - Compiling Environmental Impact Assessments and Environmental Management Plans for other projects being taken on by Melron Group (Pipeline and MPG Projects).
- **MinMet Services**
 - Compiled and revised : Environmental Management plan, Environmental Management Programs, and Environmental Authorization for numerous projects such as:
 - Mystic Blue Trading: Environmental Authorization: Coal and limestone application
 - Lengana Health SA FS 10009 MR: Environmental Management plan and Environmental Management Programs revision, Environmental management and monitoring: Bentonite clay application and execution of the mining right .
 - Lengana Health SA FS 10095 PR: Environmental management plan and progress on Environmental reports management.
 - Consulted for Sugar Creek (Pty) Ltd on the new order application of a mining permit in Brits, North West. Responsible for all relevant environmental documentation and liaison with the Department of Mineral Resources.
 - New Heights : Iron Ore application: Environmental Management Plan and monitoring
 - Umlingo: PMG Mining right application: Environmental Management Plan revision.

b) Location of the overall Activity.

The proposed area is situated in the Ngwathe District Municipality of Koppies, Free State Province.

Table 1: Farms included in the prospecting right application

Farm Name:	Felix 318, Goedgunst 315, Kronenbloem 51, Ventersbloem 163, Oceaan 64, Oceaan 99, Broodkop 304, Enkelsbosch 31, Hooge Bult 542, Geluk 237, Verdeel 278, Goudlaagte 238, Ongegund 507.
Application area (Ha)	2195Ha
Magisterial district:	Koppies
Distance and direction from nearest town	Access to the area is from the N1 National road turning east into the R723 and driving for about 7km. The project area can be accessed from Sasolburg, Koppies or Parys.
21 digit Surveyor General Code for each portion	F0190000000003180000 F0190000000003150000 F0190000000000510000 F0190000000001630000 F0190000000000640000 F0190000000000990000 F01900000000030400002(PTN 1) F01900000000030400001(PTN2) F01900000000030400000(RE) F01900000000003100009 F01900000000005400000 F01900000000023700000 F01900000000027800000 F01900000000023800000 F01900000000000700000 F01900000000001300000

c) Locality map

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

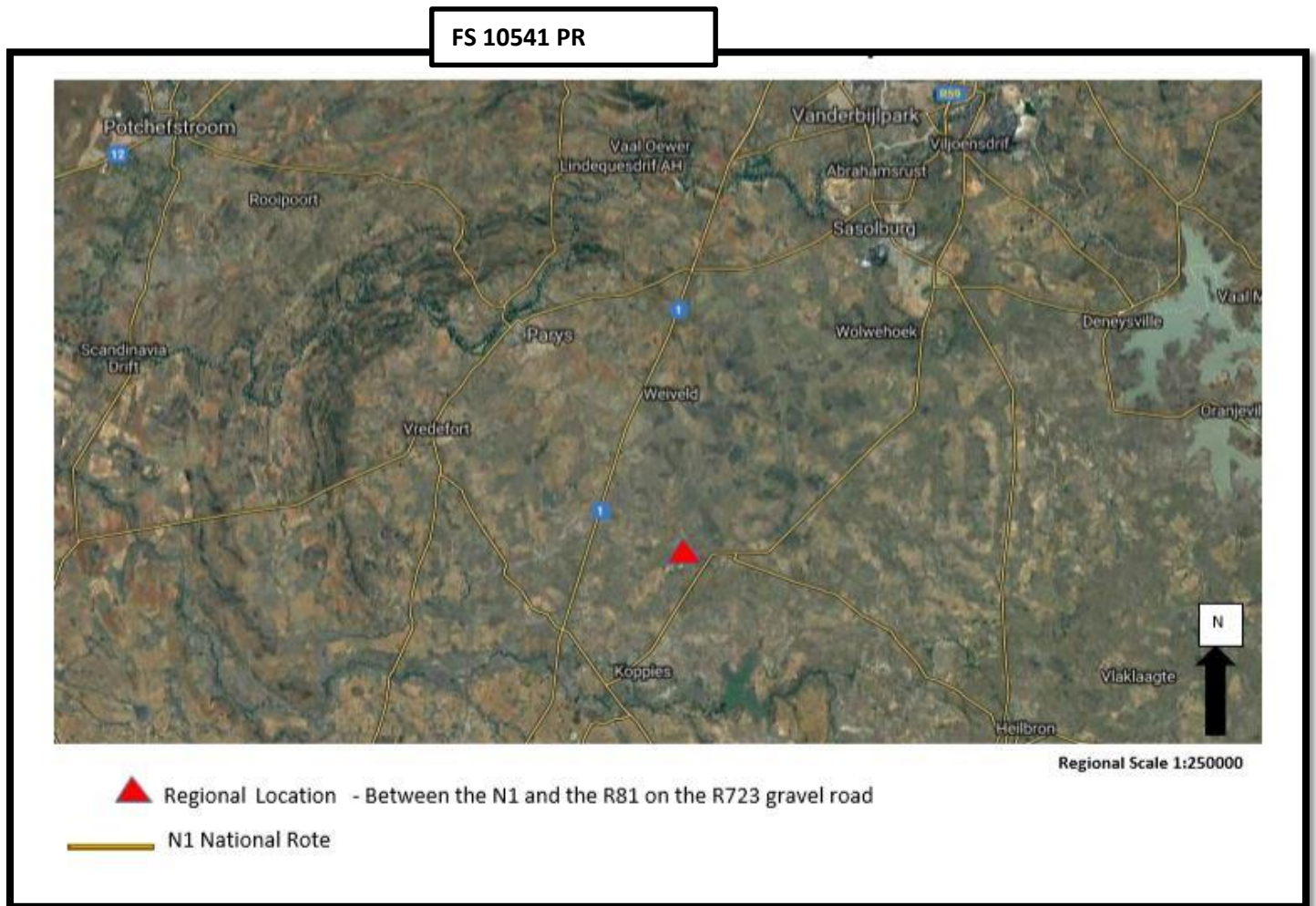


Figure 1: Regional Locality

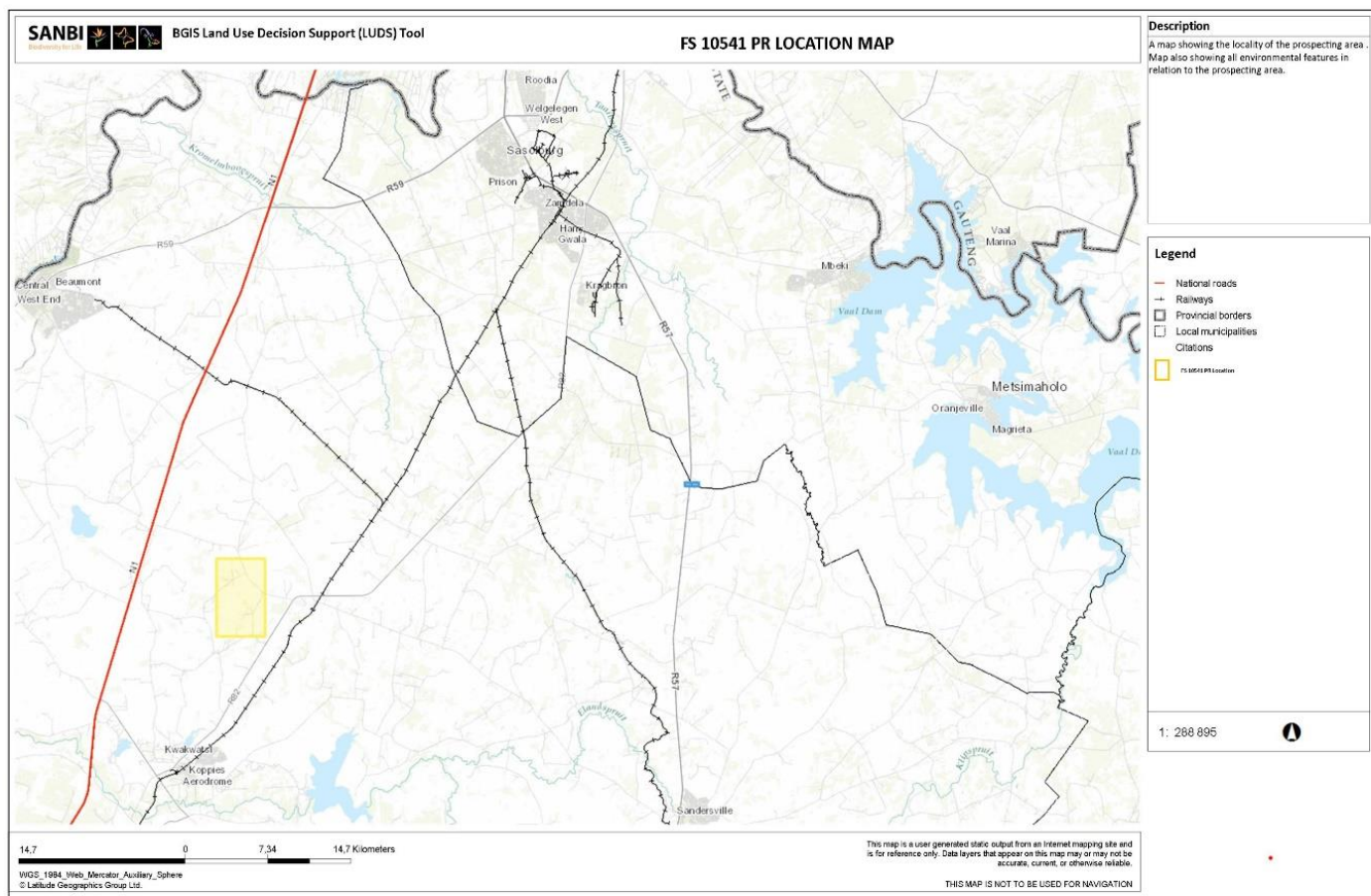


Figure 2: Site Local Map

d) Description of the scope of the proposed overall activity.

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

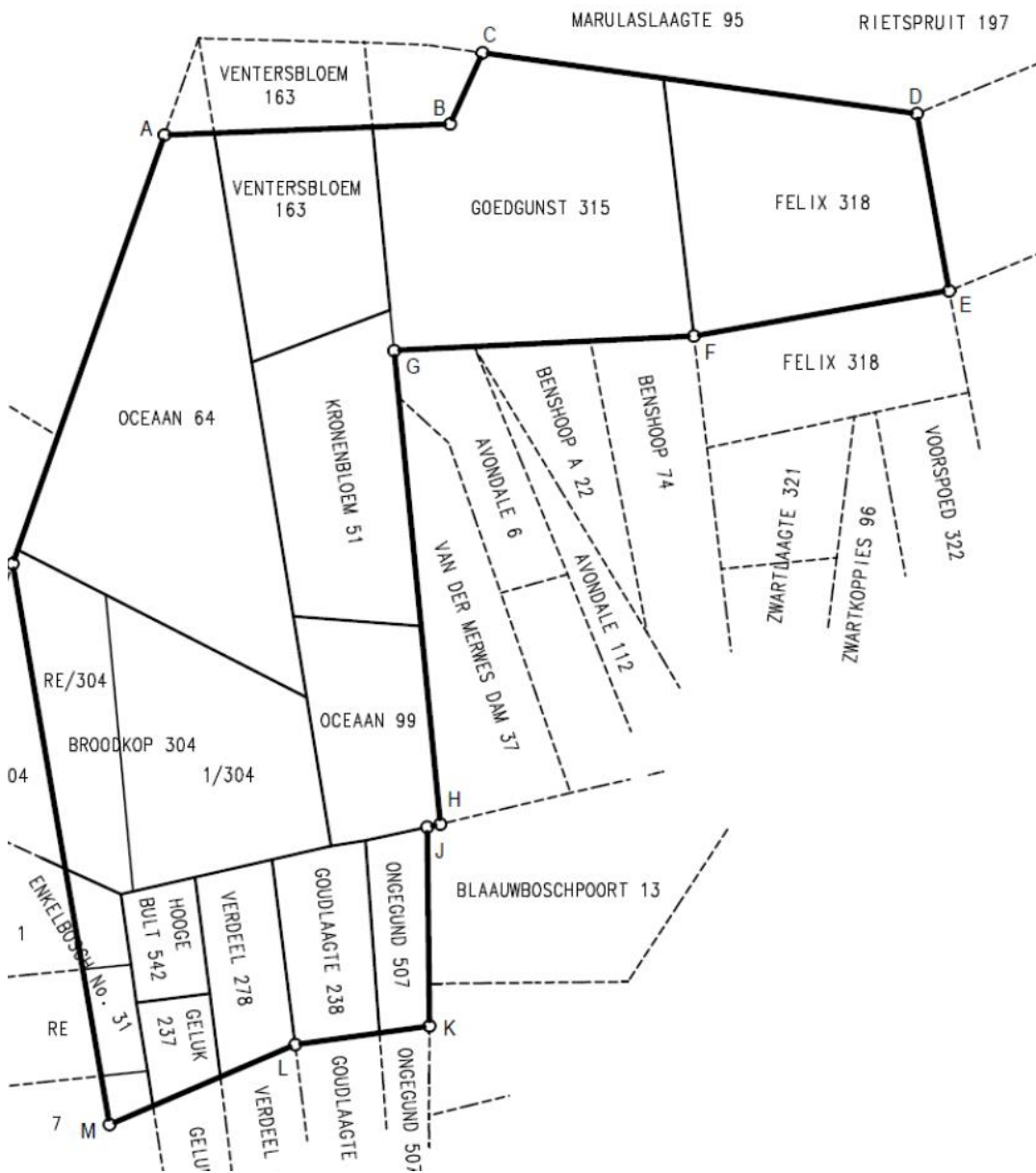


Figure 3: A surveyor general map showing the farm locations as well as the boundary of FS 10541 PR.

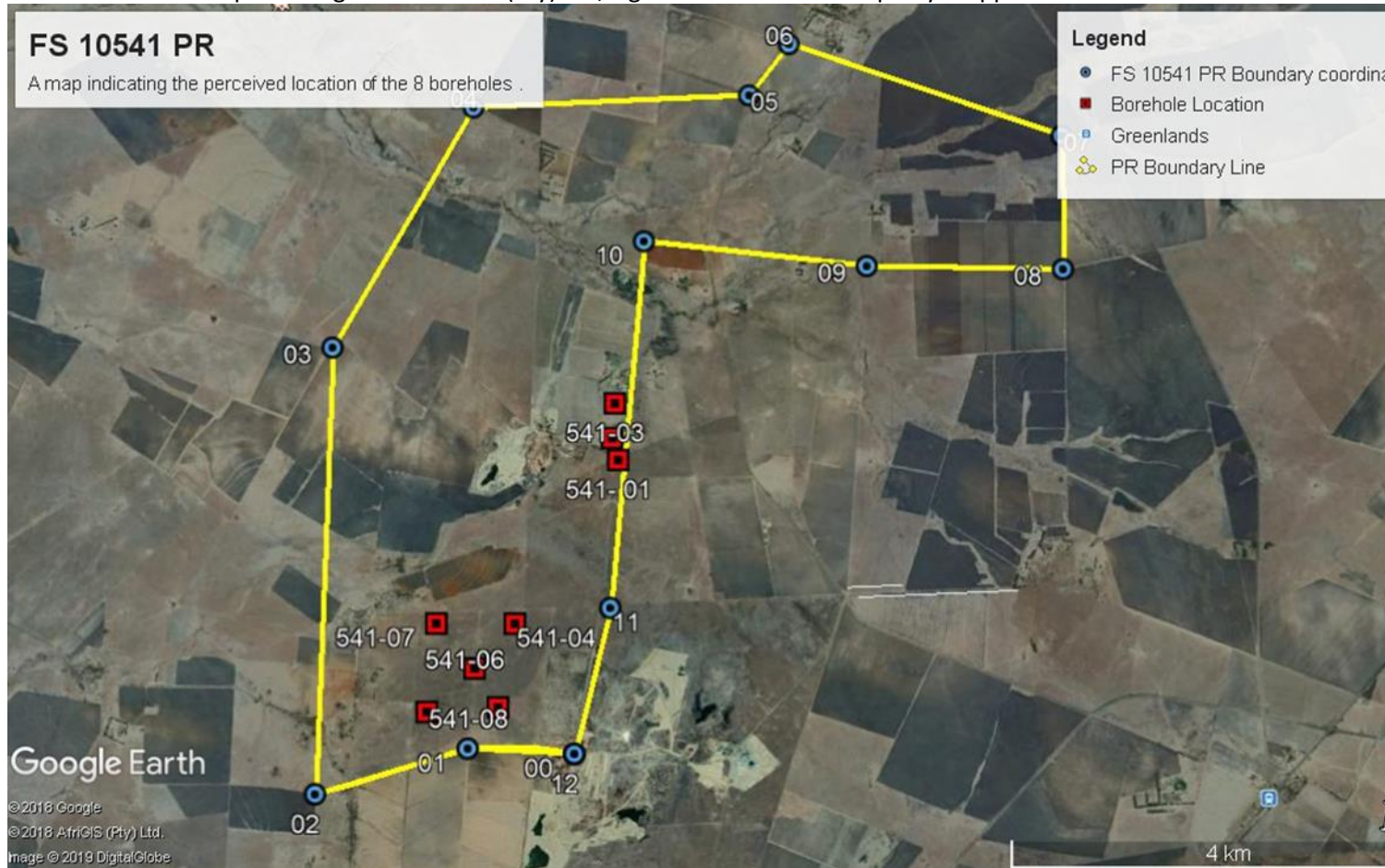


Figure 4. Locality Map of FS 10541 PR.

The yellow line on the above map indicates the PR boundary and all farms within the boundary have been included in the application. The red blocks indicate the perceived location of the boreholes which is subject to change as more information is acquired on the geology and mineralogy of the prospecting area. There will be no infrastructure placed on site, only a mobile drill rig will be required on the third stage of prospecting.

Listed and specified activities

The Environmental Impact Assessment Regulations of 2014 promulgated in terms of Section 24(5) of the National Environmental Management Act, (Act No. 107 of 1998) as amended, requires Environmental Authorization from the competent authority (Eastern Cape Department of Mineral Resources) for activities listed in Government Notices R 983, R 984 and R 985 which pertain to mining. **Table 2** below identifies the activity in the Environmental Impact Assessment Regulations of 2014 that has been triggered for the proposed development.

Table 2: Listed and specified activities

NAME OF ACTIVITY	Aerial extent of activity Ha or m ²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
Drill Site	Drill holes will be approximately 50m apart.	X	Activity 20 (a)
Sample Storage	Drill cores will be left to dry for 2-3 days after that the cores will be logged and then sampled. Samples will be stored at Mystic Blue storage facilities	X	Activity 20 (a)
Equipment Storage	Drilling equipment will be left on site during the course of the drilling campaign, one drilling truck with a drill rig and a bakkie will be used by the contracted drilling company.	X	Activity 20

i) Description of the activities to be undertaken

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

The proposed project will include prospecting and drilling programs which triggers a listed activity in terms of the Environmental Impact Assessment (EIA) Regulations, Listing Notice- Environmental Impact Assessment Regulations Listing Notice 2 of 2014, 08 December 2014 promulgated under the National Environmental Management Act (NEMA) (Act no 107 of 1998).

This will involve backfill and re-vegetation of all affected areas following the correct legislation. Closing of all holes created as a result of drilling will be backfilled and closed off, returned into their natural state as closely as possible.

Terms of reference

Regulation 19 of the Environmental Impact Assessment (“EIA”) Regulations of 2014 determines that a Basic Assessment Procedure must be followed for all activities listed in Government Listing Notices, activity 20. MinMet Services has been appointed as the independent Environmental Assessment Practitioner (EAP) by Lengana Health SA (Pty) Ltd and will therefore be responsible for the Basic Assessment procedures concerned with the proposed development, as specified in Sections 19 and 20 of Government Listing Notices 2 of 2014. According to the 2014 EIA Regulations, activities related to the following must be handled by the competent authority which is the Department of ;

Mineral Resources:

- a. Prospecting or exploration of a mineral or petroleum resource; or
- b. Extraction and primary processing of a mineral or petroleum resource.

Approach and methodology

The overall approach to this assignment included the following activities:

- Application for Environmental Authorization to the DMR regarding the proposed prospecting activities in the above listed farm areas .
- A detailed analysis of the proposed project, the area where it will take place, and the identification of potential impacts.
- All legislative requirements in terms of the EIA Regulation, and to provide the Department with sufficient information to make an informed decision regarding the project.

The proposed activities onsite will include:

Non-invasive prospecting which will consist of:

Geophysical survey (thermal raster surveys) and surface sampling techniques will be used as well as geological mapping. Data will be extracted and plotted into geological maps. Areas of invasive prospecting will be identified for resource determination.

Invasive Prospecting:

Core drilling will then be targeted for areas identified through non-invasive techniques described above for reserve determination and mine planning. Each exploration site will disturb a minimum area of 800m²; however the number of boreholes required can only be finalized once the non-invasive prospecting as details above is completed. At present about 8 boreholes will be drilled.

After drilling, the core will be sampled and assessed by the on-site geologists and cores logs will be maintained. As the area of prospecting is large and have an undulating topography, depth of the drilling will differ depending on the area. Drilling is expected to reach around 40m deep.

Existing farm roads and tracks will be utilized as far as possible. The drilling crew and Lengana Health staff will bring their own water on to site which will be mostly for consumption and domestic use. No water from the farms will be used or required.

The proposed timeframes associated with invasive prospecting will depend on access agreements negotiations between the applicant, Lengana Health SA and the landowners. Ideally all invasive prospecting is estimated to be a period of 3-4 months.

e) Policy and Legislative Context

In addition to the Environmental Impact Assessment Regulations of 2014, **Table 3** below indicates other applicable legislation that has been considered in the preparation of this Basic Assessment Report.

Table 3: 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 POLICY AND LEGISLATIVE CONTEXT
National Environmental Management Act, Act 107 of 1998 (NEMA) NEMA Regulation GNR982- EIA-Regulations NEMA Regulation - Listing Notice 20 NEMA Regulation GNR807- PPP Guideline NEMA Regulation- <u>DRAFT</u> Regulation on financial provision; currently within the ambit of MPRDA and discussed below.	The entire report has been compiled in terms of NEMA Basic Assessment (BA) requirements as only activity 20 scheduled activities are triggered. Part A Section 3(d) (i). PPP completed in terms of NEMA regulation- Part A Section 3 (h) (ii) and Table 1.	This report forms part of the BA and EMP Report as required for a BA process under NEMA for an EA.
Mineral and Petroleum Resource Development Act, Act 28 of 2002 (MPRDA) associated Regulation GNR 527	EMP section of this report (Part B) has included regulation requirements where relevant.	The application for Environmental Authorization is being done in terms of a prospecting right application already submitted to the DMR
National Environmental Management: Air quality Act, Act 39 of 2004 (NEM:AQA) Also deals with noise levels- to be read with Environment Conservation Act, Act 73 of 1989 (ECA) South African National Standard: SANS 10102:2004- The measurement and	N/A Drilling does not trigger the need for and AEL Noise measurement has been incorporated into Part B, the EMP Report	EAL is not applicable. Noise levels will be maintained within baseline levels in the area or to the SANS standards.

rating of environmental noise with respect to land use, health, annoyance and speech communication		
National Environmental Management: Protected Areas Act, Act 57 of 2003 (NEA:PAA)	Only areas relevant to the National Protected Areas Expansion Strategy (NPAES) occur in the greater area more than 20km away (See SANBI maps)	No EA is required for scheduled activities under GNR 985 Not applicable to proposed prospecting activity.

f) Need and desirability of the proposed activity

The need and desirability of the proposed activity stems from the fact that this project is deemed viable with great mineralization potential. However more work still needs to be done to increase the level of confidence and upgrade the resource category from inferred through indicated to measured. The potential for a good measured lithium resource is high therefore persists the need to apply for a prospecting right in order to conduct more on site testing via drilling and desktop studies. The broader socio-economic benefits of the project include job creation and local economic development through improved road infrastructure.

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

There is already an easy access route to the above mentioned farms. No roads will need to be constructed on the onset of this project. This particular project area lies within the Greenland’s Greenstone Complex, which is principally comprised of meta-volcanic rocks, tholeiitic to komatiitic basalts. The Greenland’s Greenstone Complex is located in the south-eastern quadrant of the Vredefort Dome. To the east and southeast of this greenstone remnant are three isolated exposures of ferruginous shales and orthoquartzites of the Orange Grove Formation of the Lower Witwatersrand Super group. The broader socio-economic benefits of the project include job creation and local economic development through improved road

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infrastructure should this prospecting right develop into a mining right at a later stage. The proposed prospecting via drilling is desirable to complete the estimation if measured resource found in the land, thus suitable for mining.

Parameters taken into account when selecting a site include;

- Environmental
- Streams and rivers
- Wetlands
- Flora, fauna and vegetation
- Social issues
- Homesteads
- Technical issues
- Topography; and Access

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

i. Details of site development footprint alternatives considered

i) SITE PLANNING

No site will be established in this area and careful planning must take place which will lay the foundations and plan of action for the subsequent phases. This will ensure that impacts can be identified at the earliest stage possible and appropriate mitigation measures employed. This in order to prevent/ minimize impacts to acceptable levels. The Basic Assessment Report and associated Appendices, forms part of this process.

ii) SITE PREPARATION/ESTABLISHMENT

While no infrastructure development will occur on site, the site will however be prepared for drilling commencement. These activities will include:

- Environmental training and awareness for workers;
- The demarcation of the prospecting site and 'no-go' areas;
- Preparing equipment and vehicles for operation;
- Ensuring that there are no protected trees or fauna on site; and
- Implementing erosion control on site.

iii) ACCESS TO THE SITE

Access to the area is from the N1 National road turning east into the R723 and driving for about 7km. The project area can be accessed from Sasolburg, Koppies or Parys.

iv) DURATION OF ACTIVITY

The drilling activities will be on an ongoing basis for a period of 3-4 months based on the specific needs of the project.

v) CONSIDERTION OF ALTERNITIVES

The proposed preferred alternative was chosen due to its location. Through consultation with the applicant and specialist studies, a site was chosen on the applicant's farm, close to the road and as far as possible from any wetlands.

vi) DETAILS OF ALTERNITIVES CONSIDERED

'Alternatives' are regarded as considerations for different possible means of meeting the general purpose and need of a proposed activity.

Alternatives could include, amongst others, the following:

- Activity Alternatives: This requires a change in the nature of the proposed activity. This alternative is most appropriate at a strategic decision making level.

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- Location Alternatives: Alternative locations for the entire project proposal, or for components of the project proposal.
- Layout Alternatives: This alternative allows different spatial configurations of an activity on a specific site.
- Scheduling/Operational Alternatives: Also refers to alternative phasing options for the development. This alternative considers different phasing options during the implementation of the development.
- Infrastructure/ Input Alternatives: Also referred to as technological or equipment alternatives. This option considers various alternatives that will have the same outcome.
- No-Go Alternative: The impact if the proposed activity is not followed. Layout and Infrastructure (technology) alternatives are the most pertinent to this EIA process; however all the above mentioned alternatives are briefly explored in the subsections below, as well as the alternative of maintaining the status quo, commonly referred to as the “no-go” option.

vii) ACTIVITY ALTERNATIVES

After the prospecting operation ceases, the applicant will be required to rehabilitate all holes and re-vegetate where necessary. This will include the reuse of top soil, vegetation, the implementation of erosion control measures, and the removal of invasive alien species.

viii) LOCATION ALTERNATIVES

The application includes total of 13 farms .Lengana Health SA (Pty)Ltd is also a holder of a Mining Right (FS 100095 MR) , which is close in location to the prospecting right area . This would in future be an extension of the above mentioned mining right, should a measured resource be identified.

ix) LAYOUT ALTERNATIVES

No processing will take place on site as it would be an additional environmental impact and is not preferred.

x) SCHEDULING ALTERNATIVES

Drilling will be scheduled systematically once the prospecting right has been granted and all access agreements have been signed by the land owners.

xii) INFRASTRUCTURE ALTERNATIVES

Infrastructure alternatives were not considered as the activity to be undertaken is drilling, no infrastructure will be required on site. The drill rig will only be mobile and temporary and different drilling equipment could be considered as an alternative depending on the negative impacts associated

xiii) INPUT ALTERNATIVES

No other input alternatives have been considered.

xiv) NO-GO ALTERNATIVES

The “no-go” alternative should, in all instances, be considered as part of the EIA process. This scenario assumes that the activity does not proceed, implying a continuation of the current situation.

ii. Details of the Public Participation Process Followed

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

According to Section (2)(4)(f) of the EIA Act, - the participation of all interested and affected parties (I&APs) in environmental governance must be promoted and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured, and - 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 Public Participation aims to involve competent authorities, municipalities, Interested & Affected Parties, community members and other stake holders in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process has and will be followed at all times and will be based on reciprocal dissemination of information.

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- Newspaper advert published on the 30th of May 2019 in the Parys Gazette. (See Annexure A)
- Site notices were placed at the following location; in the surrounding area farm fences, at the corner of the R723 and S147 road and also the junction of the R81 and the Western Service Road on the 05th of June 2019. (See Annexure A) .
- All interested and affected parties (land owners) were hand given notices informing them of the public consultation process and the public participation meeting to take place on the 21st of June 2019, at a local Friesland Hotel, in Koppies.
- A notice was handed over at the Ngwathe Municipal offices for attention to the Municipal Manager. Another notice was placed at the notice board of the Ngwathe Municipality offices. (Annexure A).
- An email of the notice was sent to the Municipal Manager.
- Background Information Document and Response Sheets distributed via email to identify I&Aps.
- The department of Agriculture and Rural Development in the Free State province was called and emailed to be notified .No response was received and the emails sent, bounced back.
- The chief inspector of Mines was notified via email and the email did not go through.

iii. Summary of issues raised by I&APs

Interested and affected parties List the names of persons consulted in this column, and mark an X where those who must be consulted in fact consulted	Date comments Received	Issues raised	EAP 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	18/06/2019	Ground water pollution risks Interference in farming activities. Increase in stock theft.	Groundwater Pollution - Type of drilling method, percussion will minimize environmental effects ☑ Drilling will be conducted during the winter season, when the water table is likely to be low to avoid ground water pollution.	Not applicable

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			<p>☒ Disturbance of Farming activities - Access agreements will be made prior on individual basis with relevant land owner to ensure that drilling activities do not interfere with farming activities.</p> <p>☒ Increase in Stock Theft – All drilling/ mapping activities to be conducted during the day.</p> <p>☒ Gates to be opened and locked while site activities are being conducted at all times.</p> <p>☒ Lengana Health will account for the relevant number of people to be on site during drilling activities upon discussion with landowners.</p> <p>☒ Lengana Health SA can only be accountable for the specific area they have contracted to drill at a specific time. ☒ All health and safety measures will be taken to ensure maximum security during drilling.</p>	
Lawful occupiers of the land	18/06/2019 21/06/2019	Refer to Appendix A	Refer to Appendix A	Refer to Appendix A
Landowners or lawful occupiers on adjacent properties	N/A	none	Not Applicable	N/A
Municipal councilor	None	None	none	none
Municipality	None	None	N/A	N/A
Organs of state (Responsible for infrastructure that may be affected Roads Department,	None	None	N/A	N/A

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Eskom, Telkom, DWA etc				
Communities	None	None	N/A	N/A
Department of land affairs	None	None	N/A	N/A
Traditional affairs	None	None	N/A	N/A
Department of Environmental Affairs	None	None	N/A	N/A
Other Competent Authorities affected	None	None	N/A	N/A
Other affected parties	None	None	N/A	N/A
Interested Parties	None	None	N/A	N/A

- iv. **Environmental attributes associated with the alternatives** (the environmental attribute described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

1 Baseline Environment

(a) Type of Environment affected by the proposed activity

The proposed area falls within the Ngwathe Municipality District, in the Free State Province, Koppies. The environment is mostly made up of farm land and grazing land with short grass. The project area is comprised mainly by the komatiitic basalts intruded by the spodumene-bearing pegmatite's. Pegmatites are occurring as lensoidal bodies with a general NW-SE trending strike. The contact zone between the basalts and pegmatite is characterized by a narrow pegmatitic granite zone ranging from a few millimeters to 3m.

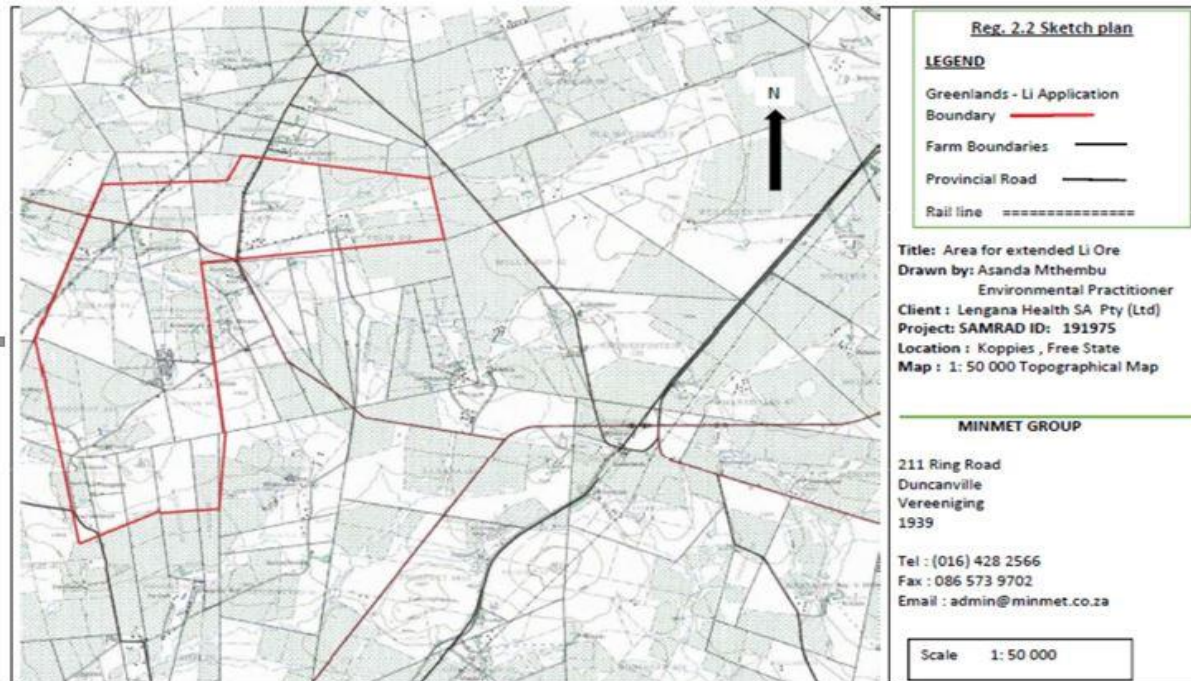


Figure 4: Environmental Land cover and Land use

CLIMATE

Koppies normally receives about 467mm of rain per year, with most rainfall occurring mainly during mid-summer. It receives the lowest rainfall (0mm) in July and the highest (85mm) in January. The monthly distribution of average daily maximum temperatures indicate that the average midday temperatures for Koppies range from 17°C in June to 28°C in January. The region is the coldest during June when the mercury drops to 0°C on average during the night. (World weather, 2019).

AIR QUALITY

Monitoring of meteorological parameters (wind, temperature, relative humidity, rainfall) and air quality (dust fall, SO₂, NO₂, and PM) is undertaken by various mines and industries within the surrounding area. The air quality in the region is relatively poor due to emissions from mining and other industries, agriculture, domestic fuel burning and traffic. Dust fall monitoring is undertaken mainly at the major mining areas and the dust fall samplers are typically located on or within the prospecting site boundaries. Dust fall monitoring is being done near the proposed prospecting area site by Matsopa Minerals.

TOPOGRAPHY

The area is flat, sloping very gently. The area is part of the slightly undulating plains category of the terrain morphological class.

GEOHYDROLOGY

Regionally drainage is westwards to the Renoster River. On the prospecting application area, drainage is as follows. Locally, on the affected properties, drainage will be east and west into the unnamed tributary. The Koppies dam is the major water supply dam within the Renoster River catchment. It is expected that the streams on the properties will have little to no flow during the dry season. The Renoster River is likely to have water during the dry season, but flow may be sporadic and dependent on water levels within the Koppies Dam. Past surveys indicate that upstream water quality is

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generally good with instances of elevated iron and manganese, most likely contributions from the geological features in the area. Water quality sampled from old mine pits which had flooded generally also showed good quality water.

SURFACE WATER

The proposed study area lies north of the Klein-Rietspruit River with a part of the river cutting into it. Koppies Dam is the biggest dam in this region and provides a wide area of water to the neighboring rural communities of Koppies. Limited knowledge on the groundwater studies in this area, however most of the farmers have drilled successfully for groundwater in their farms. A detailed groundwater report will be conducted in due course.

ECOLOGY

The study area is made up of two different biomes, the Grassland Biome as well as the Savannah Biome. There are no critically endangered or threatened ecosystems in the municipality or locality of the prospecting area. The landscape has been modified by agriculture, mining and infrastructure development in farmlands and the habitat is highly fragmented. The R82 and numerous smaller gravel roads traverse the region. Land is clearly separated to reflect farm portion boundaries and associated land uses. There are scattered patches of untransformed natural habitat in the southern part of the study area. In the northern part of the prospecting area passes the Rietspruit stream.

A faunal assessment was conducted in the past for the adjacent Koppies Bentonite Mine. A summary is provided here with focus on protected species which have limited ability to escape from the area. No protected mammals were recorded from past surveys in the area. The following protected mammals have geographic ranges and habitats present on site and could occur on site: the vulnerable pangolin and protected spotted-necked otter, cape clawless otter, black-footed cat, Cape fox and brown hyena.

No protected birds were recorded in the area in past surveys completed for the adjacent Koppies Bentonite Mine. Most birds are more mobile and able to escape potential threat. The vulnerable grass owl is at highest risk as the species nests on ground in wet grassy areas. Such areas should be targeted for prospecting outside of the breeding season.

No protected frogs have been recorded from the area. The giant bullfrog may however be associated with plans in the area.

LAND USE

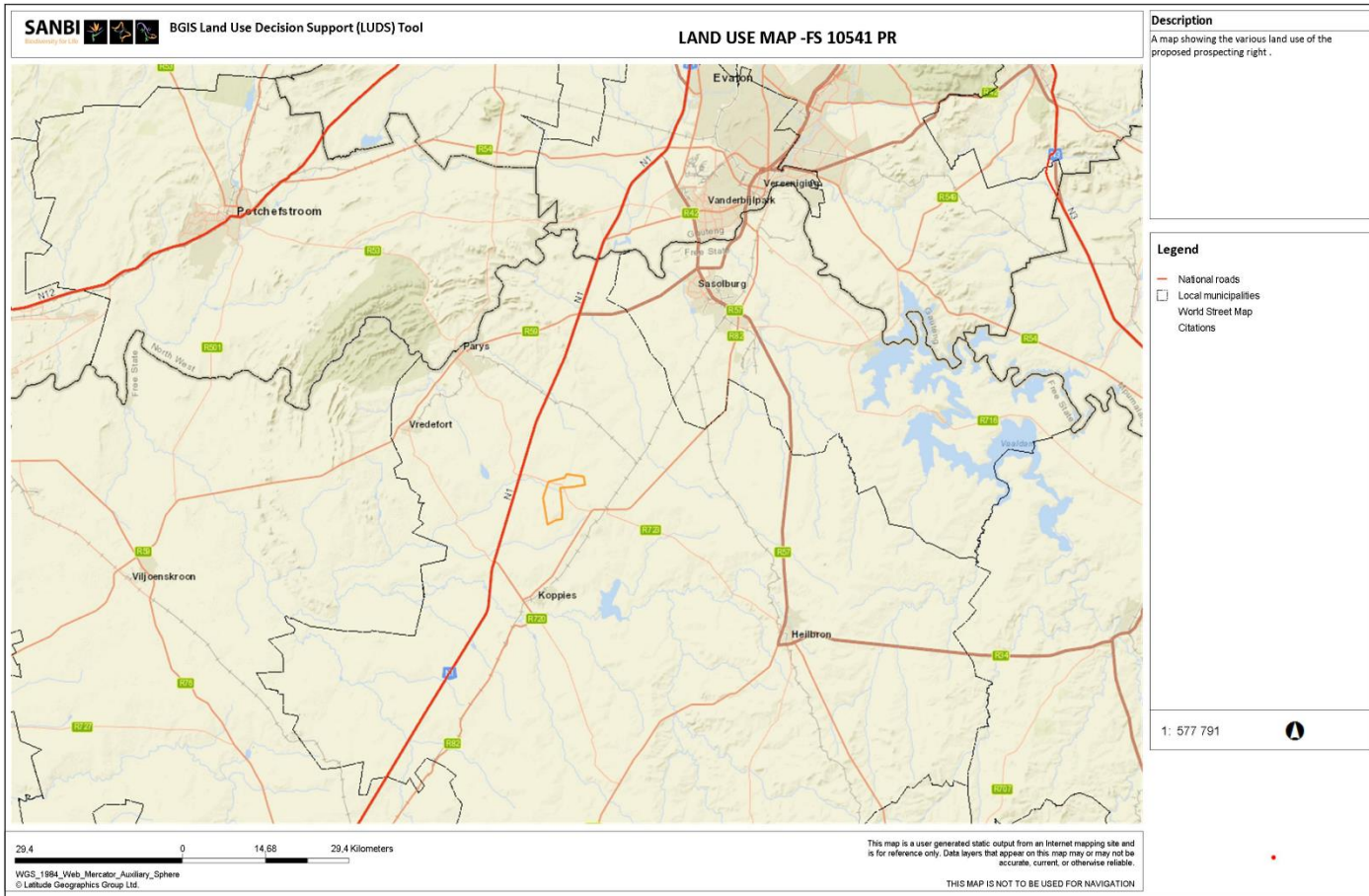


Figure 6: Current Land Use and land cover

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Land uses are dominated by agriculture and mining, predominantly Clay mining shaded areas indicated areas where natural vegetation can still be found with the remaining areas indicating no natural habitat. As can be seen in figure 6, the natural patches are largely associated with surface water bodies, with the remaining areas largely under agriculture.

Infrastructure is limited to farm houses, farm buildings, farm roads and infrastructure associated with servitudes. A number of power lines are located within the project area

NOISE

Prevailing noise levels in the area vary, but generally typical of a rural district with main and secondary roads. Seasonal variations in noise associated with agricultural activities occur on some on adjacent farm portions.

VISUALS

In general, the area is visually pleasing, with natural veld and cultivated gently sloping hills. In the ploughing season, maize meal, sunflower and soya beans are the most dominant plants being cultivated in this area. Dust caused by vehicles travelling on unpaved roads is visible at times; smoke from biomass burning and dust raised by agricultural activities contribute to the visual impacts associated with natural seasonal variations in the appearance of the vegetation.

SOCIO-ECONOMICS

According to the Statistics South Africa figures of 2016, the Ngwathe municipality has an estimated total population of 118 906 with the size of the municipality standing at 7 006.7. Agriculture is currently the predominant economic contributor. Ngwathe is host to some of the most developed Calcium Bentonite deposits, a percentage of which has already been explored and extracted from the ground by other mining companies.

The community of Koppies and Kwakwatsi are situated approximately 70km south of Sasolburg and 61km north of Kronstad. Other larger centers such as Vereeniging and vanderbijlpark and all within 90km of Koppies. For the Ngwathe municipality the following population information is available . The total population is 120 030 57.41% of the population resides in the urban areas and 42.59% in the rural areas.

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Major economic activities and sources of employment:

For the Ngwathe Municipality the main industries employ the following: Farming, 6661, Mining 220, manufacturing 2072, utilities 29, construction 1697, trade 2547, transport 1159, business services 748 and social services 3510.

Unemployment estimate for the area: Unemployment for the district municipality is estimated at 58% as of 2018 Statistics South Africa.

Social infrastructure: The Ngwathe Municipality has the following social infrastructure: 220 Schools; Koppies have a Primary health care mobile service. There is also a local police station and law court.

Power supply: Power supply to the region is from the Eskom grid.

Site of Archeological and cultural interest: Some graves and graveyards are found in the general area. It is likely that some historical buildings will be found in the area. Prospecting will have flexibility in placement of drill holes to avoid these sites and associated buffer zones should they be observed. Should any site be found or note during prospecting activity, a 50m buffer zone will be applied and no invasive prospecting will occur within these buffer zones unless a permit is obtained to do so.

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

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

Potential Impacts Identified

- Interference with agriculture –farming activities
- Increase in Stock theft

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- Increased human traffic on surrounding farm areas
- Possible ground water pollution.
- Soil compaction, erosion and pollution
- Impacts on flora and fauna as a result of drilling activities
- Air and dust pollution
- Noise pollution/ nuisance
- Visual impacts, heaps of mountainous stockpile should the prospecting activities continue to a mining right.
- Social Impacts, health and safety concerns.
- Heritage Impacts

Table 4: Impact Assessment Matrix for the Proposed Lengana Health Project.

	Impact Pathway	Nature of potential impact/risk	Phase where impact is most anticipated			Extent	Duration	Consequence	Probability	Significance of impact/risk= consequence probability	Reversibility of impact	Irreplaceability of receiving environment	Can Impact be avoided	Can impact be managed or mitigated	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/risk
			C	O & M	D												
Fauna and flora	Clearing of vegetation	Habitat and loss of species of Conservation Importance (CI)				Site	Long-term	Substantial	Very likely	High	No	Moderate	X	✓	Rehabilitation programme and ensuring workers are aware on the site boundary	Low	4
		Exposed soil susceptible to erosion	✓			Site	Medium-term	Moderate	Likely	Low	Yes	Low	X	✓	Erosion Management Plan (EMPr)	Very low	3
	Disturbance of soil	Alien plant invasions in disturbed area	✓			Site	Long-term	Severe	Very-Likely	High	Yes	Low	X	✓	Plant Search and Rescue	Low	4
	Fauna	Faunal mortality and displacement (including CI species)	✓	✓		local	Long-term	Substantial	Very-Likely	Moderate	No	Moderate	X	x	Align powerline routes to existing routes so as to concentrate the impact in one area making the risk lower for the birds	Low	4
	Spills, pollution	Contamination of groundwater	✓	✓	✓	local	Long-term	Severe	Likely	High	No	Low	✓	✓	Pollution Management (EMPr)	Moderate	3
	Water runoff	Altered hydrological regimes and water quality	✓	✓	✓	local	permanent	Substantial	Likely	Moderate	Yes	Low	x	✓	Adaptive project design to avoid watercourses; storm water management Plan (EMPr)	Low	4

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	Ground water quality	Leaks acid mine drainage and pollutions quality of the groundwater	✓	✓	✓	Local/regional	Medium-term	Substantial	Likely	Moderate	No	Moderate	✓	✓	Proper set up and maintenance of structures to avoid leaks and spillages	Low	4
Social	Traffic operations	Increase in traffic pressure on the road network	✓	✓	✓	Local/Regional	Long-term	Moderate	likely	Moderate	No	Low	x	✓	Trucking minimised and kept to normal operational hours	Low	4
	Health and safety of workers	High risk work environment causing injury and/or death	✓	✓	✓	Site	Permanent	Severe	unlikely	moderate	No	High	✓	✓	Proper training, Health and safety precautions in place and routing maintenance of equipment as per the EMP	Low	4
Air Quality	Air Quality disturbance due to emissions from operations of trucks	Decrease in the quality of air	✓	✓	✓	Local & regional	Long-term	Substantial	Unlikely	Low	No	Low	X	✓	Keep within regulated acceptable emissions standards & consider cumulative impacts	Very low	5
	Dust generation	Increase in traffic on dirt roads causing dust generation	✓	✓	✓	Site	Long-term	Moderate	Unlikely	Moderate	No	Low	✓	✓	Use gray water for dust spraying and wetting, proper grading of roads and keeping traffic to a reasonable level	Low	4
Economic	Development of proposed project	Decreased property value	✓	✓	✓	Regional	Long-term	Slight	Unlikely	Very low	Yes	High	✓	✓	Proper construction management, minimise other potential impacts (tourism)	Very low	5
Noise	Noise disturbance during construction, operation and decommissioning	Disruption to surroundings due to noise levels	✓	✓	✓	Local	Long-term	Severe	Likely	Moderate	No	High	X	✓	Adaptive project design to avoid excessive noise disturbance	Moderate	3
Visual	Visual intrusion of project during construction and decommissioning	Transformed visual landscape	✓	✓		Regional	Long-term	Moderate	Very likely	Moderate	No	Low	x	x	Maintain appearance of physical structure	Moderate	3
Geotechnical	Erosion	Aeolian erosion of substrate	✓	✓	✓	Site	Long-term	Slight	Unlikely	Low	yes	Moderate	✓	✓	Aeolian erosion should be managed during the construction phase via proper building techniques	Low	4

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	Regional Subsidence	When fluid is removed, the load is born by the sediment alone and it settles	✓			Site	Long-term	Moderate	Unlikely	Low	no	Low	✓	✓	No reports of regional subsidence have been reported in the site vicinity, and lack of intense removal of significant quantities of water or oil in the real makes the potential for ground subsidence	Low	4
Heritage	Clearing the 4.2 Ha site	Destruction of archeology	✓			Site	Long-term	Moderate	Unlikely	Low	No	Low	X	✓	Report any findings to the heritage authorities and may require inspection by an archeologist or paleontologist	Very low	5
		Destruction of paleontology	✓			Site	Permanen t	Slight	Unlikely	Low	No	Low	X	✓	Report any findings to the heritage authorities and may require inspection by an archeologist or paleontologist	Very low	5
		Erosion of cultural landscape	✓			Site	Permanen t	Slight	Unlikely	Low	No	Low	x	✓	Report any findings to the heritage authorities and may require inspection by an archeologist or paleontologist	Very low	5

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

INTRODUCTION

The impact assessment aims at identifying potential environmental impacts (both positive and negative impacts) and evaluating these impacts in terms of its significance. This assessment is provided in the form of a systematic analysis framework to evaluate the nature, extent, duration, intensity, probability and significance of the various impacts - considered both without and with mitigation and management measures.

IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURAION AND PROBABILITY OF IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACTS.

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

EXTENT/SCALE

The physical extent of the impact.

- Footprint: The impacted area extends only as far as the actual footprint of the activity.
- Site: The impact will affect the entire or substantial portion of the site/property
- Local: The impact will not affect the area including neighboring properties and transport routes.
- Regional: Impact could be widespread with regional implication.
- National: Impact could have a widespread national level implication.

DURATION

The duration of the impact.

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- Short term: The impact is quickly reversible within a period of one year, or limited to the construction phase, or immediate upon the commencement of floods.
- Medium term: The impact will have a short term lifespan (project lifespan 1 – 10 years).
- Long term: The impact will have a long term lifespan (project lifespan > 10 years).
- Permanent: The impact will be permanent beyond the lifespan of the development.

INTENSITY

This criterion evaluates intensity of the impact and is rated as follows:

- Minor: The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected.
- Low: The activity will have a low impact on the affected environment.
- Medium: The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way.
- High: The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases. Very high: The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

PROBABILITY

Probability describes the likelihood of the impact/s actually occurring.

- Improbable: The possibility of the impact occurring is highly improbable (less than 5% of impact occurring).
- Low: The possibility of the impact occurring is very low, due either to the circumstances, design or experience (between 5% to 20% of impact occurring).
- Medium: There is a possibility that the impact will occur to the extent that provision must be made therefore (between 20% to 80% of impact occurring).

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- High: There is a high possibility that the impact will occur to the extent that provision must be made therefore (between 80% to 95% of impact occurring).
- Definite: The impact will definitely take place regardless of any prevention plans, and there can only be relied on migratory actions or contingency plans to contain the effect (between 95% to 100% of impact occurring).

DETERMINATION OF SIGNIFICANCE

Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the extent, duration, intensity and probability of the impacts.

- No significance: The impact is not substantial and does not require any mitigatory 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 great 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 and management is essential.

The following assessment scale is used to determine the significance of the identified potential impacts on the environment.

Significance = (probability + duration + scale) x intensity

Probability: 1 – 5

Extent: 1 – 5

Duration: 1 – 4

Intensity: 1 – 10

>75	High environmental significance
50-75	Medium environmental significance
<50	Low environmental significance

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

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

The positive impact in terms of initial layout of the site is that there is no need for new access roads to be constructed and most of the farms are located very close to the main road (R82). The negative impact of the proposed activity is that the proposed area is a farm area and once excavation takes place it will take a while for that land to be used for the same purposes. There are no alternative site layouts proposed for this project.

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

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

Possible mitigation measures to address issues and concerns raised by I&APs (if any) will be addressed following the 30 day public participation period of the Draft Basic Assessment Report.

ix. Motivation where no alternative sites were considered.

With regard to location, the prospecting activities are delimited by the properties available for prospecting (i.e. not held by another company) and the geology of the surrounding area. The invasive prospecting activities will be delimited by areas identified through non-invasive prospecting and therefore alternative sites or locations are not relevant to this type of activity.

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No activity alternatives are considered. Drilling is still the most effective way and an industry norm to complete resource evaluation as required for the prospecting works program to be submitted in terms of a PRA.

The use of aerial geological mapping as an initial non-invasive technique to delimit areas for invasive drilling and trenching prospecting is seen as the most responsible method to reduce needless surface disturbance and reduce environmental impact footprint. Technology alternatives are therefore also not assessed further.

x. Statement motivating the alternative development location within overall site. (Provide a statement motivating final site layout that is proposed)

As is clear from the information provided, each of the phases is dependent on the results of the preceding phase. The location and extent of soil sampling, diamond drilling and possible trenching will be based on information derived from the geophysics surveys. Sampling and drill sites will be selected to avoid known heritage features and water course where practicable. The proposed site is proposed because of the geological formation and it would defeat the purpose if a different location within irrelevant geological formation was to be selected for this activity.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all Environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

The impact identification process commenced by identifying all environmental aspects on site, whether sensitive or not. General environmental aspects that were considered include:

- Topography
- Geology
- Soil & Associated Land Capability
- Surface Water, Associated Wetlands and Aquatic Ecosystems
- Groundwater ☐ Floral and Faunal Ecosystems
- Air Quality ☐ Ambient Environmental Noise
- Archaeological and Cultural Sites
- Local Traffic and Safety
- Socio-Economics, Health and Safety

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All potential impacts that may occur to the various environmental aspects as a result of the activities listed in Part a Section 3(d)(i) of this report were listed for each of the aspects.

Through the PPP, any issues or potential impacts identified by the I&APs have been added to the list of potential impacts.

All these impacts were then assessed as per the methodology described above and their significance determined. Impact identification has therefore been a consolidated approach based on MinMet Services' professional experience and I&AP (including organs of state involved in the PPP) input. The impacts are listed with their significance and possibility for mitigation under Part A Section 3(h) (v). Other impact details are also elaborated under Part A Section 3(j) below.

(a) 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).

ACTIVITY	POTENTIAL IMPACTS	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE
Drilling	Localized dips in topography if boreholes collapse after material is replaced. Cracks and disruption to geological layers. Potential for compaction of soils. Cracks and disruption to aquifers. Potential hydrocarbon contamination seeping to the groundwater environment. Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles. Increased noise levels. Loss of and disturbance to archaeological / heritage / grave sites Topography	Topography Geology Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems Groundwater Air Quality Noise Archaeological/Cultural Sites	Operation, Decommissioning, Closure	Mostly impacts are of low significance. Most significant impact would be to heritage sites (high significance) and wetlands (moderate to high significance) if sites are not properly planned to avoid these sites. Significance can mostly be reduced to low;	Remedy through : Ripping compacted soils Clearing any spills Ceasing and rehabilitating any illegal activity. Rehabilitation and repairing any damages. Inspection and immediate action CONTROL THROUGH: Planning invasive prospecting sites properly to avoid sensitive features. Remaining in designated roads / routes / prospecting areas. Maintaining all vehicles, machinery and equipment and discontinuing use of faulty equipment. Placing drip trays under leaky equipment. Dust alleviation by spraying and limiting speeds on dirt roads. Noise control measures on

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				or moderate to low through proposed mitigation measures	noisy equipment. Regular communication with nearby I&APs. Contracting necessary specialists as needed. STOP THROUGH: Preventing activities within 100m of streams and wetlands unless authorization is obtained to do so. Preventing activities near potential heritage sites unless necessary permits are obtained to do so.
Rehabilitation of boreholes.	Topographical nature of the area will be restored through rehabilitation. Soil replacement and Re-vegetation through rehabilitation and the closing of boreholes after drilling.	Topography Soil & Land Capability Surface Water & Associated Wetlands & Aquatic Ecosystems	Operation, Decommissioning, Closure	Impact significance is moderate to low.	No mitigation necessary. Impact is positive

CUMULATIVE IMPACTS

IMPACT	SIGNIFICANCE RATING OF IMPACT BEFORE MITIGATION	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACT AFTER MITIGATION
Impact of extra operational vehicles on the road	Low (Negative)	Undertake re-calibration of existing traffic signals if required	Low (Negative)
Increased job opportunities	Medium (Positive)	No mitigation measures are identified	Medium (Positive)

(b) Summary of specialist reports

(This summary must be completed if an 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 specialist report was deemed necessary for this BA application for prospecting.			

Attach copies of specialist Reports s appendices

(c) Environmental Impact statement

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

Key findings of the environmental impact assessment include:

- The significance of potential environmental impacts can be reduced to moderate minor with implementation of mitigation measures and monitoring.
- Likewise, potential impacts on the socio-economic environment and livelihoods can be mitigated to moderate – minor significance.
- Cumulative noise and visual impacts are rated with a negligible significance.
- It is expected that cumulative impacts on surface and groundwater quality and biodiversity will be major prior to mitigation. Mitigation measures for these potential impacts include: Application of best-practice water management at the audit, rehabilitation of infrastructure and continuous monitoring of surface and groundwater quality.

(d) Proposed impact management objectives and the impact of management outcomes for inclusion in the EMPr Based on the assessment and where applicable the recommendations, the recording of proposed impact management objectives, and the impact management outcomes for the development for the inclusion in the EMPr as well as for inclusion as conditions of authorization.

The EMPr addresses the environmental impacts associated with the project during Construction, Operation, Decommissioning and Post Closure Phases of the proposed project. This Environmental Management Programme (EMPr) is prepared as part of the requirements of the National Environmental Management Act (NEMA) EIA Regulations published in GNR 983, 984 and 985 on the 4 December 2014 Government Gazette Number 38282, and NEM:WA Regulations published in GNR 921 on the 29 November 2013 Government Gazette No 3708. The EMPr is to be submitted to DMR as part of the Application for Environmental Authorisation for the proposed prospecting activities. The objectives of the EMPr will be to provide detailed information that will advise the planning design of Lengana Health SA in order to avoid and/or reduce impacts that may be detrimental to the environment.

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

- Minimizes the ecological footprint of the project on the local environment;
- Facilitates harmonious co-existence between the project and other land uses in the area; and

The following environmental management objectives are recommended for the proposed 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 finds.
- Promote health and safety of workers.
- Limit dust and other emissions to within allowable limits.

Impact management objectives are described in terms of the Mitigation Hierarchy of the MinMet Group 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 siting 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, traffic controls, perimeter screening and landscaping).
- **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 and forestry 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 fisheries access, recreation and amenity space).

Environmental impact management outcomes are:

- Conduct prospecting activities responsibly and ensure operation is compliant with legislative requirements.
- Protect the biophysical environment as far as possible, specifically wetlands and riverine areas and any protected species observed on site.
- Protect the water resources in the area as far as possible
- Ensure atmospheric pollution is kept to a minimum: ☐ Ensure adequate rehabilitation to allow continued grazing land use.
- Ensure socially responsible activities. ☐ Protect historical and cultural sites if they are observed on site.

(e) Aspects for inclusion as conditions of authorization

Any aspect which must be made condition of the Environmental Authorization

- Frequent surface and groundwater monitoring .
- Noise measurements to test and verify any noise complaints, as and when the need arises otherwise.
- Development of a project specific Recruitment Policy in accordance with the Employment Equity Act (Act 55 of 1998), Basic Conditions of Employment Act, 1997 and The Broad-based Socio-economic empowerment Charter for the South Africa Mining and Minerals Industry,2010.
- If any archaeological or paleontological material or human burials are uncovered during the course of development then work in the immediate area should be halted. Relocation of burial grounds and graves must be in accordance with the National Heritage Resources Act (Act 25of 1999). The find would need to be reported to the heritage authorities and may require inspection by an archaeologist or paleontologist as appropriate. Such heritage is the property of the state and may require excavation and curation in an approved institution. The project EMPr should make reference to this possibility so that appropriate action can be taken as and when necessary.

(f) Description of any assumptions, uncertainties and gaps in knowledge.

(which relates to the assessment and mitigation measures propose)

The following assumptions, uncertainties and gaps in knowledge have been made by MinMet Services in the impact assessment and development of mitigation measures:

- It is important to note that the absence of species on site does not conclude that the species is not present at the site. Reasons for not finding certain species during the summer site visit may be due to:
- The small, fragmented nature of the site and disturbances from past excavation and farming activities on site.
- The short duration of fieldwork and the timing of the fieldwork, which occurred after a few months of below average rainfall
- Some plant species, which are small, have short flowering times, rare or otherwise difficult to detect may not have been detected even though they were potentially present on site.
- Reporting including vegetation community descriptions, mapping of broad habitat types / vegetation communities and CI species analysis. For CI floral species, Likelihood of Occurrence (LO) rating is

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assigned to each species based on the availability of suitable habitat using the following scale: Present; Highly likely; Possible; Unlikely or No Habitat available.

- Cumulative impacts are assessed by adding expected impacts from this proposed development to existing and proposed developments with similar impacts in a 20km radius.

(g) Reasoned opinion as to whether the proposed activity should or should not be authorized

Based on the detailed environmental impact assessment undertaken and the proposed management measures proposed, the EAP is of the opinion that the proposed Lengana Health SA prospecting project can be granted Environmental Authorization (EA) provided Lengana Health adheres to the management and mitigation measures proposed. Environmental Authorization should include those conditions listed in section (n).

The biggest risks of the project are inadvertent damage to wetlands, heritage sites and protected species. All these impacts can be avoided through proper planning and thorough visual surveys of sites targeted for prospecting. Positive impact is associated with the brief creation of jobs and is considered of moderate to low significance. This has been assessed in terms of the prospecting operation on its own; however should this prospecting right be converted into a MR then the social benefits will be of moderate to high significance.

No activity is to occur within wetlands and their 100m buffer zones, within rivers and their 100m buffer zone / 1:100 year flood line without the necessary authorisation under NEMA and NWA.

Protected species must remain in situ until the necessary permits are obtained under NEM:BA.

Heritage sites and 50m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.

Rehabilitation must be applied on an on-going basis and no sites must be left exposed for more time than necessary to obtain the necessary data.

Note: this opinion may be revised following the public participation period.

j) Period for which the Environmental Authorization is required

Environmental Authorization is required for the life of the project. Prospecting activities are likely to require 5 years, including initial data assessment.

k) Undertaking

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

The undertaking is provided at the end of EMPr. Undertaking at the end of the BA and EMP has been fully completed and signed.

l) Financial Provision

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

Explain how the aforesaid amount was derived.

The financial provision of R260 097 has been budgeted for the prospecting program over the 5 year period .

(i) Explain how the aforesaid amount was derived.

The amounts were calculated according to the guideline for the calculation of the quantum for rehabilitation as provided by the DMR. The prospecting operation will make use of a contracted drill rig. Drilling will be done in stages and there is a set number of 8 holes to be drilled in this area.

The financial guarantee was calculated using the DMRs rules based on the quantum financial provision.

All aspects included were multiplied by relevant master rate for that year.

- (ii) Confirm that this amount can be provided for from operating expenditure** (confirm that the amount, is anticipated to be an operating cost and is provided for as such in the mining work programme, financial and technical competence report or prospecting work programme as the case may be)

The project applicant has confirmed that this is the amount can be provided for from operating expenditure.

m) Specific information required by the competent authority

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

- 1. Impact on the socio-economic conditions of any directly affected person.** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond mining 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** .

The prospecting endeavor is proposed on property under the jurisdiction of the Ngwathe Municipal District, who has been informed and is in agreement with proposed project.

- 2. Impact on any national estate referred to in section 3 (2) of 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).

There are no significant heritages resources present on the site and significant impacts are thus not expected.

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

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

Note: information on the preferred alternative, as well as the motivation for exclusion of other alternative has been included in Section g) and h), kindly refer to these sections above.

PART B

1 DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

(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).

(a)Details of the EAP

Details as include in PART A: Section 3(a):

Lengana Health SA (Pty) Ltd is the owner of the project and such is responsible for ensuring that the conditions of the Environmental Authorization is issued in terms of NEMA (should the project receive such authorization)

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are fully satisfied, as well as ensuring that any other necessary permits or licenses are obtained and complied with. It is expected that the project developer will appoint the Environmental Control officer, EHS Manager and Construction Manager.

(b) Description of the Aspects of the Activity

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

The aspects of the activity that are covered by the draft environmental management programme have been described and included in Part A, section (1)(h)

(c) Composite Map

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

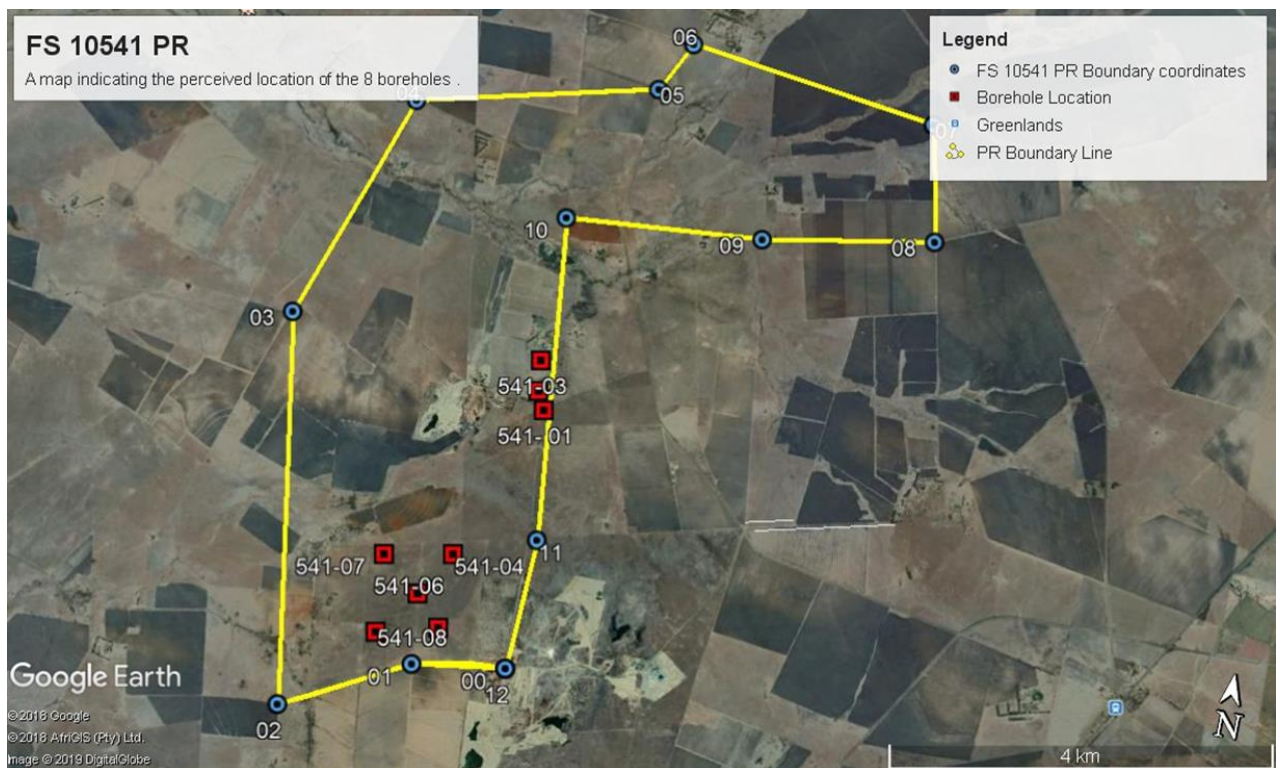


Figure 7 .The above map indicates the prospecting right boundary and associated farms. There will be no site establishment on site.

(d) Description of Impact management objectives including management statements

- **Determination of closure objectives**

The proposed prospecting area can be divided into two main areas, which is natural veld farm land mostly as a result of grazing activities and possible past clearing activities that have occurred in the area. The transformed areas contain few or no indigenous species, whereas the degraded areas are mainly made up of indigenous species with some invasive species in disturbed areas. The main potential environmental impacts associated with the proposed project include:

- Loss of vegetation and faunal habitat;
- Topography and visual alteration;
- Soil erosion;
- Soil and water resources contamination;
- Impact on water quantity and quality;
- Land capability reduction;
- Spread of alien plant species.

Therefore, effective and practical measures need to be implemented to prevent, reduce or control and remedy any impacts that may be detrimental to the environment, as well as to rehabilitate the site to a desired state similar to that of the pre-prospecting state. These measures include:

- Rehabilitate the site in accordance with a detailed closure plan, and implement an alien invasive management plan to ensure the establishment of indigenous vegetation.
- Rehabilitation of the disturbed areas to return the site to its similar visual state prior drilling.
- Identify and attend to possible areas of erosion.
- Implement an effective waste management plan to contain waste on site, as well as any spills that may occur.

- **Volumes and rate of water use required for the operation**

The proposed prospecting activities will not use any water .Water will be used for domestic usage and in small quantities. The drillers will bring own water to site for these purposes hence, no water usage license needs to be applied for.

- **Has a Water Usage License been applied for?**

The project will not require a water usage license as described above.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE STANDARDS WITH	TIME PERIOD FOR IMPLEMENTATION
Drilling	Operation	36 000 m ²	Collection of baseline hydrochemistry samples for analysis.	Manage & Control via Soil Management Measures	Daily inspections and quarterly reports.
			Ensure that infrastructure is kept to its most “natural” state and keep a tidy visually ordered site.	Ensure acceptable visual landscape is maintained.	
			Rubble/litter/waste removal and disposal to be monitored throughout construction.		
			Complaints about night lights should be investigated and documented in a register.		
			Water conservation to be practiced in line with Energy Saving Policies as follows: <ul style="list-style-type: none"> •Cleaning methods utilized for cleaning vehicles, floors, etc. should aim to minimize water use (e.g. sweep before wash-down). •Ensure that regular audits of water systems are conducted to identify possible water leakages 	Monitor and remedy through Emergency Response Plan and Storm water Management Plan	
Material storage on site	Operation	n/a	Measure noise levels routinely to ensure the noise levels are being kept within the acceptable ISO standards.	Noise control measures must be implemented i.e. keep to daylight hours for work and machinery as defined in South African National Standards (SANS) 10103)	Monitor daily + quarterly Reports.
			Routine safety checks, safety training and Inspections to be carried out during the construction phase to enforce the use of respiratory protection by construction personnel. This must also be written into the safety requirements of the Contract.	EHS standards to be abided by.	

- **Impacts to be mitigated in their respective phases**

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			Ensure the design of the facility is done in such a way to adequately manage storm water.	Monitor and manage through Storm water Management Plan	
Storage of diesel and vehicle/machinery maintenance equipment.	Operation	20 m ²	Ensure that cleared (excavated) areas and unpaved surfaces are sprayed with water (obtained from an approved source) to minimize dust generation. Approved soil stabilizers may be utilized to limit dust generation.	Monitor waste generation and Collection throughout the phases.	Daily through all phases
			Maintain good waste management practices. Ensure the design of the facility compensates for good ventilation and cleanliness. Monitor odours regularly by conducting assessments.		
			Management and monitoring of soil stockpiles. Soils must be stored properly and vegetated to prevent erosion and to enable re-use during rehabilitation.		
			General waste and hazardous waste should be stored temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate	Inspection of the temporary waste storage area.	
Non-toxic waste generation and disposal	C,O,D	10 m ²	Should the on-site storage of general waste and hazardous waste exceed 100 m ³ and 80 m ³ respectively, then the National Norms and Standards for the Storage of Waste (published on 29 November 2013 under Government Notice 926) must be adhered to.	Measure and control through waste disposal plans	Daily waste management Quarterly reports
			Ensure that sufficient general waste disposal bins are provide for all construction personnel throughout the site. These bins must be emptied on a regular basis.	Measure and control through waste disposal plans	

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			<p>Ensure that infrastructure is kept to its most “natural” state and keep a tidy visually ordered site.</p> <p>Rubble/litter/waste removal and disposal to be monitored throughout construction.</p> <p>Complaints about night lights should be investigated and documented in a register</p>	<p>Monitor site neatness with regular inspections.</p>	
<p>Rehabilitation and restoration of disturbed areas</p>	<p>D ,PC</p>	<p>4.2 ha</p>	<p>Ensure that rubble and litter are appropriately stored and regularly removed from site to a licensed waste disposal facility.</p>	<p>Rehabilitation and EHS plan.</p>	<p>Decommissioning.</p>
			<p>Ensure that normal sewage management practices are implemented during decommissioning such as regularly emptying toilets and ensuring safe transport and disposal of sewage.</p>		
			<p>7.12.1. Appropriately time demolition / rehabilitation activities to minimise sensory disturbance to fauna.</p>		

(e) Impact management Outcomes

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARDS TO BE ACHIEVED
Please see section d (ii) of Part A for a list of activities to be undertaken.	Please see section (v) and (viii) of Part A for the description of potential impacts associated with the project.	Please see section j) of Part A.	Please see section j) of Part A.	Please see section j) of Part A for mitigation type.	Please see section d (ii) of Part A for a list of activities to be undertaken.

(f) Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARDS TO BE ACHIEVED
Please see section d (ii) of Part A for a list of activities to be undertaken.	Please see section (v) and (viii) of Part A for the description of potential impacts associated with the project.	Please see section i) of Part A.	Please see section iv) of Part A.	Please see section j) of Part A for mitigation type.	Please see section iv) above in terms of compliance, as well as section e) of Part A for compliance with legislation and policy.

(g) Financial Provision

1. Determination of the amount of financial provision

a) Describe closure objectives and extend to which they have been aligned to the baseline environment described under the regulation

Lengana Health will be using temporary “mobile” infrastructure for its processing activities, and therefore no infrastructure associated with the site will require breaking down or demolishing at closure. The areas disturbed as a result of the prospecting operation will be rehabilitated by maintaining the general topography, biodiversity and ecological state of the surrounding area, ensuring that there are no remnants of the structures. The closure objectives aim to return the affected area to a land use condition or desired state similar to that of the pre-drilling state. Closure and rehabilitation of the holes will be undertaken during the operational phase when the activities are completed in those pits, to achieve a desired land condition as early as possible. At the end of the project life cycle, all holes drilled will be covered up and grass will be replaced where deemed necessary.

A thick soil layer will be spread across the disturbed areas; thereafter the soil will be ripped, fertilized and re-vegetated. Post-closure monitoring will assist in determining the success of the rehabilitation and also identify whether any additional measures need to be taken to ensure the area is restored to a reasonable and acceptable condition. Rehabilitation measures and objectives will be undertaken in compliance with legislation and policy governing the requirements for rehabilitation such as the National Environmental Management Act 107 of 1998 and the Mineral and Petroleum Resources Development Act 28 of 2002.

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

This EMPr highlights the rehabilitation and management objectives with regards to mitigating negative environmental impacts associated with the proposed prospecting operation. These environmental objectives related to the closure of the prospecting operation contained in this EMPr and DBAR are being subjected to a 30-day review period by Interested and Affected Parties (currently). Contents of the EMPr with regard to rehabilitation may be altered following inputs from the public commenting period.

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

The rehabilitation plan for the Lengana Health SA (Pty) Ltd operation aims to mitigate the negative impacts associated with the prospecting activities, and ultimately to return the affected land to its desired land use standard. The objectives of the plan are to ensure that the condition of the land post prospecting activities are suitable to and in agreement with the affected neighboring community, tribunal council (landowners) and the competent authority, that there is minimal loss to the biodiversity of the area, and that rehabilitation restores the land use and capability of the area/site.

The rehabilitation process will commence after the drilling operation throughout the life of the project; involving concurrent rehabilitation of boreholes when activities are completed in those boreholes and thereafter the final rehabilitation will be undertaken during the project closure phase. In terms of the areal extent of the rehabilitation.

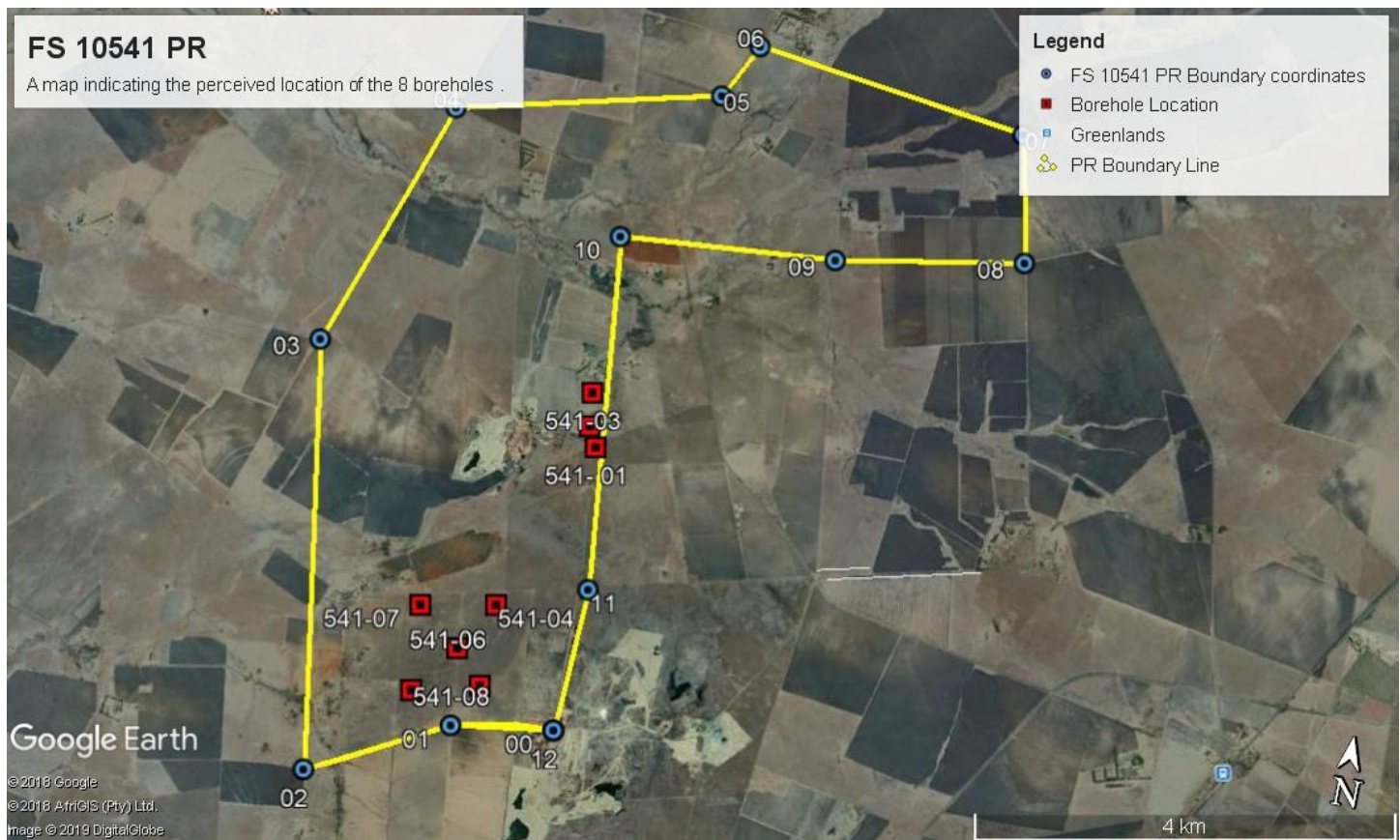


Figure 8. Indicates the position of the boreholes and the regional locality. The position of these boreholes is subject to change as new information is gathered on the mineralization of the land.

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

The rehabilitation plan of this project will allow the proposed prospecting operation to achieve the following objectives

- Comply with relevant legislation and policy requirements with regards to mine rehabilitation.
- Avoid or mitigate impacts associated with the project which may be detrimental to the environment.
- Land rehabilitation to a predetermined and agreed upon state that allows sustainable land use and capability of the site, that is to return the site to the condition that existed prior to drilling
- Cost effective and efficient closure of prospecting operations.
- Management and monitoring of the area post-closure.

The rehabilitation plan will thus be aligned to the closure objectives and tailored to the project to achieve these objectives. It will include information about the site prior to the prospecting operation and provide information on the maintenance of resources required for the rehabilitation process, as well detail how rehabilitation will be undertaken. It will also provide information on the management and monitoring of disturbance to avoid or minimize detrimental impacts, as well as an estimate of the financial closure provision. It will also include information associated with post-closure environmental monitoring of the site to ensure that the rehabilitation plan is followed and its objectives are achieved.

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

The R260 097 amount was calculated according to the guideline for the calculation of the Quantum for rehabilitation as provided by the DMR.

Refer to the table below for the calculated Quantum Rehabilitation Financial Provision.

Notes with regards to the calculation of the quantum below:

Due to the fact that the proposed project will be using mobile and temporary structures such as a drill rig, the cost of rehabilitating structures does not apply. This ensures that the rehabilitation costs will be kept relatively low.

**CALCULATION OF THE QUANTUM: FS
10541 PR**

Applicant: Lengana Health SA (Pty) Ltd

Location: Greenlands Koppies

Date: 30 June 2019

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	350	R 15.00	1	1	R 5 250.00
2 (A)	Demolition of steel buildings and structures	m2	100	R 215.00	1	1	R 21 500.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 317.00	1	1	R 0.00
3	Rehabilitation of access roads	m2	650.00	R 38.00	1	1	R 24 700.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m2	0	R 373.00	1	1	R 0.00
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 203.00	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 430.00	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R 225 186.00	1	1	R 0.00
7	Sealing of shafts adits and inclines	m3	0	R 115.00	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0.1	R 150 124.00	1	1	R 15 012.40
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R 186 977.00	1	1	R 0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R 543 069.00	1	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 125 706.00	1	1	R 0.00
10	General surface rehabilitation	ha	1	R 118 924.00	1	1	R 118 924.00
11	River diversions	ha	0	R 118 924.00	1	1	R 0.00
12	Fencing	m	0	R 136.00	1	1	R 0.00
13	Water management	ha	0	R 45 218.00	1	1	R 0.00
14	2 to 3 years of maintenance and aftercare	ha		R 15 826.00	1	1	R 0.00
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum	0			1	0
Sub Total 1							185386.4

1	Preliminary and General	22246.368	weighting factor 2	22246.368
			1	
2	Contingencies		18538.64	18538.64
Subtotal 2				226171.41

VAT (15 %)	33925.71
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Grand Total	260097
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f) Confirm that the financial provision will be provided as determined.

Lengana Health SA (Pty) Ltd confirms that the financial provision will be provided as determined. The financial provision (amounting to R 260 097) will be made by way of a bank guarantee and/or trust fund established in terms of the applicable legislation; and set out as per Appendix 1 of the NEMA Regulations pertaining to financial provision (Government Gazette 39425, 20 November 2015).

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

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

ROLES AND RESPONSIBILITIES

For the purposes of the EMPr, the generic roles that need to be defined are those of the:

- Project Developer;
- Environmental Control Officer;
- Environmental Health and Safety (EHS) Manager;
- Construction Manager/Project Geologist (Lead Contractor or Engineering Consultant); and

It is acknowledged that the specific titles for these functions will vary from project to project. The intent of this section is to give a generic outline of what these roles typically require. It is expected that this will be appropriately defined at a later stage.

Project Developer

The Project Developer (i.e. Lengana Health SA) is the 'owner' of the project and as such is responsible for ensuring that the conditions of the Environmental Authorization issued in terms of NEMA (should the project receive such authorization) are fully satisfied, as well as ensuring that any other necessary permits or licenses are obtained and complied with. It is expected that the Project Developer will appoint the Environmental Control Officer, EHS Manager and Construction Manager.

Environmental Control Officer

An independent Environmental Control Officer (ECO) must be appointed to monitor the compliance of the proposed project with the conditions of Environmental Authorisation (should such authorisation be granted by DMR) during the construction phase (and possibly the operational phase, depending on the requirements of DMR). The ECO must also monitor compliance of the proposed project with environmental legislation and recommendations of the EMPr.

The ECO will be responsible for preparing the Final EMPr based on the Draft EMPr, as well as updating the EMPr as and when necessary, and compiling a monitoring checklist based on the EMPr. The roles and responsibilities of the ECO should include the following:

- The ECO must undertake periodic environmental audits during the relevant phases of the proposed project in order to monitor and record environmental impacts and non-conformances. It is recommended that weekly or bi-weekly environmental audits be undertaken by the ECO during the construction phase.
- Environmental compliance reports must be submitted by the ECO to the Competent Authority (i.e. GDARD) on a regular basis (i.e. monthly during the construction phase or as stipulated by the DMR).
- The ECO must maintain a diary of site visits and audits, a copy of the Environmental Authorization (should such authorization be granted by DMR) and relevant permits for reference purposes, a non-conformance register, a public complaint register, and a copy of previous environmental audits undertaken.
- Prior to the commencement of construction, the ECO must meet on site with the Construction Manager to confirm the construction procedure and designated construction areas.

EHS Manager

It is important to note that the EHS Manager will be appointed to fulfill the roles of the Environmental Officer during the construction phase and the Environmental Manager during the operational phase. A generic term has therefore been assigned to this sector of roles and responsibilities. The responsibility of the EHS Manager include overseeing the implementation of the EMPr during the construction and operational phases, monitoring environmental impacts, record-keeping and updating of the EMPr as and when necessary. The EHS Manager is also responsible for monitoring compliance with the conditions of the Environmental Authorisation that may be issued to Lengana Health SA (Pty) Ltd.

The lead contractor and sub-contractors may have their own Environmental Officers, or designate Environmental Officer functions to certain personnel.

During construction, the EHS Manager will be responsible for the following:

- Meeting on site with the Construction Manager prior to the commencement of construction activities to confirm the construction procedure and designated activity zones.
- Daily or weekly monitoring of site activities during construction to ensure adherence to the specifications contained in the EMPr and Environmental Authorisation (should such authorisation be granted by DMR), using a monitoring checklist that is to be prepared at the start of the construction phase.
- Preparation of the monitoring report based on the daily or weekly site visit.
- Reporting of any non-conformances within 48 hours of identification of such non-conformance to the relevant agents.
- Conducting an environmental inspection on completion of the construction period and 'signing off' the construction process with the Construction Manager.

During operation, the EHS Manager will be responsible for:

- Overseeing the implementation of the EMPr and monitoring programmes for the operation phase.
- Reviewing the findings of the monitoring and highlight concerns to management and TNPA where necessary.
- Ensuring compliance with the Environmental Authorisation conditions.
- Ensuring that the necessary environmental monitoring takes place as specified in the EMPr.
- Updating the EMPr and ensuring that records are kept of all monitoring activities and results.

During decommissioning, the EHS Manager will be responsible for:

- Overseeing the implementation of the EMPr for the decommissioning phase; and
- Conducting an environmental inspection on completion of decommissioning and 'signing off' the site rehabilitation process.

At the time of preparing this EMPr, the EHS Manager appointment is still to be made by the proponent. The appointment is dependent upon the project proceeding to the construction phase.

Construction Manager (Lead Contractor or Engineering Consultant)

The lead contractor will be responsible for the following:

- Overall construction programme, project delivery and quality control for the construction of the facility.
- Overseeing compliance with the Health, Safety and Environmental Responsibilities specific to the project construction.
- Promoting total job safety and environmental awareness by employees, contractors and sub-contractors and stress to all employees and contractors and sub-contractors the importance that the project proponent attaches to safety and the environment.
- Ensuring that each subcontractor employ an Environmental Officer (or have a designated Environmental Officer function) to monitor and report on the daily activities on-site during the construction period.
- Ensuring that safe, environmentally acceptable working methods and practices are implemented and that sufficient plant and equipment is made available, is properly operated and maintained in order to facilitate proper access and enable any operation to be carried out safely.
- Meeting on site with the EHS Manager prior to the commencement of construction activities to confirm the construction procedure and designated activity zones.
- Ensuring that all appointed contractors and sub-contractors are aware of this EMPr and their responsibilities in relation to the programme.
- Ensuring that all appointed contractors and sub-contractors repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in the EMPr, to the satisfaction of the EHS Manager.

At the time of preparing this EMPr, the appointment of a lead contractor has not been made and will depend on the project proceeding to the construction phase.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES See above description of roles and responsibilities	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> • Exploration drilling 	<p>Soil erosion- Visual Inspection of soil erosion and/compaction</p>	<p>All exposed areas, access roads, the drill pad and stockpiles must be monitored for erosion on a regular basis and specifically after rain events. □ Avoid sensitive areas or obtain necessary permits where these cannot be avoided. □ Inspect the proposed prospecting areas for compacted soils, soil erosion and/ or degradation. Prospecting.</p>	<p>Prospecting Manager Contractor Environmental Manager Site Manager</p>	<p>Before any prospecting activities take place there must be a once-off sign-off route plans. □ Inspections on a regular basis depending on the duration of the prospecting activities (Monthly/Weekly). □ Inspection at the end of the prospecting activities.</p>
	<p>Ecological process loss</p>	<p>Commence (and preferably complete) construction during winter, when the risk of disturbing active (including breeding and migratory) animals, should be least.</p>	<p>ECO</p>	<p>Collect at least once during life cycle of the drilling project .</p>
	<p>Dust generation- Dust generated will be assessed through visual observation</p>	<p>If dust outfall is excessive and regarded to affect any sensitive receptors a monitoring programme must be initiated based on the input of suitably qualified air quality specialist.</p>	<p>ECO</p>	<p>Compile monthly reports. Ongoing monitoring throughout the duration of the project.</p>
	<p>Loss of arable land/and for grazing</p>	<p>Ensure proper rehabilitation measures are adhered to in order to return the soil quality to its natural state.</p>	<p>ECO</p>	<p>Compile monthly reports. Ongoing monitoring throughout the duration of the project.</p>
	<p>Groundwater contamination</p>	<p>Manage through Groundwater Monitoring Plan. Monitoring water levels of the boreholes found in close proximity to the proposed prospecting site, through a flow meter and water level data logger.</p>	<p>ECO</p>	<p>Compile monthly reports</p>

		Collection of baseline hydrochemistry samples for analysis.		
	Increased pressure on the road network	Implement Traffic Monitoring plan by measuring peaks in traffic and developing a routine network for road use in order to maintain traffic flow.	ECO	Every month on on-going basis of the prospecting activities.
	Noise generation	Measure noise levels routinely to ensure the noise levels are being kept within the acceptable ISO standards.	ECO	Atleast once in the lifespan of the project.
	Health and Safety of personnel	Routine safety checks, safety training and Inspections to be carried out during the construction phase to enforce the use of respiratory protection by construction personnel. This must also be written into the safety requirements of the Contract.	EHS/ECO	Safety of all personnel will be insured by following company safety procedures to avoid accidents.
	Air pollution through emissions from diesel powered equipment, machinery and vehicles) □	Vehicles must be within operation specifications to prevent emission and reduce risks of leaks	ECO	Inspections of all vehicles and equipment service maintenance on a weekly basis for the duration of the prospecting activities

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

The environmental control officer will undertake audits in compliance with the provided EMP contents and guidelines and will compile audit reports, which will ultimately be submitted to the DMR.

An annual performance assessment (or at a frequency stipulated in the EA) must be undertaken. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation. These reports must also include the assessment of financial provision and should be submitted to the DMR.

m) Environmental Awareness Plan

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

Lengana Health Management has to appoint an independent Environmental Control Officer whose duty is to also implement an effective environmental awareness plan aimed to educate workers and contractors in terms of the biodiversity on site, environmental risks associated with the proposed development and land management of the site. Training and/or awareness should be raised and effectively communicated prior to the commencement of the construction phase. Training sessions should incorporate the management plans addressed in this EMP as well as any new information and documentation provided by the ECO, as well as that of the Environmental Health & Safety Officer. The ECO would be the most suitable person to conduct these training sessions, identifying sensitive environments as well as all the risks and impacts associated with the prospecting operation and the methods in which to deal with the impacts in order to avoid environmental degradation. Training sessions can be monitored by providing an attendance register indicating the workers that received training as well as evidence of the training and/or awareness received. These sessions would also need to be carried out throughout the drilling activities, at least once a year, or as new information becomes available.

Frequency

Time Allocation Objective

Induction (all staff and workers) 1 hour training on environmental awareness training as part of site induction

1. Develop an understanding of what is meant by the natural environmental and social environment and establish a common language as it relates to environmental, health, safety and community aspects.
2. Establish a basic knowledge of the environmental legal framework and consequences of non-compliance.
3. Clarify the content and required actions for the implementation of the Environmental Management Plan.
4. Confirm the spatial extent of areas regarded as sensitive and clarify restrictions.
5. Provide a detailed understanding of the

Basic Assessment Report: Lengana Health SA (Pty) Ltd, Ngwathe District Municipality. Koppies.
definition, the method for identification and required response to emergency incidents. Risk Assessments
(supervisor and workers involved in task) Daily task based risk assessment

Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on a daily basis as part of daily tool box talks.

SHEQ PLAN

The following plan shall apply for the duration of the project in the third phase of the project.

- Hold a SHEQ and toolbox meetings monthly
- Implement environmental management plan

Targets

- Provide a clean, safe and healthy working environment
- Staff the plant with due regard to safety, quality, health and environment.
- Responsibilities will be allocated to all staff to encourage them to get actively involved & committed in achieving SHEQ objectives;
- Provide training for all employees to enable them to perform their jobs efficiently with special emphasis on safety, quality, health and environment;
- Establish and maintain a risk management system to assess and respond to all risks
- Conduct occupational hygiene measurements to measure levels of identified hazards;
- Provide a medical surveillance system to monitor the health of all employees;
- Use the client SQAS SYSTEM as a benchmark for our own safety, health, and environmental management systems ☐ Create systems for pro-active environmental management;
- We will implement an accepted quality system that always ensures an excellent service to our entire customer.

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

Kindly refer to the table of possible mitigation measures that could be applied in section (viii) of Part A for an indication of the manner in which risks will be dealt with.

n) Specific information required by the Competent authority (Among others, confirm that the financial provision will be reviewed annually)

N/A

2 UNDERTAKING

The EAP herewith confirms

- a)** The correctness of the information provided in the report
- b)** Inclusion of comments and inputs from stakeholders and I&APs
- c)** The inclusion of inputs and recommendations from specialists and where relevant ; and
- d)** That the information provided by the EAP to interested and affected parties and any responses by EAP to comments or inputs made by interested and affected parties are correctly reflected herein .



Signature of the environmental assessment practitioner:

MinMet Services

Name of Company:

30 June 2019

Date: