



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

AMENDED SCOPING REPORT

Prospecting Right Application for the prospecting of Chrome ore and Platinum Group Metals (PGM), combined with a Waste License application near Madibeng on the Remaining Extent of Portion 1, Portion 2, Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454, the farm Zandfontein 923 and Portion 44 (portion of portion 5), Portion 45 (portion of portion 5), Remaining Extent of Portion 46 (portion of portion 5), Remaining Extent of Portion 226, Portion 343 (portion of portion 41), Portion 369, Portion 370, Portion 371 and Portion 372 of the farm Zandfontein 447, Registration Division: JQ, North West Province.

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

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CLAUSE

This report has been compiled by Milnex 189 CC, using information provided by **Thabo-Gaelebale Mineral Resources (Pty) Ltd** the client as well as third parties, which information has been presumed to be correct. While Milnex 189 CC have made every endeavour to supply accurate information, and exercised all care, skill and diligence in the drafting of this report, errors and omissions may occur. Accordingly, Milnex 189 CC does not warrant the accuracy or completeness of the materials in this report. Milnex 189 CC does not accept any liability for any loss or damage which may directly or indirectly result from any advice, opinion, information, representation or omission, whether negligent or otherwise, contained in this report. Milnex 189 CC does not accept any liability for any loss or damage, whether direct, indirect or consequential, arising out of circumstances beyond the control of Milnex 189 CC, including the use and interpretation of this report by the client, its officials or their representatives or agents. This document contains information proprietary to Milnex 189 CC and as such should be treated as confidential unless specifically identified as a public document by law. Milnex 189 CC owns all copyright and all other intellectual property rights in this report. The document may not be copied, reproduced in whole or in part, or used for any manner without prior written consent from Milnex 189 CC. Copyright is specifically reserved in terms of the Copyright Act 98 of 1987 including amendments thereto. By viewing this disclaimer and by accepting this document, you acknowledge that you have read and accepted these Terms of Use and undertake to keep the information contained herein confidential and not to do any act or allow any act which is in breach of these Terms of Use.

IMPORTANT NOTICE

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

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

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

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

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

OBJECTIVE OF THE SCOPING PROCESS

- 1) The objective of the scoping process is to, through a consultative process—
 - (a) identify the relevant policies and legislation relevant to the activity;
 - (b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
 - (c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
 - (d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
 - (e) identify the key issues to be addressed in the assessment phase;
 - (f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
 - (g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.
-

SCOPING REPORT

Contact Person and correspondence address

A) DETAILS OF:

- i) The EAP who prepared the report
- ii) Expertise of the EAP

Name of Practitioner	Qualifications	Contact details
Lizanne Esterhuizen	Honours Degree in Environmental Science (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za
Percy Sehaole Pr.Sci.Nat	Master's Degree in Environmental Science (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: percy@milnex-sa.co.za
Danie Labuschagne	Master's Degree in Environmental Management and Geography (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: danie@milnex-sa.co.za

Summary of the EAP's past experience. (Attach the EAP's curriculum vitae as **Appendix 2**)

Milnex 189 CC was contracted by **Thabo-Gaelebale Mineral Resources (Pty) Ltd** as the independent environmental consultant to undertake the Scoping and EIA process for a prospecting right for the prospecting of Chrome Ore and Platinum Group Metals (PGM), combined with a Waste License application near Madibeng on the Remaining Extent of Portion 1, Portion 2, Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454, the farm Zandfontein 923 and Portion 44 (portion of portion 5), Portion 45 (portion of portion 5), Remaining Extent of Portion 46 (portion of portion 5), Remaining Extent of Portion 226, Portion 343 (portion of portion 41), Portion 369, Portion 370, Portion 371 and Portion 372 of the farm Zandfontein 447, Registration Division: JQ, North West Province. The farm is situated approximately 8km South of the town Madibeng. Milnex 189 CC does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Milnex 189 CC is a specialist environmental consultancy with extensive experience in the mining industry which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Milnex 189 CC benefits from the pooled resources, diverse skills and experience in the environmental and mining field held by its team that has been actively involved in undertaking environmental studies for a wide variety of mining related projects throughout South Africa. The Milnex 189 CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining industry.

Danie Labuschagne, Percy Sehaole & Lizanne Esterhuizen have experience consulting in the environmental field. Their key focus is on environmental assessment, advice and management and ensuring compliance to legislation and guidelines. They are currently involved in undertaking EIAs for several projects across the country (refer to **Appendix 2** for CV)

B) THE LOCATION OF THE ACTIVITY:

Farm Name:	<ol style="list-style-type: none"> 1) Remaining Extent of Portion 1 of the farm Lekker Sukkel Landgoed 454 2) Portion 2 of the farm Lekker Sukkel Landgoed 454 3) Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454 4) The farm Zandfontein 923 5) Portion 44 (portion of portion 5) of the farm Zandfontein 447 6) Portion 45 (portion of portion 5) of the farm Zandfontein 447 7) Remaining Extent of Portion 46 (portion of portion 5) of the farm Zandfontein 447 8) Remaining Extent of Portion 226 of the farm Zandfontein 447 9) Portion 343 (portion of portion 41) of the farm Zandfontein 447 10) Portion 369 of the farm Zandfontein 447 11) Portion 370 of the farm Zandfontein 447 12) Portion 371 of the farm Zandfontein 447 13) Portion 372 of the farm Zandfontein 447
Application area (Ha)	117.17 Ha
Magisterial district:	Bojanala Platinum District Municipality
Local Municipality	Madibeng Local Municipality
Registration division	JQ
Distance and direction from nearest town	The farm is situated approximately 8km South of the town Madibeng.
21 digit Surveyor General Code for each farm portion	<ol style="list-style-type: none"> 1) T0JQ00000000045400000 2) T0JQ00000000045400002 3) T0JQ00000000045400003 4) T0JQ00000000092300000 5) T0JQ00000000044700044 6) T0JQ00000000044700045 7) T0JQ00000000044700000 8) T0JQ00000000044700000 9) T0JQ00000000044700343 10) T0JQ00000000044700369 11) T0JQ00000000044700370 12) T0JQ00000000044700371 13) T0JQ00000000044700372

iii. Farms Co-ordinates:

Farm	Longitude	Latitude
1. Remaining Extent of Portion 1 of the farm Lekker Sukkel Landgoed 454	27° 46' 27.025" E	25° 41' 3.410" S
	27° 46' 31.417" E	25° 41' 2.882" S
2. Portion 2 of the farm Lekker Sukkel Landgoed 454	27° 46' 35.503" E	25° 41' 2.391" S
	27° 46' 40.221" E	25° 41' 1.798" S
3. Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454	27° 46' 44.911" E	25° 41' 1.258" S
	27° 46' 56.046" E	25° 40' 59.929" S
4. The farm Zandfontein 923	27° 47' 3.557" E	25° 40' 59.020" S
	27° 47' 5.095" E	25° 41' 3.744" S
5. Portion 44 (portion of portion 5) of the farm Zandfontein 447	27° 47' 3.823" E	25° 41' 4.323" S
	27° 47' 3.220" E	25° 41' 6.235" S
6. Portion 45 (portion of portion 5) of the farm Zandfontein 447	27° 47' 0.178" E	25° 41' 5.343" S

EIA265 – Scoping Report: Prospecting Right application for the prospecting of Chrome ore and Platinum Group Metals (PGM), combined with a Waste License application near Madibeng on the Remaining Extent of Portion 1, Portion 2, Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454, the farm Zandfontein 923 and Portion 44 (portion of portion 5), Portion 45 (portion of portion 5), Remaining Extent of Portion 46 (portion of portion 5), Remaining Extent of Portion 226, Portion 343 (portion of portion 41), Portion 369, Portion 370, Portion 371 and Portion 372 of the farm Zandfontein 447, Registration Division: JQ, North West Province.

Refer to Site Plan included within **Appendix 4**.

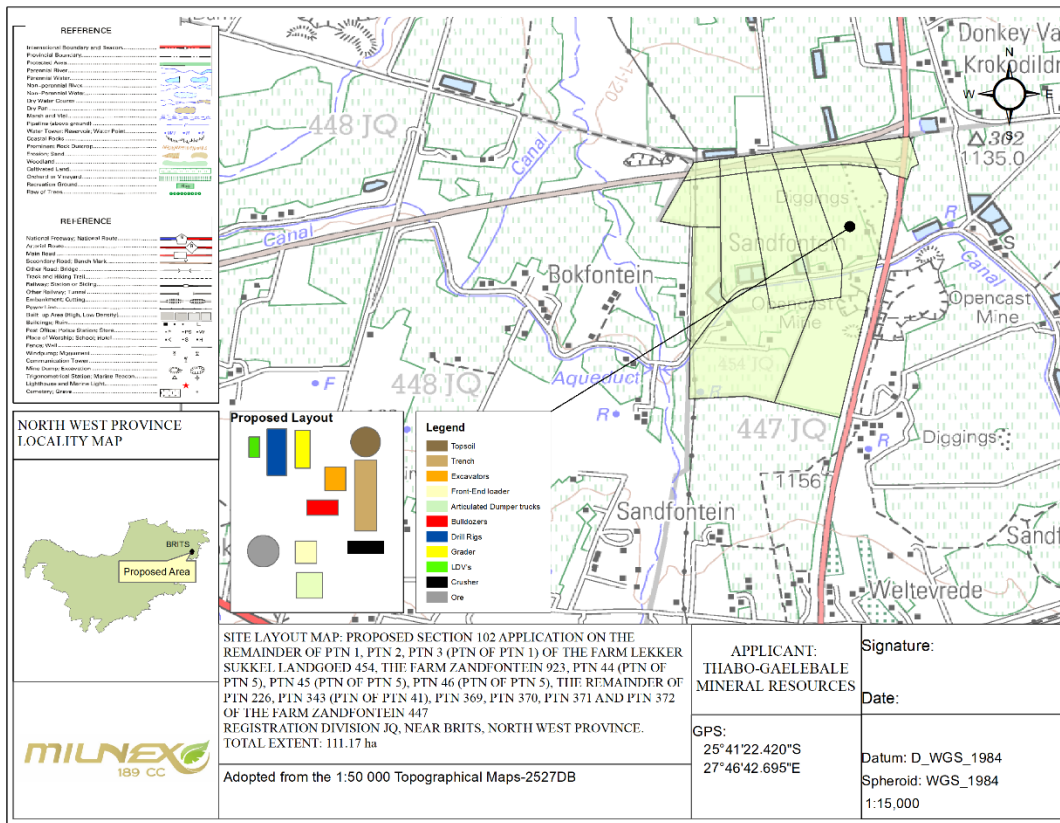


Figure 2: Site Plan

D) DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

i) Listed and specified activities

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 and attach as **Appendix 4**

<p>NAME OF ACTIVITY</p> <p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p>	<p>Aerial extent of the Activity</p> <p>Ha or m²</p>	<p>LISTED ACTIVITY</p> <p>(Mark with an X where applicable or affected).</p>	<p>APPLICABLE LISTING NOTICE</p> <p>(GNR 324, GNR 325 or GNR 326)</p>	<p>WASTE MANAGEMENT AUTHORISATION</p> <p>(Indicate whether an authorisation is required in terms of the Waste Management Act).</p> <p>(Mark with an X)</p>
<p>Prospecting:</p> <p>BULK SAMPLING: 117.17 ha – 8 Geological boreholes (80m deep),16 trenches (10m x 1.8m x 2.5m) and 2 pits (1 pit will be: 115m x 115m x 50m and the other pit will be 132m x 322m x 55m)</p> <p>Listing Notice GNR 325, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or</p>	<p>117.17 ha - Only the areas where prospecting takes place, will be cleared.</p> <p>No more than 8 Geological boreholes,16 trenches and 2 pits will be excavated.</p>	<p>X</p>	<p>Listing Notice GNR 325, Activity 19:</p>	<p>-</p>

<p>(b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;</p>				
<p>Clearance of indigenous vegetation:</p> <p>BULK SAMPLING: 117.17 ha – 8 Geological boreholes (80m deep), 16 trenches (10m x 1.8m x 2.5 m) and 2 pits (1 pit will be: 115m x 115m x 50m and the other pit will be 132m x 322m x 55m)</p> <p>Listing Notice GNR 325, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation." – Random indigenous vegetation clearance of over a 117.17 hectares area.</p>	<p>117.17 ha - Only the areas where prospecting takes place, will be cleared.</p> <p>Concurrent backfilling will take place in order to rehabilitate.</p>	<p>X</p>	<p>Listing Notice GNR 325, Activity 15</p>	<p>-</p>
<p>Prospecting Right:</p> <p>BULK SAMPLING: 117.17 ha – 8 Geological boreholes (80m deep), 16 trenches (10m x 1.8m x 2.5 m) and 2 pits (1 pit will be: 115m x 115m x 50m and the other pit will be 132m x 322m x 55m)</p> <p>Listing Notice GNR 325, Activity 20: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,] ; or</p>	<p>117.17 ha - Only the areas where prospecting takes place, will be cleared.</p>	<p>X</p>	<p>Listing Notice GNR 327, Activity 20:</p>	

<p>(b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;</p>				
<p>Residue stockpiles or residue deposits:</p> <p>Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</p>			<p>NEM:WA 59 of 2008 (Category A: (15))</p>	<p>X</p>

Listing Notices: 2017 Regulations

<p>Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)</p>	<ol style="list-style-type: none"> 1. Listing Notice GNR 325, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation." – Random indigenous vegetation clearance of over 117.17 hectares area. 2. Listing Notice GNR 325, Activity 19: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— <ol style="list-style-type: none"> (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; 3. Listing Notice GNR 327, Activity 20: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— <ol style="list-style-type: none"> (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; <p>Prospecting right with bulk samples for the mining of Chrome ore (Cr) and Platinum Group Metals (PGM) including associated infrastructure, structure and earthworks.</p> <p>NEM:WA 59 of 2008 Residue stockpiles or residue deposits</p> <ol style="list-style-type: none"> 4. Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).
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ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity)

DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

- **Pre-Feasibility Study and Evaluation:**

Geological field mapping and computer modelling of all available data. The overall geology of the area will be analyzed and interpreted using satellite imagery, aerial photographs and available literature on existing geological features to better understand the mineral deposit.

- **Field Mapping:**

Mapping will be done to identify special geological features. Rock units or geologic strata are usually shown in color or symbols to indicate where they are exposed at the surface. Bedding planes and structural features such as faults, folds, foliations, and lineation will be shown with strike and dip or trend and plunge symbols which give these features three-dimensional orientations.

Geological modelling will follow immediately after mapping to create computerized representations of the geophysical and geological observations made on and below the surface. Further field mapping will be undertaken to plan the 8 (eight) geological boreholes.

- **Geophysical Survey Programme**

A gravimetric survey will be undertaken over certain areas only where drilling indicated economical mineral layers and warrants areal determination.

- **Data Gathering and Evaluation**

From existing geological information, geophysical and topographical data, a geological base map will be produced and used as a basis for the exploration programme. Additional detail geological field mapping will be conducted in order to finalize 8 (eight) borehole drilling programme.

- **Market research and Mining Right Application**

Agreements will be searched to market the mineral resources of the indicated economical viable mineral resource, required for a Mining Right Application.

DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc)

- **Phased Geological Core Drilling Programme**

8 (eight) Geological boreholes (TNW) will be drilled in Year 1 and Year 2 in targeted areas of the prospecting area to a depth of 80m where economical mineral seams should be present. All borehole cores will be logged, surveyed and plotted on the base plan.

The core will be tested for Cr and PGM minerals. All drill holes will be rehabilitated by replacing unused cores back and replacing the blasted rock to the ground together with the overburden. The drilling sump will also be closed and any other materials removed from the drill site. If the quality and density of the minerals warrants further investigation, full oxide analysis will be undertaken.

- **Pitting, Trenching and Blasting**

Preliminary exploration can be performed by pitting and trenching to observe and take bulk samples on a continuous basis across the mineralized zone. This is done to provide initial information to the geologist in order to improve the parameters estimated for this sampling program.

Bulk sampling will include the excavation of 2 pits and 8 trenches. The dimensions of the pits will be 115m x 115m x 50m deep and 132m x 322m x 55m deep. Dimensions for trenches to be excavated will be 10 m x 1.8m m x 2.5 m deep. Blasting will be done only when resistant rock is intercepted during trenching. The floor area will be wide enough to allow access for a front end loader/excavator to collect sample material.

Portable Water Supply

Additional water requirements related to the portable water supply for employees and workers will be supplied.

Water uses:

In case that any of the water uses under section 21 a-k of the NWA are triggered, a Water Use Licence Application (WULA) will need to be lodged with the department of Water & Sanitation (DWS).

Ablution

Chemical toilets shall be used, no french drains and pits shall be permitted.

Storage of dangerous goods

During the prospecting activities, limited quantities of diesel and fuel, oil and lubricants will be stored on site. Please see the list of hydrocarbons to be stored on site, below. These goods should be placed in a bunded area one and a half times the volume of the total amount of goods to be stored.

Hydrocarbon and quantity			
Diesel	23 000 litres	Hydraulic Fluid	630 litres
Engine Oil	630 litres	Gear Oil	210 litres
Transmission Oil	210 litres	Grease	200 kilogram
Anti-freeze	210 litres		

Prospecting activities and phases

Please find the Prospecting Work Programme attached as **Appendix 8**.

E) POLICY AND LEGISLATIVE CONTEXT

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	REFERENCE WHERE APPLIED
The Constitution of South Africa (Act No. 108 of 1996)	-
The National Environmental Management Act (Act No. 107 of 1998)	S24(1) of NEMA S28(1) of NEMA
The National Water Act (Act No. 36 of 1998)	S21 (a)(b) of NWA
Management: Air Quality Act (Act No. 39 of 2004)	S21
The National Heritage Resources Act (Act No. 25 of 1999)	-
Conservation of Agricultural Resources Act (Act No. 85 of 1983)	-
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	-
National Infrastructure Plan	-
North West Province Growth and Development Strategy	-
Bojanala Platinum District Municipality Integrated Development Plan (IDP)	-
Madibeng Local Municipality Integrated Development Plan (IDP)	-
National Forest Act (Act 84 of 1998) (NFA)	Chap 3 (Part 1) 1998 S12(1) S15(1)
National Veld & Forest Fires Act (Act 101 of 1998)	
Mine, Health and Safety Act 29 of 1996	
National Environmental Management: Waste Act 59 of 2008	
National Environmental Management: Biodiversity Act 10 of 2004	

F) NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

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

Mining has played a vital role in the economy of South Africa for over 100 years. In 2015 the mining industry contributed R286 billion towards South African Gross Domestic Product (GDP) representing 7.1% of overall GDP. Mining is a significant contributor to employment in the nation, with 457 698 individuals directly employed by the sector in 2015. This represents just over 3% of all employed nationally. (Chamber of Mines, South Africa, 17:2016)

Chrome ore

According to the Chamber of mines: Facts and Figures, 2016: Employment figures for chrome mining was 15,514 in 2016 (Chamber of Mines, South Africa, 35:2017)

Chrome is known for its high corrosion resistance and hardness. It is essential in the production of stainless steel, which accounts for 85% of its commercial use. Around 70% of the world's chrome resources can be found in South Africa. South Africa is also the largest producer of chrome globally. (Chamber of Mines, South Africa, 16:2016)

Platinum Group Metals (PGM)

The Bushveld Igneous Complex, formed some 2 billion years ago, is the world's largest layered intrusion, created when vast quantities of molten rock from the earth's mantle was brought to the surface through long vertical cracks or intrusions (Chamber of Mines, South Africa, 10:2016).

In South Africa, the discovery of the first platinum nuggets dates back to 1924. Geologist Hans Merensky's follow-up work resulted in the discovery of the Bushveld Igneous Complex. This complex hosts more than half the world's platinum group metals (PGMs) and associated minerals, such as nickel, chromium, vanadium and refractory minerals. In fact, South Africa is host to around 80% of the world's known platinum reserves (Chamber of Mines, South Africa, 10:2016).

Six noble metals, all silvery-white in appearance, constitute PGMs – platinum, palladium, rhodium, ruthenium, osmium and iridium. Platinum, palladium and rhodium are the primary metals of significant economic value. They are used largely for jewellery and in the automotive industry for their excellent catalytic properties. Other uses include investment (coins and bars), fuel cells, and many other industrial purposes (Chamber of Mines, South Africa, 10:2016).

In the last 10 years employment in the sector increased from 168,530 employees in 2006, to over 172,310 in 2016 (Chamber of Mines, South Africa, 19:2017).

Prospecting and mining activities for chrome ore and Platinum Group Metals (PGM) takes place in the facility of the proposed area which suggest the possibility of encountering further chrome deposits.

The North West Province is an important supplier of chrome and Platinum Group Metals (PGM) to the international market and is a large corner stone of the South African economy.

PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The environmental authorisation is required for a minimum period of 5 years.

G) DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE.

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

Each of the phases are dependent on the results of the preceding phase. The location and extent of soil sampling and possible chrome ore and Platinum Group Metals (PGM) bulk sampling can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken. For the purposes of this report, the overall prospecting area is presented in Appendix 3.

i) Details of all alternatives considered.

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

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

(a) The property on which or location where it is proposed to undertake the activity

As discussed in the previous section, based on outcomes of previous studies in the vicinity of the proposed site, the possibility to encounter further Chrome ore and Platinum Group Metals (PGM), combined with a Waste License application near Madibeng on the Remaining Extent of Portion 1, Portion 2, Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454, the farm Zandfontein 923 and Portion 44 (portion of portion 5), Portion 45 (portion of portion 5), Remaining Extent of Portion 46 (portion of portion 5), Remaining Extent of Portion 226, Portion 343 (portion of portion 41), Portion 369, Portion 370, Portion 371 and Portion 372 of the farm Zandfontein 447, Registration Division: JQ, North West Province, were identified.

(b) The type of activity to be undertaken

In terms of the technologies proposed, these have been chosen based on long term success in terms of their prospecting history. The prospecting activities proposed in the Prospecting Work Programme is dependent on the preceding phase, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

(c) The design or layout of the activity

The location of the activities will be determined based on the location of the prospecting activities, which will only be determined during phase 1 to 2 of the Prospecting Work Programme (see **Appendix 9** for the Programme).

The proposed area consists mostly of cultivation and a mine.

(d) The technology to be used in the activity

In terms of the technologies proposed, these have been chosen based on the long term success of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme (**Appendix 9**) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The preferred technology for the proposed mining activity, will be to remove the Chrome ore and Platinum Group Metals (PGM) with an excavator. The ore removed will be processed off site. Please find the Prospecting Work Programme attached as **Appendix 9**.

Reverse Circulation Drilling (RC drilling)

Drill Structure

RC drilling is usually a large piece of apparatus, that requires a lot of space, not just for the rig itself, but the supporting vehicles and the pit for collecting waste runoff.

The drill cutting is transferred to the surface inside drill rods, which are linked together to create a 'drill string'. Drill bits attached to the end of the hammer are made from tungsten-steel, and are usually around 13-20cm in diameter. These also have metal nodules attached at the end to allow cutting through particularly tough rock. Most RC drilling uses a dual-tube drill rods, with one tube inside another. The tubes inside overlap and provide a path for drilled rock from the ground to the surface. Inner tubes can be sealed together, meaning that the RC drill can sample up to very large depths, often around 500m.

Another type of RC drilling is 'centre sample' drilling. This is a modern variation, in which a central hammer, with a hollow centre, allows the sample to immediately enter the drill pipe, without the need to travel past the hammer (AZOMining, 2012)

Sample Extraction

The samples produced from RC drilling are dry chips of the drilled rock. To create the sample, the hammer acts like a pneumatic piston and pushes a tungsten-steel drill bit on to the rock, breaking it up. Before the drill bit hits the rock, it is dried out using an air compressor, so that the rock chips are dry at the surface.

Water is often used down the hole to cool the drill bit and reduce dust, as well as assisting with the transportation of sample bits to the surface. Air is blown down the drill rods to create a pressure difference, allowing the sample chips and water to rise through the inner tube. The sample then reaches a bell at ground level, which transports the sample to a cyclone where it dries out and is deposited into sacks (AZOMining, 2012).

Applications

RC drilling is a technique used in most stages of mine development.

As it is cheaper than diamond core drilling, it is often used in first stage exploration mining to delineate a potentially extractable ore body. It is also preferable to RAB or air-core drilling when trying to reach great depths, but RC drilling is slower and more expensive than either of these two methods.

RC drilling is also consistently used during in-pit grade control and the development stage of an ore body (AZOMining, 2012).

Pros & Cons of the alternative RC drilling

Advantages	Disadvantages
Direct drilling cost reductions in the range of 25% to 40%.	Less geological information from sample.
Faster completion of drill programs with quicker delivery of results.	Holes can deviate (Spiral Stabiliser Subs keep holes straighter)
Reduced man-hours at the drill with decreased exposure to potential accidents.	Diamond drill can usually drill to greater depth although depths up to 800m have been achieved with.
Reduced contractor activity in the mine reduces mine support burden.	
Indirect cost reductions gained from a simplified sampling process.	

Diamond Core Drilling

Diamond drilling allows the removal of solid cylinders of rock (core) from deep within the earth.

Drill Structure

Diamond core drilling is so called because it uses a 'diamond bit'. This drill bit is composed of group of small, industrial grade diamonds set into a metallic, soft matrix. As the ground is drilled, this matrix will wear away and expose more diamonds.

This is then attached to a drill rod, which is around 10 foot in length, and then more sections of pipe can be attached to the top of this so a greater depth can be drilled. The depth that is drilled to is estimated by the number of rods attached to the top of the drill rod.

Inside the drill rod, a core tube is attached to a cable via a latching mechanism. The core tube is lifted to the surface using the cable, so the solid core can be removed.

There are two primary types of diamond drilling-rotary drilling and wineline drilling. Rotary drilling is used primarily for bore hole drilling, whereas wineline drilling is used for solid core sampling.

There are five standard tube sizes associated with wire line drilling. These are as follows:

- AQ (Hole diameter: 48mm)
- BQ (60mm)
- NQ (75.5mm)
- HQ (96mm)
- PQ (122.6mm)

The drill size used depends on the desired core diameter and the desired depth of drilling, and the wider the diameter of the tube, the more power that is required to drive the drilling (AZOMining, 2012).

Core Extraction

To extract core, the drill rod rotates the diamond bit, spinning it into the ground. As the drill bit bores through the rock, solid rock is taken into the circular opening at the end of the bit, into the core tube, and can then be recovered at the surface as it piles up. Once the core is recovered at the surface it is broken along natural fractures and stored in core trays to await analysis. A standard core tray can hold around 10 feet of core.

For optimum core extraction, the driller must listen to the drill to evaluate subsurface conditions. To keep drilling efficient, the rotation speed, pressure and water circulation must be strictly monitored.

Sometimes when drilling in highly fractured zones, overheating can occur due to a stuck bit. This issue is usually counteracted by the injection of mud or sawdust to plug fractures in the rock.

Application

Diamond core finds its primary function in the exploration mining sector. It is usually one of the last stages of exploration, during which the orebody is delineated in three dimensions. This will determine whether the prospect is economically viable. Using a diamond drill rig, long vertical sections of core can be extracted from deep in the ground, which can then be analysed at the surface by geologists.

The core can then be analysed using a wide range of petrologic, structural and mineralogical techniques to determine whether the potential mining site is economically viable.

Extracted core is first washed and macroscopic features are logged by an exploration geologist. The core is then cut and representative samples are sent for chemical analysis (AZOMining, 2012).

Pros & Cons of the alternative Diamond Core Drilling

Advantages	Disadvantages
Highly accurate cutting	Drill bits are often not very big and they are mostly able to cut through only stone, rock and cement.
A reduced risk of inadvertently causing structural damage	There is a powerful kick back from the machinery, so caution needs to be applied when using diamond core drilling.
Less debris is produced	While dust will not accumulate in large quantities some dust is likely to go into the drilling machine which can have an effect on its functioning and effectiveness.
Suitable for just about any working environment	
Very little noise and no dust	
Equipment is lightweight and portable	
Can be done remotely which limits the safety hazards.	
Drill to great depth	

For this project the Diamond core drilling will be used.

When it comes to dust suppression two main methods were considered, namely molasses stillage and the wetting (water) of roads. The table below provides a short summary of the advantages and disadvantages of each.

Water	Molasses stillage
More cost effective	Much more expensive
Could lead to the depleting of water resources	Requires less water
No damage (only if used excessively)	The product may be toxic to aquatic organisms. (As this product could have physical effects on aquatic organisms for e.g. floating, osmotic damage)
No harm to humans or animals (Only a high quantity will have harm to humans or animals)	Not Hazardous or toxic. Could cause irritation to eyes, skin or when ingested and inhaled.
Non-flammable	Non-flammable
Eye-wash fountains not needed	Eye-wash fountains in the work place are strongly recommended
	Working procedures should be designed to minimize worker exposure to this product.

Basic storing methods	Storing methods are a bit more complicated. Should be stored in a plastic, plastic lined or stainless steel, tight closed containers between 5 and 40 degrees Centigrade.
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Considering the above-mentioned information, water will be used for dust suppression purposes.

(e) The operational aspects of the activity

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage services are required.

Prospecting activities described in this Prospecting Work Programme (“PWP”) are aimed at determining the Chrome Ore (Cr) and Platinum Group Metals (PGM), content and overall mineral resource potential of the Prospecting Right Area. The activities will be a combination of both non-invasive and invasive techniques. A suitable level of feasibility study (technical and economic evaluation) will also be undertaken. The Prospecting Work Programme will take on a phased approach to assess the potential reserves in the area:

H) Access Negotiations

Once the prospecting right is granted and executed by the applicant, the applicant will negotiate further access with the surface owner and occupiers in order to do a detail technical evaluation of the prospecting area.

A contract will be drawn and negotiated with the surface owner regarding access and the suitability and time of year that is preferred that prospect drilling can commence.

ii) Data Gathering and Evaluation

From existing geological information, geophysical and topographical data, a geological base map will be produced and used as a basis for the exploration programme.

Additional detail geological field mapping will be conducted in order to finalize 8 (eight) borehole drilling programme.

iii) Geophysical Survey Programme

A gravimetric survey will be undertaken over certain areas only where drilling indicated economical mineral layers and warrants areal determination. The major geological features that affect the Merensky Reef and UG2 chromitite layer are faults, dykes, potholes and mafic/ultramafic pegmatites. Emphasis will be placed upon recognition of faults. Mapped faults, shear zones and geophysical lineaments will be treated as a single evidence layer in the modelling and it is assumed that they represent the same style of deformation.

iv) Phased Geological Core Drilling Programme

Eight (8) geological boreholes (TNW) will be drilled in Year 1 and Year 2 in targeted areas of the prospecting area to a depth of 80m where economical mineral seams should be present. All borehole cores will be logged, surveyed and plotted on the base plan.

The core will be tested for Cr and PGM minerals. All drill holes will be rehabilitated by replacing unused cores back and replacing the blasted rock to the ground together with the overburden. The drilling sump will also be closed and any other materials removed from the drill site. If the quality and density of the minerals warrants further investigation, full oxide analysis will be undertaken.

v) Pitting, Trenching and Blasting

Preliminary exploration will be performed by pitting and trenching of the outcrop to observe and take bulk samples on a continuous basis across the mineralized zone. This is done to provide initial information to the geologist in order to improve the parameters estimated for this sampling program.

Bulk sampling will include the excavation of 2 pits and 16 trenches. The dimensions of the pits will be 115m x 115m x 50m deep and 132m x 322m x 55m deep. Dimensions for trenches to be excavated will be 10 m x 1.8m m x 2.5 m deep. Blasting will be done only when resistant rock is intercepted during trenching. The floor area will be wide enough to allow access for a front end loader/excavator to collect sample material.

(f) The option of not implementing the activity

The option of not approving the activities will result in a significant loss of valuable information regarding the mineral status (in terms of chrome) present on these properties. In addition to this, should economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

vi) 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.

1. Advertisement and Notices

Newspaper advertisement

Since the proposed development is unlikely to result in any impacts that extend beyond the municipal area where it is located, it was deemed sufficient to advertise in a local newspaper. An advertisement was placed in English in the local newspaper (Brits Pos) (see **Appendix 6**) on **20 April 2018**, notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with and submit their comments to Milnex 189 CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement.

Site notices

Site notices were placed (as anticipated on the coordinates below) on site in English on **24 April 2018** to inform surrounding communities and immediately adjacent landowners of the proposed development.

I&APs will be given the opportunity to raise comments. Photographic evidence of the site notices will be included in **Appendix 6**. Below are the coordinates where the site notices were placed

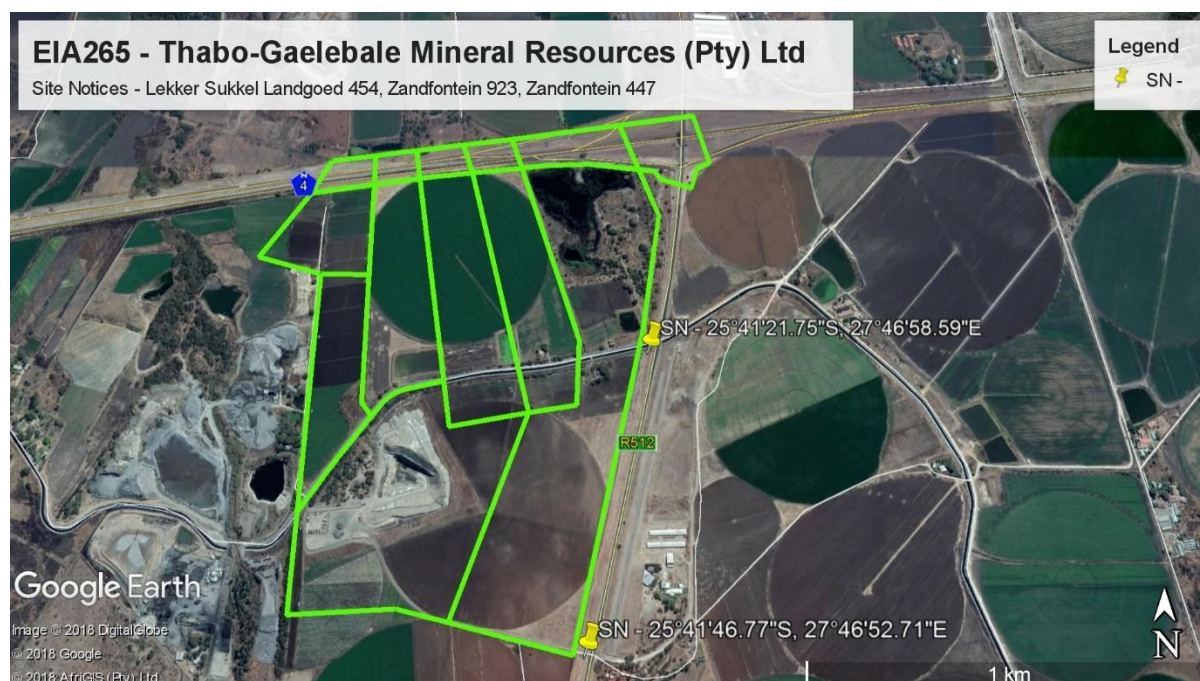


Figure 3: Site notice co-ordinates

Direct notification and circulation of Scoping Report to identified I&APs

Identified I&APs, including key stakeholders representing various sectors, are directly informed of the proposed development and the availability of the Scoping Report via registered post on **3 April 2018** and were requested to submit comments by **7 May 2018**. A copy of the report is also available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6**. The consultees included:

- Department of Rural, Environmental and Agricultural Development (READ), North West
- Department of Water & Sanitation (DWS)
- Department of Mineral Resources (DMR)
- North West Department of Agriculture
- Provincial Heritage Resources Agency (PHRA), North West
- Department of Public Works, Roads and Transport in NW (DPWRT)
- Department of Agriculture, Forestry, and Fisheries (DAF)
- Wildlife and Environment Society of South Africa (WESSA)
- Bojanala Platinum District Municipality
- Municipal Manager at the Madibeng Local Municipality
- Local Councilor at the Madibeng Local Municipality

It is expected from I&APs to provide their inputs and comments within 30 days after receipt of the notification or Scoping Report. When the comment period ends, all comments received will be included in the final Scoping and EIA Report.

Direct notification of surrounding land owners and occupiers

Written notices and the availability of the Scoping Report are also provided to all surrounding land owners and occupiers on **3 April 2018**. The surrounding land owners were given the opportunity to raise comments by **7 May 2018**. For a list of surrounding land owners see **Appendix 6**.

2. Consultation

The Public Meeting was scheduled for **24 April 2018 at 10:00am–11:00am** on the R512 across the airfield adjacent Portion 226 of the farm Zandfontein 447 at the coordinates mentioned below. The coordinates and directions (figure1) of the public meeting follows below.

Coordinates

25°41'21.01"S
27°46'59.11"E

Directions to Public Meeting

- The Public meeting will be held on the R512 across the airfield adjacent Portion 226 of the farm Zandfontein 447.

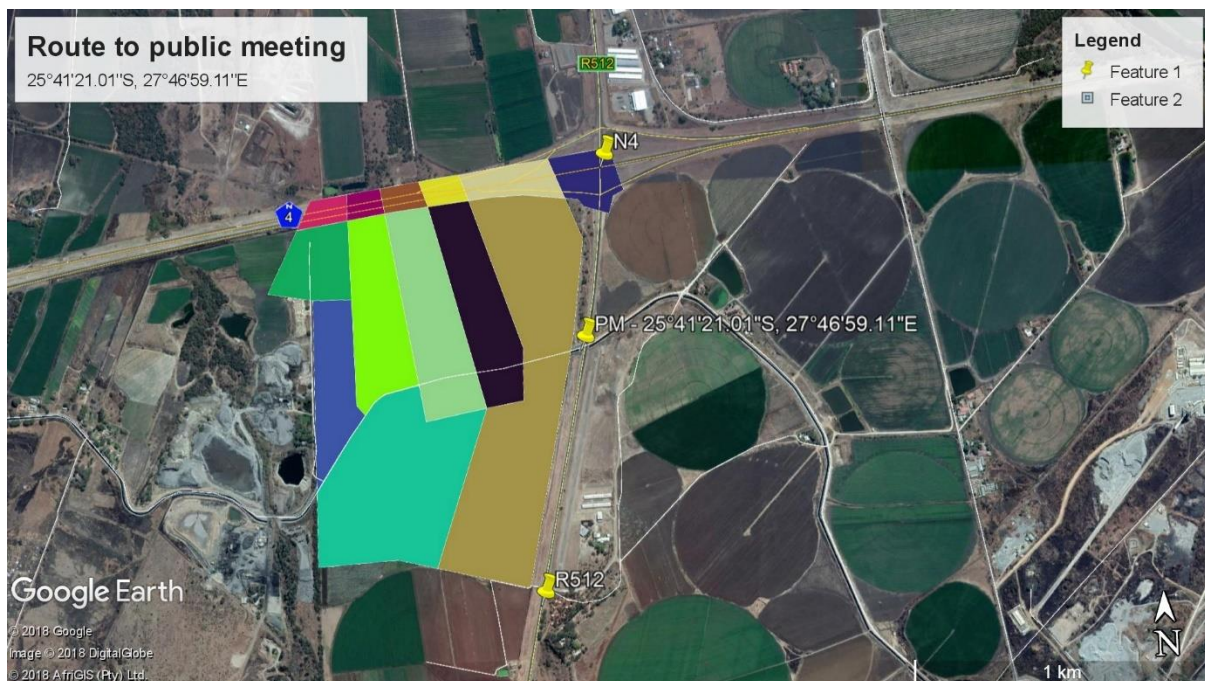


Figure 4: Directions to public meeting

The public meeting is an opportunity to share information regarding the proposed development and provide I&APs with an opportunity to raise any issues and provide comments. The following key stakeholders and surrounding land owners were also directly informed of the public meeting via registered post **3 April 2018**.

Table 1: List of Stakeholders, Land owners, & surrounding land owners

Stakeholders	Land owners	Surrounding Land owner
Department of Rural, Environmental and Agricultural Development (READ), North West	Hernic Ferrochrome Pty Ltd	Chemstof Pty Ltd
Department of Water & Sanitation (DWS)	South African National Roads Agency Ltd Northern Region	South African National Roads Agency Ltd, Northern Region
Department of Mineral Resources	Johannes Petrus De Beer	On behalf of the Republic of South Africa, Department of Rural Development and Land Reform
North West Department of Agriculture	Chemstof Pty Ltd	Barplats Mines Ltd
Provincial Heritage Resources Agency (PHRA), North West		S.P.D.M. Eiendomme CC
Department of Public Works, Roads and Transport in NW (DPWRT)		Nadine De Beer
Department of Agriculture, Forestry, and Fisheries (DAF)		Hendrik Cornelis Janse Van Rensburg
Wildlife and Environment Society of South Africa (WESSA)		Petrus Johannes Mare
Bojanala Platinum District Municipality		Not available
Municipal Manager at the Madibeng Local Municipality		Gert Van Rensburg Familietrust
Local Councilor at the Madibeng Local Municipality		Not available
		Cecilia Trust
		Johannes Petrus De Beer

3. Public Meeting

Please note that the Stakeholders & Interested and Affected Parties were informed about the proposed project with the use of press advertisement and registered letters and no one registered.

The meeting was attended by Mr. Danie Labuschagne from Milnex 189 CC Environmental Consultation.

None of the surrounding land owners, I&AP or stakeholders attended the meeting. Attached as **Appendix 6** is the attendance register for the meeting.

4. Issues Raised by Interested and Affected Parties

Comments received during this period are attached as comment & response report as well as populated in the table of summary of issues raised.

i. Summary of issues raised by I&As

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

Interested and Affected Parties		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issue and or response where incorporated
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.					
Organisation	Contact person				
Land Owner					
Zandfontein 226/447 Farm 0/923	Hernic Ferrochrome Pty Ltd		No comments received yet		
Zandfontein 343/447, 372/447 Lekker Sukkel Landgoed 3/454	South African National Roads Agency Ltd Northern Region. Ria Barkhuizen	04/05/2018 15/05/2018	Email received 07/05/2018 with attached Comments and response form, requesting that Milnex 189 CC send them project information.	A document was couriered on the 15/05/2018.	
		13/06/2018	Email received 13/06/2018 with letter attached states the following: SANRAL is the registered landowner of the property known as the farm Zandfontein 343/447 as well as the farm Lekker Sukkel Landgoed 3/454 situated in the Brits Magisterial District, North West province. (Hereinafter referred to as “the properties”) hereby confirms that Thabo-Gaelebale Mineral Resources (Pty) Ltd have entered into a consultation process with SANRAL with regards to the Prospecting Right Application.	Email sent 13/06/2018 acknowledges receipt of the comments.	

			<p>SANRAL acknowledged said consultation and stipulated in a letter dated 17/11/2015 that it have any objection to the approval of the application.</p> <p>As registered landowner of the properties, SANRAL, confirm that it gives its consent to the envisaged prospecting activities as per the amended PWP to be conducted by Thabo-Gaelebale Mineral Resources (Pty) Ltd on the parts of the properties outside the declared N4 and R512 road reserve boundaries.</p>		
Zandfontein 44/447, 45/447, 46/447	Bakie de Beer	17/05/2018 21/05/2018	Email received 17/05/2018 ask that a “comments and response form” be sent to him.	Email sent 21/05/2018 with a “comments and response form” attached.	
		21/05/2018	Email received 21/05/2018 states that he will fill in the form and send it back to Milnex 189 CC.		
		22/05/2018	<p>Email received on 22/05/2018 with “<i>comments and response form</i>” attached. The “<i>comments and response form</i>” state the following:</p> <ul style="list-style-type: none"> • “<i>Three of the title deeds is my property.</i>” • <i>One is in process to be bought.</i> • <i>One I have been leasing for 18 years – in a purchase agreement.</i> <p><i>Please send project information after which I will comment on the information. Currently this property is one operational farm and our properties that are not included in the application is dependent on the properties that are included for water, electricity, etc. I will drastically have to look at how this will influence my farm and rental house.”</i></p>		
		22/05/2018	Email received on 22/05/2018 states that this application will have an enormous impact on his farm, life and decision making	Email sent 22/05/2018 referred to the telephonic conversation and said he can contact Mr. Gerhard Laufs. He will be able	

				to help him with a surface use agreement between him and the applicant. Attached to the email is the final Scoping Report and it is mentioned that he should expect a CD in the post as everything is to big to send via email.	
		22/05/2018		Email sent 22/05/2018 states that the attached document is the 1st of 2 documents that needs to be submitted to the DMR. The 1st document has already been submitted to the DMR, however he will have an opportunity to comment on the 2nd document. The public meeting was already held on the 24ste April 2018, however he is welcome to send comments.	
Lekker Sukkel Landgoed 1/454, 2/454	Chemstof Pty Ltd		No comments received yet		
Zandfontein 369/447, 370/447, 371/447	Not available		No comments received yet		
Landowners or lawful occupiers on adjacent properties					
Bokfontein RE/52/448, 64/448, 65/448, 65/448, 66/448, 67/448, 68/448, RE/14/448	Chemstof Pty Ltd, Jeannette Kruger		Email received 24/05/2018 from attorneys representing the landowner. Attached to the email is an objection letter. <u>The email state the following:</u> “We refer to the notice in relation to application NW30/5/1/1/2/11794 PR and now enclose an Objection for and on behalf of clients Chemstof Proprietary Limited and Platcro Minerals CC which we will also be lodging with the DMR in Klerksdorp.” Please see the objection letter attached under Appendix 6 (iii) .	Email sent 24/05/2018 acknowledges receipt of the objections.	

Bokfontein 321/448 Krokodil drift 548/446, 549/446 Zandfontein 344/447	South African National Roads Agency Ltd Northern Region		No comments received yet		
Bokfontein 210/448	On behalf of the Republic of South Africa Department of Rural Development and Land Reform		No comments received yet		
Krokodil drift 131/446	Barplats Mines Ltd		No comments received yet		
Krokodil drift 132/446	S.P.D.M. Eiendomme CC		No comments received yet		
Krokodil drift RE/329/446	Nadine De Beer		No comments received yet		
Krokodil drift RE/417/446	Hendrik Cornelis Janse Van Rensburg		No comments received yet		
Krokodil drift RE/140/446	Petrus Johannes Mare		No comments received yet		
Krokodil drift 545/446	Not available		No comments received yet		
Zandfontein RE/40/447, RE/41/447	Gert Van Rensburg Familietrust		No comments received yet		
Zandfontein 401/447, 402/447	Not available		No comments received yet		
Zandfontein 42/447	Cecilia Trust		No comments received yet		

Zandfontein 48/447	Johannes Petrus De Beer		No comments received yet		
The Municipality in which jurisdiction the development is located					
Madibeng Local Municipality	Municipal Manager: Mr Morris Maluleka		No comments received yet		
Municipal councilor of the ward in which the site is located					
Madibeng Local Municipality	Ward 29 Councillor		No comments received yet		
Organs of state having jurisdiction					
Department of Rural, Environmental and Agricultural Development, North West (READ)	Mrs. Ellis Thebe	25/04/2018 15/05/2018	Letter dated 25/04/2018 states that the Department has received the request to comment and a hard copy must be submitted to Mr. Olebogeng Marobe. The file reference number is NWP/DMR/08/2018	A document was couriered on the 15/05/2018.	
	Mr. Olebogeng Marobe		Email received 26/06/2018 with comments attached. 2) Following the review of the Scoping Report, the department has note the that: <ul style="list-style-type: none"> • According to the Biodiversity sector plan 2015, portion 3 of the farm Lekker Sukkel Landgoed 454 JQ, portion 369, 370, 371, 372, 343 and the northern part of portion 226 of the farm Zandfontein 447 JQ fall within a Terrestrial Critical Biodiversity Area Type 2. • Critical Biodiversity Area type 2 must be maintained in a natural or near natural state. • Therefore, the department objects the proposed activity taking place in the above mentioned portions. 		

			<p>3) However, this Department has no objection to the proposed activity occurring in portions 1 and 2 of the farm Lekker Sukkel Landgoed 454 JQ, the farm Zandfontein 923 JQ and portion 44 (portion of portion 5), portion 45 (portion of portion 5), remaining extent of portion 46, (portion of portion 5) and remaining extent of portion 226 of the farm zandfontein 447 JQ.</p> <p>4) The Department recommends the following be included in the EIAR/EMP if scoping is accepted:</p> <ul style="list-style-type: none"> • No prospecting should occur within wetland areas. • Drip trays should always be available to collect any fluid that may result from accidental spillage, overflow and/or servicing. All equipment's that leak must be repaired immediately and/or removed from the site when necessary. • All staff must be trained in emergency spill procedures and know where the spill kit is kept to prevent the minor spills form spreading. • General waste must be collected and disposed of at a licensed landfill site regularly. • The boundaries of footprint areas to be clearly defined in the final layout plan and it should be ensured all activities remain within defined footprint areas. 		
The Department of Water & Sanitation (DWS)	Cornia Theunissen	22/05/2018	Email received on 22/05/2018 with attached letter dated 18/05/218. The letter acknowledges the receipt of the documents and Ms. Lethabo Ramashala and can be contacted. Comments would be forwarded in due time.	Email sent 22/05/2018 acknowledges receipt of email.	

NW Department of Agriculture (Dept. of Agric.)	To whom it may concern	25/04/2018		CD with letter posted on 25/04/2018, requesting comments.	
Provincial Heritage Resources Agency (PHRA) North West	Mr. Motlhabane Mosiane		No comments received yet		
Department of Public Works, Roads and Transport in NW (DPWRT)	HOD: Ms. Mulangaphuma		No comments received yet		
Department of Mineral Resources – North West (DMR)	Me. Linah Tshisevhe	13/04/2018	<p>Letter dated 13/04/2018 acknowledges receipt of application and states the following:</p> <p><u>Comment 3</u> Upon evaluation of such documents it was noted that the proposed amendment will trigger activities which falls under Listing Notice 2 of NEMA: EIA Regulation which did not form part of the granted EA. In light of the above, please note that this application is considered and will be processed as a new Environmental Authorisation application.</p> <p><u>Comment 4</u> Milnex 189 CC are requested to submit 2 hard copies of scoping report together with proof of public participation process undertaken to this office within 44 days from lodgement date of your application.</p> <p><u>Comment 5</u> Milnex 189 CC ae requested to pay the shortfall amount of the prescribed application fee to the amount of R8000.00 in line with the proposed activities and submit proof of payment to this office within 30 days from the day of signing of this letter.</p>		

			<p><u>Comment 6</u> Kindly also note your application has been assigned to Mrs. Linah Tshisevhe.</p>		
		13/04/2018	Email received on 13/04/2018 states that the outstanding amount to be paid for 11794 PR amendment is R9 000.00 (Including waste activities) considering that R2000.00 has already been paid.		
	Kholofelo Mocomie	25/05/2018	<p>Email received on 25/05/2018 with DMR letter and appeal attached.</p> <p>The DMR letter states the following: <i>“Attached hereto please find attached self-explanatory documents from Werksmans Attorneys on behalf of Platcro Minerals.</i></p> <p><i>Your detailed responses are therefore anticipated within 21 days of receipt of this notice. Please note that your failure to respond as aforesaid will result in our office processing the appeal, based exclusively on the documentation in our possession and without further notice.”</i></p> <p>Please see Appendix 6(iii) for the appeal from Werksmans Attorneys on behalf of Platcro Minerals.</p>	Email sent 25/05/2018 acknowledges receipt of email.	
	Linah Tshisevhe	31/05/2018		Email sent 31/05/2018 with attached proof of Section 102 application submitted.	
		05/06/2018	<p>Email received 05/06/2018 with letter attached states the following:</p> <p>1) The DMR confirms receipt of the SR and plan of study for EIA on the 15th of May 2018.</p>		g) page14 h & i) All comments were included in the amended SR and

			<p>2) The following information should be addressed in detail on EIA phase of this project:</p> <ul style="list-style-type: none"> a) A draft EIR must be submitted to all other relevant authorities for comments and their comments including from I&APs must be included in the final EIAR to be submitted to this Department for consideration. b) All maps should be A3 paper size, must have legend, north point and printed in colour. Kindly also ensure that your locality map must show the location of the proposed activities in relation to the nearest town together with infrastructure within and around the proposed project area. c) All specialist studies specified during the SR must be undertaken and included in the EIAR. d) An EMPr for the construction and operational phases of the project must be developed to identify and mitigate potential environmental and social impacts associated with the proposed activity on the receiving environment. It must comply with the guideline as stipulated in Appendix 4 of the EIA Regulations, 2014. e) During the compilation of the EIR investigation must be conducted to determine if the proposed prospecting operation will trigger any water use activities. If any water use activity is triggered, consultation with the DWS must be done and the proof of such consultation must be included in the EIR to be submitted to the office. f) Considering that the proposed project is located on the land which is currently used for 		<p>I&APs had 30 days to provide comments. k) page 60 l) SAHRA was consulted, please see page 36.</p>
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			<p>agriculture purposes. Your EIR must provide specific mitigation measures to minimise the impacts of your prospecting activities on the agriculture activities.</p> <p>g) The quantity of hydrocarbons to be stores on site must also be investigated to determine if it will not trigger the listed activities. If investigation revealed that a listed activity is trigger such activity must be assessed</p> <p>h) The office has noted that your newspaper advertisement was published on Brits Pos on the 20th April 2018 and the public meeting was held on the 24th April 2018 and your SR was received by this office on the 15th May 2018, this means that your Scoping Report was submitted to this office prior lapsing of the 30 days commenting period. This is a contradiction with Regualtion 3 (8) of the EIAR, 2014 which states that “<i>any public participation process must be conducted for a period of at least 30 days</i>”.</p> <p>i) Page 21 item (f)(vi) of your SR is also misleading because it has specified that I&APs were given opportunity to raise comments within 30 days of advertisement. Considering that the advertisement was published on the 20th April 2018, the office concluded that the I&APs were given less than 30 days to comment on the Scoping report.</p> <p>j) The EIR & EMPr must be based on the specialist inputs therefore you are requested to conduct a Biodiversity specialist study.</p>		
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			<p>k) You are also requested to specify different specialist studies that will be conducted as stated on page 53 of the scoping report.</p> <p>l) You are also advised to consult with the Heritage Resources Agency (National office) and ensure that the proof of such consultation is submitted to this office. Kindly also ensure that the same procedure is used when the above organisation is consulted regarding the EIR to submitted to the office.</p> <p>3) Unless states otherwise, the comments specified on paragraph 2 (g), (h), (j), (i) and (m) above must be addressed and incorporated into the amended scoping report of which one (1) copy must be manually submitted to this office within 35 days from the date of signing of this letter.</p>		
Department of Agriculture, Forestry, and Fisheries (DAF)	Mr. Maurice Vugeya & Mrs Mpho Gumula		No comments received yet		
Department of Rural development and Land reform	Land Claims Commissioner: Regional Offices, Chief Director: Mr Lengane Bogatsu	03/04/2018		Emails dated 03/04/2018 is proof of land claims consultation.	
	Keabetswe Mothupi	25/06/2018 28/06/2018	Email received 28/06/2018 with letter attached states that the department acknowledges receipt of the request.	Email sent 25/06/2018 follows up on the land claims enquiry.	
Other–					
Bojanala Platinum District Municipality	Mr P Shikwane		No comments received yet		
WESSA (National Office)	To whom it may concern		No comments received yet		

South African Heritage Resources Agency (SAHRA)				The documents were uploaded onto the SHARA website for comments on 05/07/2018.	
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ii. The Environmental attributes associated with the sites

(1) Baseline Environment

The baseline environment is described with specific reference to geotechnical conditions, ecological habitat and landscape features, Soil, land capability and agricultural potential, climate and the visual landscape.

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

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

Geology and Soils

Bushveld Complex, Brits Graben, Merensky Reef

The mafic rocks of the Bushveld Complex host layers rich in platinum group elements (PGE), chromium and vanadium, and constitute the world's largest known resource of these metals and are collectively termed the Rustenburg Layered Suite (RLS).

The Critical Zone is characterized by regular rhythmic layering of cumulus chromite within pyroxenites, anorthosites, norites and olivine-rich rocks. It hosts virtually all economic mineralization encountered in the Bushveld Complex. The first economically significant cycle from a PGE perspective is the UG2 chromitite layer.

The Merensky Reef can also be traced along strike for 280 km and is estimated to contain 60 000 t of PGE to a depth of 1 200 m below surface.

Ecological habitat and landscape features

The proposed area falls within vegetation unit SVcb 6, which is known as the Marikana Thornveld. The Marikana Thornveld is part of the Central Bushveld Bioregion, which is a sub-bioregion for the Savanna Biome.

According to Mucina and Rutherford (2006:461), the Marikana Thornveld vegetation covers the North West and Gauteng Province: Occurs on plains from the Rustenburg area in the west, through Marikana and Brits to the Pretoria area in the east. This Thornveld is situated on an altitude of about 1050-1450m.

The vegetation & landscape features include open *Acacia karroo* woodland, occurring in valleys and slightly undulating plains, and some lowland hills. Shrubs are more dense along drainage lines, on termitaria and rocky outcrops or in other habitat protected from fire.

Some other important Taxa found in the area:

Tall Tree: *Acacia burkei*.

Small Trees: *Acacia caffra* (d), *A. gerrardii* (d), *A. karroo* (d), *Combretum molle* (d), *Rhus lancea* (d), *Ziziphus mucronata* (d), *Acacia nilotica*, *A. tortilis* subsp. *heteracantha*, *Celtis africana*, *Dombeya rotundifolia*, *Pappea capensis*, *Peltophorum africanum*, *Terminalia sericea*.

Tall Shrubs: *Euclea crispa* subsp. *crispa* (d), *Olea europaea* subsp. *africana* (d), *Rhus pyroides* var. *pyroides* (d), *Diospyros lycioides* subsp. *guerkei*, *Ehretia rigida* subsp. *rigida*, *Euclea undulata*, *Grewia flava*, *Pavetta gardeniifolia*.

Low Shrubs: *Asparagus cooperi* (d), *Rhynchosia nitens* (d), *Indigofera zeyheri*, *Justicia flava*.

Woody Climbers: *Clematis brachiata* (d), *Helinus integrifolius*.

Herbaceous Climbers: *Pentarrhinum insipidum* (d), *Cyphostemma cirrhosum*. Graminoids: *Elionurus muticus* (d), *Eragrostis lehmanniana* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Aristida scabrivalvis* subsp. *scabrivalvis*, *Fingerhuthia africana*, *Heteropogon contortus*, *Hyperthelia dissoluta*, *Melinis nerviglumis*, *Pogonarthria squarrosa*.

Herbs: *Hermannia depressa* (d), *Ipomoea obscura* (d), *Barleria macrostegia*, *Dianthus mooiensis* subsp. *mooiensis*, *Ipomoea oblongata*, *Vernonia oligocephala*.

Geophytic Herbs: *Ledebouria revoluta*, *Ornithogalum tenuifolium*, *Sansevieria aethiopica*.

Mucina and Rutherford (2006:462) also states that the conservation of this thornveld type, is endangered with a target of 19%. Only 1% is statutorily conserved in, for example, Magaliesberg Nature Area. More conserved in addition in other reserves, mainly in De Onderstepoort Nature Reserve. Considerably impacted, with 48% transformed, mainly cultivated and urban or built-up areas. Most agricultural development of this unit is in the western regions towards Rustenburg, while in the east (near Pretoria) industrial development is a greater threat of land transformation. Erosion is very low to moderate. Alien invasive plants occur localised in high densities, especially along the drainage lines.

See **Appendix 7 & Figure 5** for the Ecological desktop study done.

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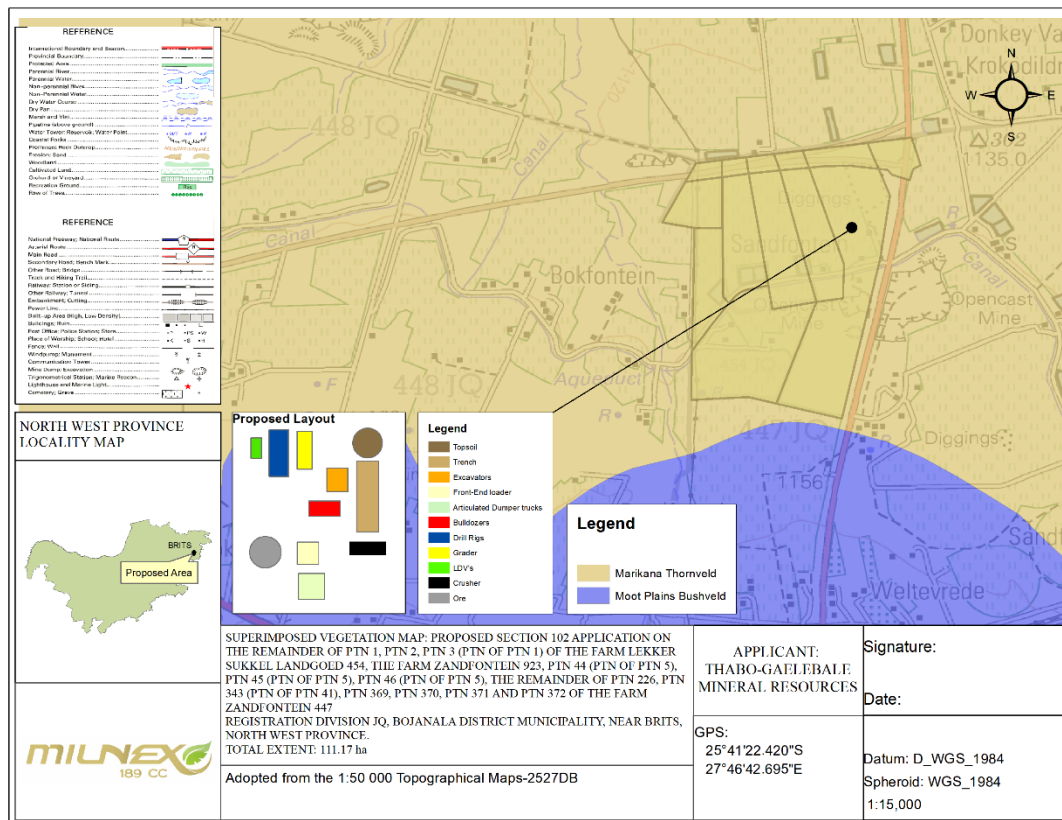


Figure 5: Vegetation map

Land capability and agricultural potential

- Climate and water availability

Brits normally receives about 540mm of rain per year, with most rainfall occurring mainly during mid summer. The chart below (lower left) shows the average rainfall values for Brits per month. It receives the lowest rainfall (0mm) in June and the highest (105mm) in January. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Brits range from 19.8°C in June to 29.3°C in January. The region is the coldest during July when the mercury drops to 2.1°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures. (SAExplorer, 2017).

- Agricultural / land capability

Land capability is the combination of soil suitability and climate factors. The site and surroundings have a land capability classification, on the 8 category scale, of Class 3 (III) – arable, Land in Class III (AGIS, 2016):

- Land in Class III has severe limitations that reduce the choice of plants or require special conservation practices, or both.
- It may be used for cultivated crops, but has more restrictions than Class II. When used for cultivated crops, the conservation practices are usually more difficult to apply and to maintain.
- The number of practical alternatives for average farmers is less than that for soils in Class II.
- Limitations restrict, singly or in combination, the amount of clean cultivation, time of planting,

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tillage, harvesting, choice of crops.

- Limitations may result from the effects of one or more of the following:
 - Moderately steep slopes.
 - High susceptibility to water or wind erosion or severe adverse effects of past erosion.
 - Frequent flooding accompanied by some crop damage.
 - Very slow permeability of the subsoil.
 - Wetness or some continuing waterlogging after drainage.
 - Shallow soil depth to bedrock, hardpan, fragipan or claypan that limit the rooting zone and the water storage.
 - Low water-holding capacity.
 - Low fertility not easily corrected.
 - Moderate salinity or sodicity.
 - Moderate climatic limitations.

Refer to Land capability map attached as **Appendix 5 & figure 10 below.**

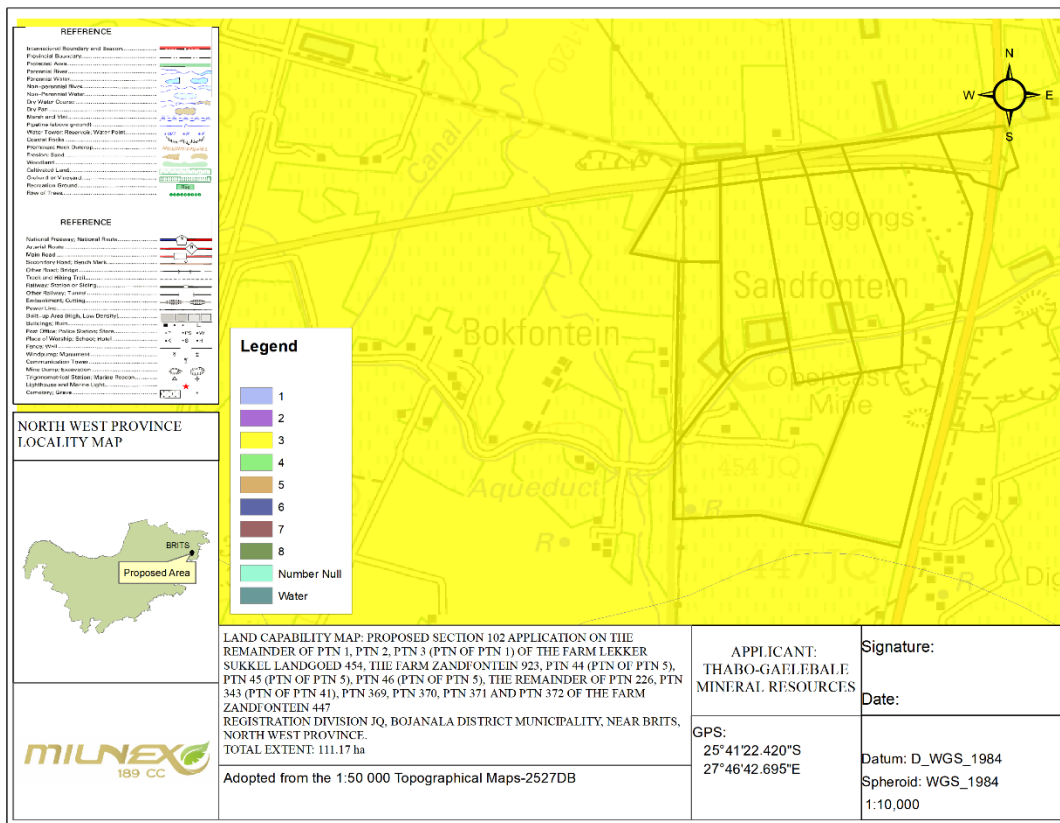


Figure 6: Land capability

Protected Areas

According to the data for protected areas the proposed portions falls within Marikana Thornveld Threatened Ecosystem.

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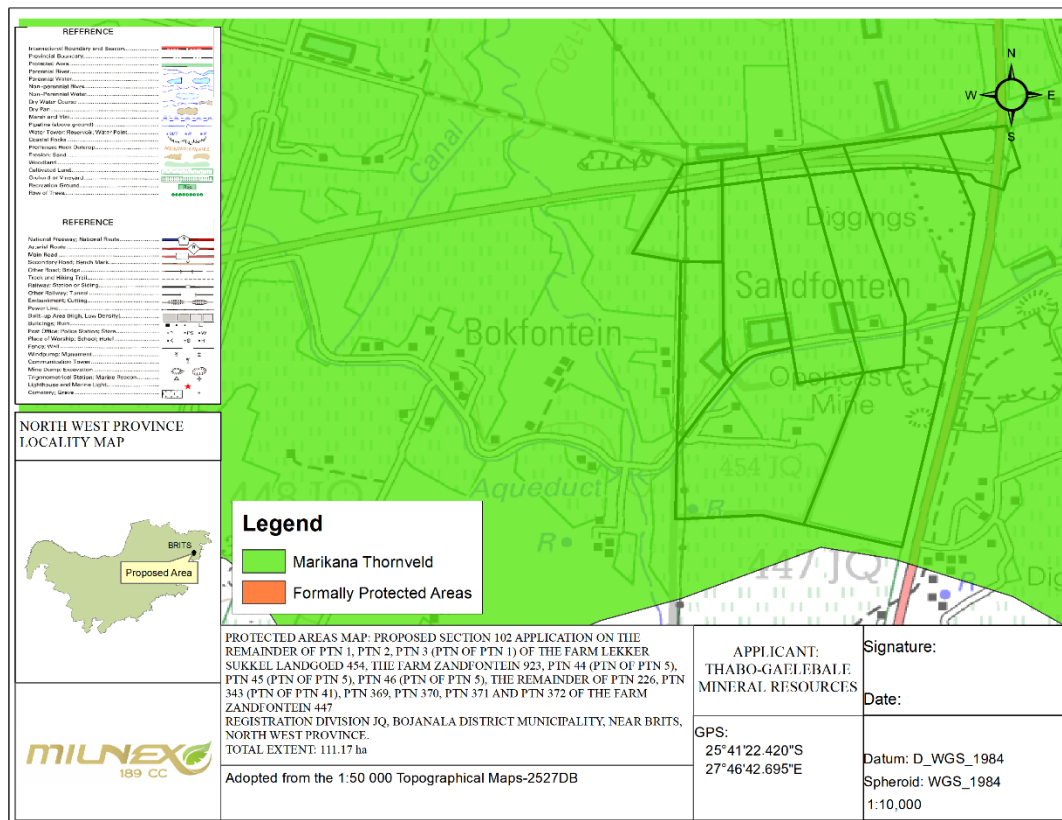


Figure 7: Protected Area

Camel Thorn tree & Shepherd tree

It seems unlikely that Camel Thorn trees & Shepherd trees may be found on the proposed area, since it is most transformed and used for crop production.

However, it should still be noted that such trees amongst others are **protected tree species** under the National Forests Act No. 84 of 1998 are listed in Table 4.9. In terms of a part of section 51(1) of Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

In cases where the trees are found and will need to be cut, disturbed, damaged or destroyed or possessed, collected, removed, transported, exported, purchased, sold or donated a flora permit will be applied for.

Critical Biodiversity Area

The Department of Rural, Environmental and Agriculture Development (READ) defines Critical Biodiversity Areas and Ecological Support Areas as follows:

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not

maintained in a natural or near-natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses.

Ecological Support Areas (ESAs) are terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree or extent of restriction on land use and resource use in these areas may be lower than that recommended for CBAs.

According to the data for Critical Biodiversity Areas, the proposed area falls within CBA type 2 and ESA type 2. According to the North West Biodiversity Sector Plan (2015) the land management objectives for above mentioned are as follows:

Critical Biodiversity Areas 2 (CBA2)

Maintain in a natural or near-natural state that maximises the retention of biodiversity pattern and ecological process:

- Ecosystems and species fully or largely intact and undisturbed.
- Areas with intermediate irreplaceability or some flexibility in terms of meeting biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve biodiversity targets, although loss of these sites would require alternative sites to be added to the portfolio of CBAs.
- These are biodiversity features that are approaching but have not passed their limits of acceptable change.

Ecological Support Area 2 (ESA2)

Maintain as much ecological functionality as possible (generally these areas have been substantially modified):

- Maintain current land use or restore area to a natural state.
- Ecosystem NOT in a natural or near-natural state, and has been previously developed (e.g. ploughed).
- Ecosystems significantly disturbed but still able to maintain some ecological functionality.
- Individual species or other biodiversity indicators are severely disturbed or reduced and these are areas that have low irreplaceability with respect to biodiversity pattern targets only.

These are areas with low irreplaceability with respect to biodiversity pattern targets only. These areas are required to maintain ecological processes especially landscape connectivity.

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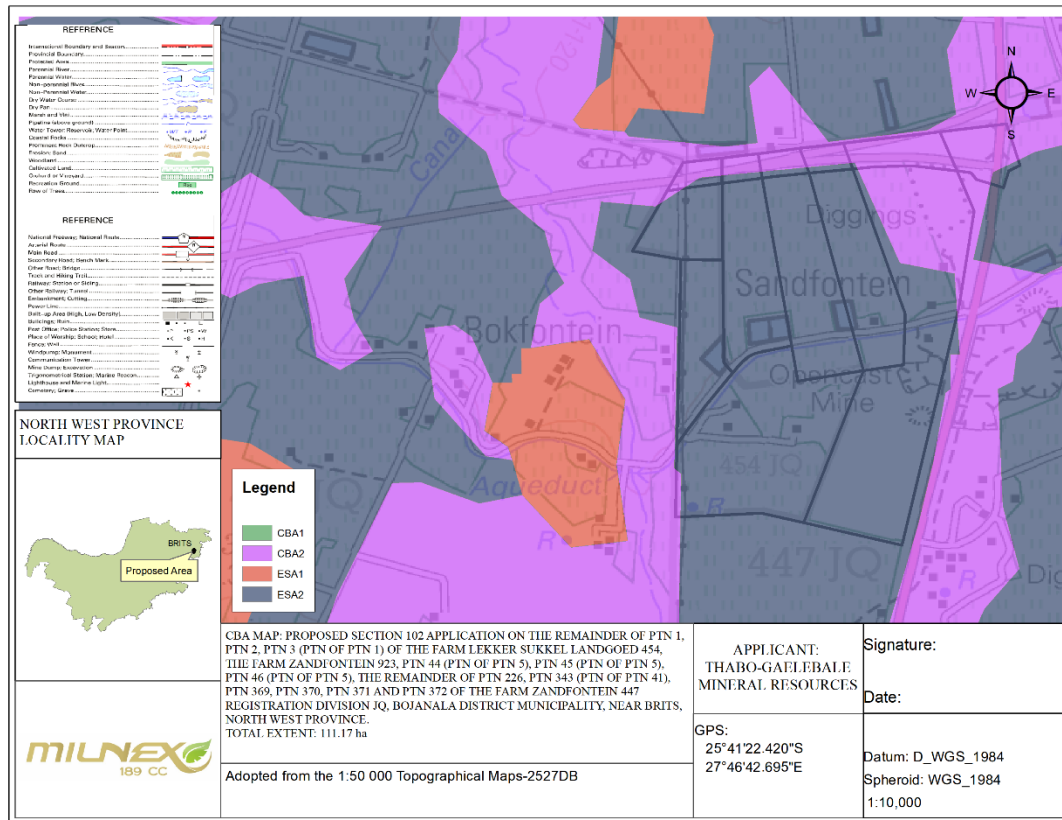


Figure 8: Critical Biodiversity Areas Map.

According to a matrix of recommended land use zones and associated activities in relation to the CBA map categories) prospecting is not permitted and actively discouraged in CBA 1 areas. In CBA 2, ESA 1 and ESA 2 areas prospecting is restricted to compulsory, site specific conditions & controls when unavoidable, not usually permitted.

NO	LAND USE ZONE	ASSOCIATED LAND USE ACTIVITIES	PA/CA	CBA1	CBA2	ESA1	ESA2	ONA
15	Quarrying and Mining	Prospecting and Underground Mining	N	N	R	R	R	R
		Quarrying and open-cast mining (includes surface mining, dumping & dredging).	N	N	N	N	N	R
		Hydraulic Fracturing (fracking)	N	N	N	R	R	R

Notes:

1. Guidelines apply only to natural or near-natural land with natural vegetation cover within each category (on site).
2. Y = YES, permitted and actively encouraged activity;
3. N = NO, not permitted, actively discouraged activity; and,
4. R = RESTRICTED to compulsory, site-specific conditions & controls when unavoidable, not usually permitted.

(North West Biodiversity Sector Plan, 2015:57)

Sensitive area for Mine

According to the Mining of Biodiversity Guidelines, biodiversity priority areas sensitive to the impacts of mining are categorized into four categories (please see the table below).

Category	Description
A	Legally protected
B	Highest biodiversity importance
C	High biodiversity importance
D	Moderate biodiversity importance

The purpose is to identify and categorize biodiversity priority areas sensitive to the impacts of mining in order to support mainstreaming of biodiversity issues in decision making in the mining sector.

According to the mine guide map, a certain area of the proposed area falls within category B and C. The biodiversity priority areas are as follows:

Highest biodiversity importance (B)

These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. The Biodiversity priority areas is as follows:

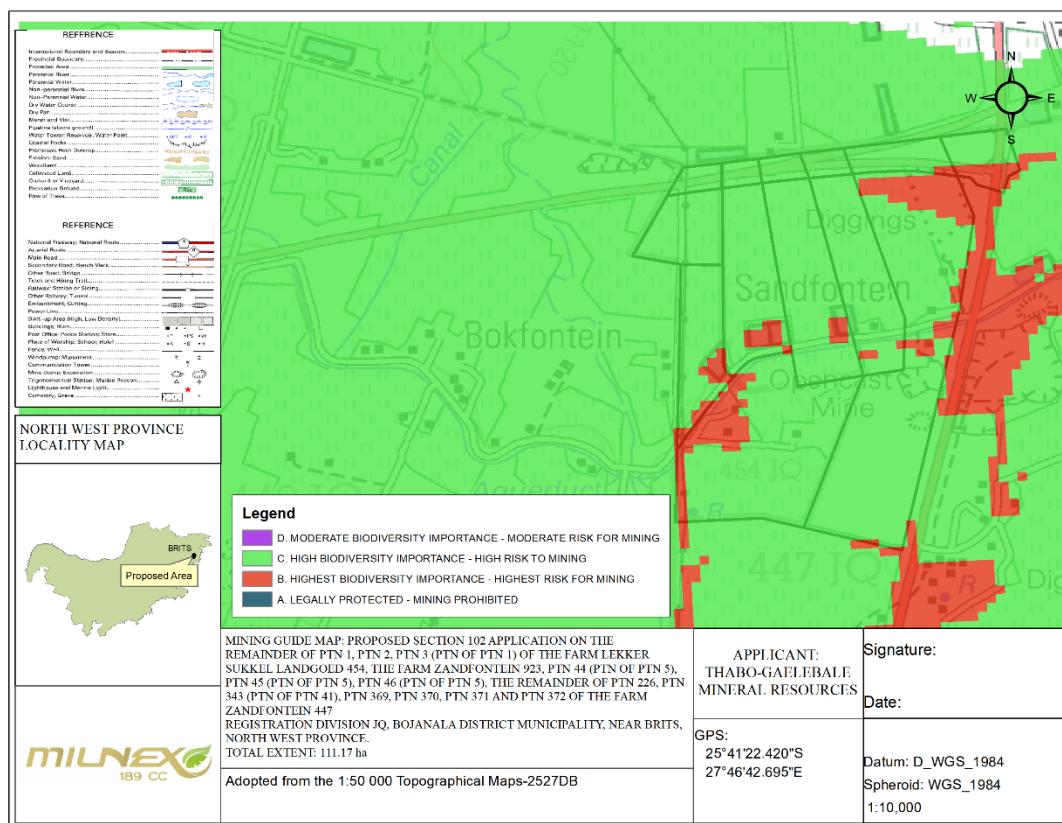
- Critically endangered and endangered ecosystems
- Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans
- River and wetland Freshwater Ecosystem Priority Areas (FEPAs), and a 1km buffer around these FEPAs
- Ramsar Sites

High biodiversity importance (C)

These areas are important for conserving biodiversity, for supporting or buffering other biodiversity priority areas, for maintaining important ecosystem services for particular communities or the country as a whole. The Biodiversity priority areas is as follows:

- Protected area buffers (including buffers around National Parks, World Heritage Sites* and Nature Reserves)
- Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas)
- Other identified priorities from provincial spatial biodiversity plans
- High water yield areas
- Coastal Protection Zone
- Estuarine functional zone

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• **Figure 12: Sensitive area for mine**

Wetland Areas

Wetland is defined as land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil (from the South African National Water Act; Act No. 36 of 1998).

The maps below depict all wetland areas on the proposed area, which include a Unchannelled valley-bottom wetland, Valleyhead seep and a Flat wetland. The wetland vegetation type falls within the Central Bushveld Group 2.

According to the 2013 SANBI Biodiversity Series 22 a;

Unchannelled valley-bottom wetland is a valley-bottom wetland without a river channel running through it. They are characterised by their location on valley floors, an absence of distinct channel banks, and the prevalence of diffuse flows.

Valleyhead seep is a gently-sloping, typically concave wetland area located on a valley floor at the head of a drainage line, with water inputs mainly from subsurface flow (although there is usually also a convergence of diffuse overland water flow in these areas during and after rainfall events). Horizontal, unidirectional (down-slope) movement of water in the form of interflow and diffuse surface flow dominates within a valleyhead seep, while water exits at the downstream end as concentrated surface flow where the valleyhead seep becomes a channel.

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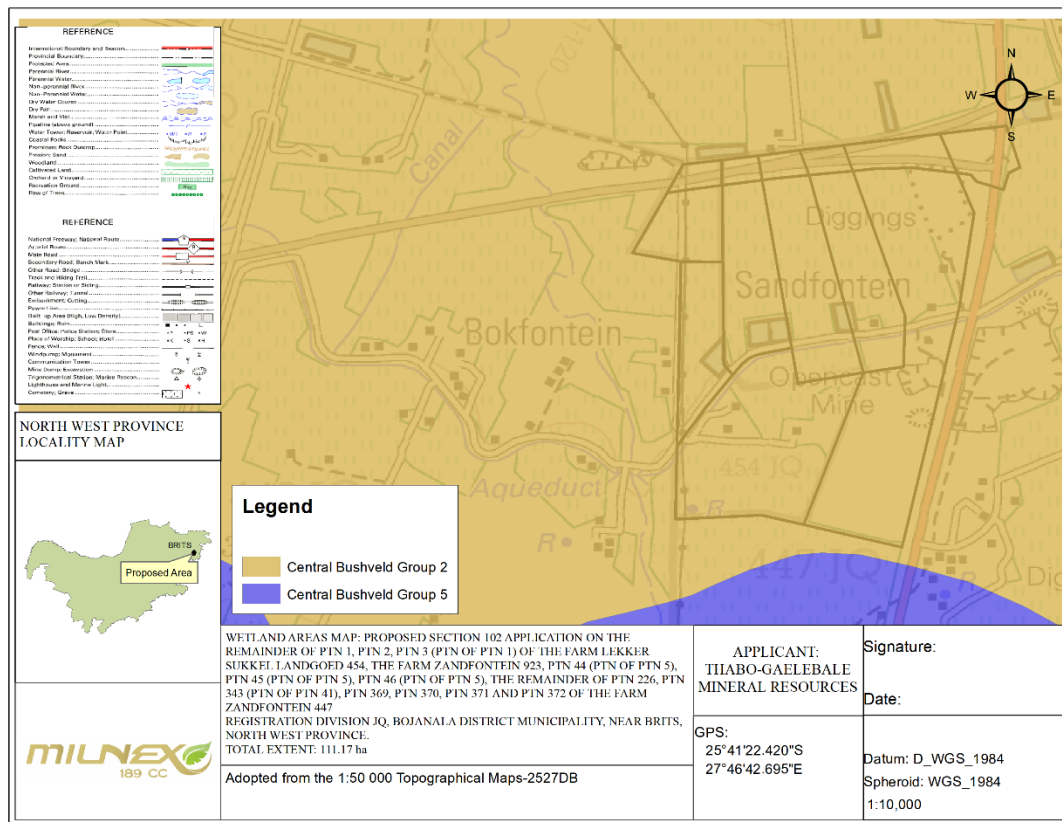


Figure 14: Wetland vegetation type

Description of the socio-economic environment

Socio-economic profile

PRIMARY ECONOMY

Agriculture, Tourism and mining are the main primary economies. The Agricultural sector, which produces food, is the biggest primary economy. It is categorized into four classifications, namely, extensive farming (44% of the Municipal area), intensive agriculture (18%), game farming (10%) and subsistence farming. Tourism also plays a major economic role as it is based on the natural systems (11%). Scenic routes, heritage sites, resorts and nature reserves are some of the main attractions in the tourism sector.

The mining sector is dominated by platinum and chromium mining as well as quarrying activity. Platinum mining activity is located on the south eastern side of the side of Brits while quarrying is spread around the municipal area. The primary economic activities have to be managed in such a manner as to make sure that their impact on the natural environment and resources is controlled.

SECONDARY ECONOMY

Secondary economy refers to activities involved in the manufacturing of finished goods. The secondary sector is understood to include all manufacturing, processing, and construction. Activities associated with the secondary economy include metal working, smelting, automobile production, textile production, chemical industries, engineering industries, manufacturing, energy utilities, breweries, bottlers, and construction.

Secondary economic activities are normally linked to the primary economic activity. Thus secondary activity in Madibeng Local Municipality is in alignment with agricultural processing without the exclusion of manufacturing and construction. These activities are located in Brits, along the N4 Highway as well as a lesser activity scale in Lethlabile.

TERTIARY ECONOMY

The tertiary sector of the economy is largely associated with service industries. This sector provides services to both the general population and businesses. Activities that are commonly associated with tertiary economy include retail and wholesale sales, transportation, distribution, entertainment, restaurants, clerical services, media, tourism, insurance, banking, healthcare and law.

In most developed and developing countries, a growing proportion of workers are devoted to the tertiary sector. The N4 Highway plays a significant role within the transport, logistics and distribution activities within the municipal area. The N4 facilitates transport linkages between Rustenburg, Tshwane and Johannesburg.

Brits is the administrative capital of the municipality, bearing the bulk of municipal and government services. The Pelindaba nuclear facility also forms part of the government services. It is located on the south eastern side on the municipal area.

STATISTICAL OVERVIEW

A demographic statistical overview, as per census 2011, follows in the table below:

Population Size		Population group	
Census 1996	319 974	Black African	426 192
Census 2001	347 578	Coloured	4 292
Census 2011	477 381	Indian or Asian	2 445
		White	42 691
Average annual Growth Rate	3.17%	Population (Area km ²)	3839
Population density	124 per km ²	Sex Ratio (Males/100 Females)	114
Number of Households	160 724	Dependency ration	0.44
Average Household Size	3.00	Female headed hh	30.3%
Gender Distribution:		Age Distribution/ Structure:	
Male	53%	Young (0-14 Years)	25.70%
Female	47%	Working age (5-65 Years)	69.20%
		Eldery (Older than 65 Years)	5.10%
Employment Status - Persons 15 to 65 Years of Age:		Monthly Income levels:	
Employment	69.60%	No Income	23.3%
Unemployment	30.40%	Income up to R800	27.3%
Youth Unemployment(15-34)	38.20%	Income between R800-R 6500	43.3
		Income above R6500	6.3%
Education levels - Persons Older Than 20 Years:	7.80%	Formal dwellings	59.2%
No Schooling		Agricultural hh	23,621
Some Primary to	57.30%	Housing owned/paid off	54.1%
Secondary Schooling	7.30%	Piped water inside dwelling	22.2%
Grade 12	27.60%	Flush toilet connected to sewerage	27.2%
Higher		Electricity for lighting	81%
HIV 45.5% compared against North West Province prevalence rate of 26.7%		Weekly refuse removal	25.7%

(Madibeng Local Municipality, 2017:6)

- **Cultural and heritage aspects**

Identifying possible cultural or heritage resources on site seems unlikely since most of the area is transformed and used for crop production.

Heritage resources including archaeological and paleontological sites over 100 years old, graves older than 60 years, structure older than 60 years are protected by the National Heritage Resources Act no 25 of 1999. Therefore, if such resources are found during the prospecting or development activities, they shall not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA must be contacted immediately and work must stop.

(b) Description of the current land uses.

The site survey revealed that land uses on and in the immediate vicinity of the proposed development are essentially comprised of natural land and to a lesser extent cultivation.

Below is the land cover of the proposed area which consist mostly of Cultivation and to a lesser extent Natural Vegetation and Waterbodies. There is also mining activities present on the site, which was authorised by the Department of Mineral Resources.

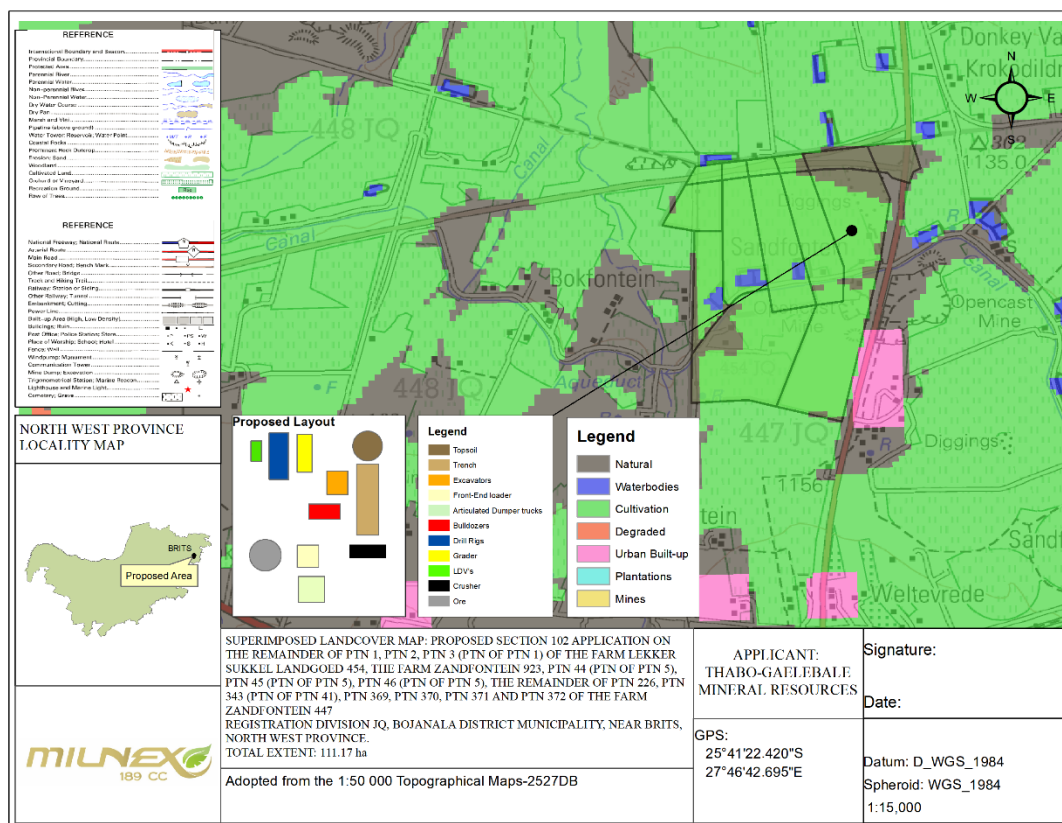


Figure 15: Land cover

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

The farm consists mostly of consist mostly of Cultivation and to a lesser extent Natural Vegetation and Waterbodies. There is also mining activities present on the site, which was authorised by the Department of Mineral Resources. All infrastructure will be temporary and/or mobile.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

A Locality map is attached in **Appendix 3**.

iii. Impacts identified

(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

- Impacts during construction phase:
 - Impacts on the fauna and flora
 - Impacts on the soil
 - Impacts associated with the geology of the site
 - Impacts on existing services infrastructure
 - Impacts on surface water (wetlands/pans)
 - Temporary employment and other economic benefits
 - Impacts on heritage resources
- Impacts during the operational phase:
 - Impacts on the soil
 - Impacts associated with the geology of the site
 - Impacts on surface water (wetlands/pans)
 - Increase in employment and other economic benefits
 - Visual impacts
 - Generation of income to the Local Community
 - Pressure on existing services infrastructure and water sources.
- Impacts during the decommissioning / mine closure phase:
 - Loss of permanent employment & the creation of temporary employment

iv. Methodology used in determining the significance of environmental impacts

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

Scoping methodology

The contents and methodology of the scoping report aims to provide, as far as possible, a user-friendly analysis of information to allow for easy interpretation.

- Checklist: The checklist consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts.

- **Matrix:** The matrix analysis provides a holistic indication of the relationship and interaction between the various activities, development phases and the impact thereof on the environment. The method aims at providing a first order cause and effect relationship between the environment and the proposed activity. The matrix is designed to indicate the relationship between the different stressors and receptors which leads to specific impacts. The matrix also indicates the specialist studies, which will be submitted as part of the Environmental Impact Report in order to address the potentially most significant impacts.

Checklist analysis

The table below provides a checklist, which is designed to stimulate thought regarding possible consequences of specific actions and so assist scoping of key issues. It consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table: Environmental checklist

QUESTION	YES	NO	Un-sure	Description
1. Are any of the following located on the site earmarked for the development?				
I. A river, stream, dam or wetland	✘			According to the wetland areas map a Flat wetland, Unchannelled valley-bottom wetland and Valleyhead seep are present on the proposed area. A canal runs through the proposed area as well.
II. A conservation or open space area		✘		None
III. An area that is of cultural importance			✘	
IV. Site of geological significance			✘	
V. Areas of outstanding natural beauty		✘		
VI. Highly productive agricultural land			✘	The proposed area falls within land capability Class 3 and used for crop production.
VII. Floodplain		✘		None.
VIII. Indigenous forest			✘	The proposed area has mostly been transformed to crop production.
IX. Grass land			✘	The proposed area has mostly been transformed to crop production.
X. Bird nesting sites			✘	The proposed area has mostly been transformed to crop production.
XI. Red data species			✘	The proposed area has mostly been transformed to crop production.
XII. Tourist resort		✘		None.
2. Will the project potentially result in potential?				
I. Removal of people			✘	
II. Visual Impacts	✘			The visual impact will be managed.

III. Noise pollution	✘			The noise impact will be managed.
IV. Construction of an access road		✘		None. Access will be obtained from a gravel road off the R512 and N4.
V. Risk to human or valuable ecosystems due to explosion/fire/ discharge of waste into water or air.			✘	
VI. Accumulation of large workforce (>50 manual workers) into the site.			✘	Approximately 15 employment opportunities will be created during the construction and operational phase of the project, however it will be verified.
VII. Utilisation of significant volumes of local raw materials such as water, wood etc.			✘	The amount of water that will be used, will be verified.
VIII. Job creation			✘	Approximately 15 employment opportunities will be created during the construction and operational phase of the project, however it will be varied.
IX. Traffic generation			✘	None.
X. Soil erosion		✘		Only areas earmarked for prospecting will be cleared. The prospecting will be phased and the topsoil stockpiled separately.
XI. Installation of additional bulk telecommunication transmission lines or facilities		✘		None.
3. Is the proposed project located near the following?				
I. A river, stream, dam or wetland	✘			According to the wetland areas map a Flat wetland and Unchannelled valley-bottom wetland is near the proposed site.
II. A conservation or open space area			✘	
III. An area that is of cultural importance			✘	
IV. A site of geological significance			✘	
V. An area of outstanding natural beauty		✘		None
VI. Highly productive agricultural land			✘	The area falls within land capability Class 3.
VII. A tourist resort		✘		
VIII. A formal or informal settlement			✘	

5.1 Matrix analysis

The matrix describes the relevant listed activities, the aspects of the development that will apply to the specific listed activity, a description of the environmental issues and potential impacts, and the significance and magnitude of the potential impacts. The matrix also highlights areas of particular concern for more in depth assessment during the EIA process. Each cell is evaluated individually in terms of the nature of the impact, duration and its significance – should no mitigation measures be applied. This is

important since many impacts would not be considered insignificant if proper mitigation measures were implemented. The matrix also provides an indication if mitigation measures are available.

In order to conceptualise the different impacts the matrix specify the following:

- **Stressor:** Indicates the aspect of the proposed activity, which initiates and cause impacts on elements of the environment.
- **Receptor:** Highlights the recipient and most important components of the environment affected by the stressor.
- **Impacts:** Indicates the net result of the cause-effect between the stressor and receptor.
- **Mitigation:** Impacts need to be mitigated to minimise the effect on the environment.

MATRIX ANALYSIS

LISTED ACTIVITY (The Stressor)	ASPECTS OF THE DEVELOPMENT /ACTIVITY	POTENTIAL IMPACTS		SIGNIFICANCE AND MAGNITUDE OF POTENTIAL IMPACTS			MITIGATION OF POTENTIAL IMPACTS	SPECIALIST STUDIES / INFORMATION	
		Receptors	Impact description	Minor	Major	Duration	Possible Mitigation		
CONSTRUCTION PHASE									
Listing Notice GNR 325, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation."	<u>Site clearing and preparation</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> Loss or fragmentation of indigenous natural vegetation. Loss of sensitive species. Loss or fragmentation of habitats. 	-		M	Yes	-
			Air	<ul style="list-style-type: none"> Air pollution due to the increase of traffic of construction vehicles. 	-		M	Yes	-
			Soil	<ul style="list-style-type: none"> Soil degradation, including erosion. Loss of topsoil. Disturbance of soils and existing land use (soil compaction). 		-	S	Yes	-
			Geology	<ul style="list-style-type: none"> It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa. 	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	<ul style="list-style-type: none"> Generation of waste that need to be accommodated at a licensed landfill site. Generation of sewage that need to be accommodated by the local sewage plant. 	-		S	Yes	-
			Ground water	<ul style="list-style-type: none"> Pollution due to construction vehicles. 	-		S	Yes	-
			Surface water	<ul style="list-style-type: none"> Increase in storm water run-off. Pollution of water sources due to soil erosion. Destruction of watercourses (pans/dams/streams). 	-		S	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none"> Job creation. Business opportunities. Skills development. 		+	S	Yes	-
			Visual landscape	<ul style="list-style-type: none"> Potential visual impact on residents of farmsteads, settlements and motorists in close proximity to proposed facility. 	-		L	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. Increased risk of veld fires. 		-	S	Yes	-
			Noise levels	<ul style="list-style-type: none"> The generation of noise as a result of construction vehicles, the use of machinery such as drills, excavators, rotary pans, dumper trucks and people working on the site. 		-	L	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Since there is no tourism facility in close proximity to the site, the construction activity will have no impact on tourism in the area. 	N/A	N/A	N/A	N/A	-

			Heritage resources	<ul style="list-style-type: none"> Removal or destruction of archaeological and/or paleontological sites. Removal or destruction of buildings, structures, places and equipment of cultural significance. Removal or destruction of graves, cemeteries and burial grounds. 	-		S	Yes	-	
<p>Listing Notice GNR 325, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <p>Listing Notice GNR 325, Activity 20: “Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <p>NEM:WA 59 of 2008</p> <p>Residue stockpiles or residue deposits</p> <p>Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</p>	<p><u>Site clearing and preparation</u></p> <p>Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately. This will inevitably result in the removal of indigenous vegetation located on the site.</p>	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> Loss or fragmentation of indigenous natural vegetation. Loss of sensitive species. Loss or fragmentation of habitats. 	-		M	Yes	-	
			Air quality	<ul style="list-style-type: none"> Air pollution due to the increase of traffic. 	-		M	Yes	-	
			Soil	<ul style="list-style-type: none"> Soil degradation, including erosion. Disturbance of soils and existing land use (soil compaction). Loss of agricultural potential (medium significance relative to agricultural potential of the site). 		-	M	Yes	-	
			Geology	<ul style="list-style-type: none"> It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa. Blasting may affect the geology 		-	L	Yes	-	
			Existing services infrastructure	<ul style="list-style-type: none"> Generation of waste that need to be accommodated at a licensed landfill site. Generation of sewage that need to be accommodated by the local sewage plant. 	-		M	Yes	-	
			Ground water	<ul style="list-style-type: none"> Pollution due to construction vehicles Pollution due to blasting 	-		S	Yes	-	
			Surface water	<ul style="list-style-type: none"> Increase in storm water run-off. Pollution of water sources due to soil erosion. Destruction of watercourses (pans/dams/streams). 	-		M	Yes	-	
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none"> Job creation. Skills development. 		+	S	N/A	-	
			Visual landscape	<ul style="list-style-type: none"> Potential visual impact on residents of farmsteads, settlements and motorists in close proximity to proposed facility due to dust. 	-		S	Yes	-	
			Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-	
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. 		-	S	Yes	-	
			Noise levels	<ul style="list-style-type: none"> The generation of noise as a result of construction vehicles, and people working on the site. 		-	M	Yes	-	
				Tourism industry	<ul style="list-style-type: none"> Since there is no tourism facility in close proximity to the site, the construction activity will have no impact on tourism in the area. 	N/A	N/A	N/A	N/A	-
				Heritage resources	<ul style="list-style-type: none"> Removal or destruction of archaeological and/or paleontological sites. Removal or destruction of buildings, structures, places and equipment of cultural significance. Removal or destruction of graves, cemeteries and burial grounds. 	-		S	Yes	-

OPERATIONAL PHASE									
<p>Listing Notice GNR 325, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <p>Listing Notice GNR 325, Activity 20: “Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <p>NEM:WA 59 of 2008</p> <p>Residue stockpiles or residue deposits</p> <p>Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</p>	<p>The key components of the proposed project are described below:</p> <ul style="list-style-type: none"> • Supporting Infrastructure - A control facility with basic services such as water and electricity will be constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. • Roads - Access will be obtained from gravel roads off the R512 and N4. • Fencing - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm. 	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> • Fragmentation of habitats. • Establishment and spread of declared weeds and alien invader plants (operations). 	-	L	Yes	-	
			Air quality	<ul style="list-style-type: none"> • Air pollution due to the mining activity, crusher plant, transport of the gravel to the designated areas and possible blasting. 	-	M	Yes	-	
			Soil	<ul style="list-style-type: none"> • Soil degradation, including erosion. • Disturbance of soils and existing land use (soil compaction). • Loss of agricultural potential (low significance relative to agricultural potential of the site). 	-	L	Yes	-	
			Geology	<ul style="list-style-type: none"> • Collapsible soil. • Seepage (shallow water table). • Active soil (high soil heave). • Erodible soil. • The presence of undermined ground. • Instability due to soluble rock. • Steep slopes or areas of unstable natural slopes. • Areas subject to seismic activity. • Areas subject to flooding. • Blasting 	-	L	Yes	-	
			Existing services infrastructure	<ul style="list-style-type: none"> • Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increased consumption of water. 	-	L	Yes	-	
			Ground water	<ul style="list-style-type: none"> • Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies. • Pollution due to blasting 	-	L	Yes	-	
			Surface water	<ul style="list-style-type: none"> • Increase in storm water runoff. The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion. • Destruction of watercourses (pans/dams/streams). • Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies. 	-	L	Yes	-	
			SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none"> • Job creation. Security guards will be required for 24 hours every day of the week and general laborers will also be required for the cleaning of the panels. • Skills development. 	+	L	Yes	-
				Visual landscape	<ul style="list-style-type: none"> • The proposed portion is used for crop production which will still take place simultaneously with the prospecting activity, however this depends on the location of the activity. 	-	L	Yes	-
				Traffic volumes	<ul style="list-style-type: none"> • Increase in vehicles collecting gravel for distribution. 	-	S	Yes	-
Health & Safety	<ul style="list-style-type: none"> • Air/dust pollution. • Road safety. 	-		S	Yes	-			

			Noise levels	<ul style="list-style-type: none"> The proposed development will result in noise pollution during the operational phase. 	-	-	L	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Since there is no tourism facility in close proximity to the site, the operational activities will have no impact on tourism in the area. 	N/A	N/A	N/A	N/A	-
			Heritage resources	<ul style="list-style-type: none"> It is not foreseen that the proposed activity will impact on heritage resources or vice versa. 	N/A	N/A	N/A	N/A	-
DECOMMISSIONING PHASE									
-	<p><u>Mine closure</u> During the mine closure the Mine and its associated infrastructure will be dismantled.</p> <p><u>Rehabilitation of biophysical environment</u> The biophysical environment will be rehabilitated.</p>		Fauna & Flora	<ul style="list-style-type: none"> Re-vegetation of exposed soil surfaces to ensure no erosion in these areas. 		+	L	Yes	-
			Air quality	<ul style="list-style-type: none"> Air pollution due to the increase of traffic of construction vehicles. 	-		S	Yes	-
			Soil	<ul style="list-style-type: none"> Backfilling of all voids Placing of topsoil on backfill 		+	L	Yes	-
			Geology	<ul style="list-style-type: none"> It is not foreseen that the decommissioning phase will impact on the geology of the site or vice versa. 	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	<ul style="list-style-type: none"> Generation of waste that need to be accommodated at the local landfill site. Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. Increase in construction vehicles. 	-		S	Yes	-
			Ground water	<ul style="list-style-type: none"> Pollution due to construction vehicles. 	-		S	Yes	-
			Surface water	<ul style="list-style-type: none"> Increase in storm water run-off. Pollution of water sources due to soil erosion. Destruction of watercourses (pans/dams/streams). 	-		S	Yes	-
			Local unemployment rate	<ul style="list-style-type: none"> Loss of employment. 		-	L	Yes	-
			Visual landscape	<ul style="list-style-type: none"> Potential visual impact on visual receptors in close proximity to proposed facility. 	-		S	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. Increased crime levels. The presence of mine workers on the site may increase security risks associated with an increase in crime levels as a result of influx of people in the rural area. 	-			Yes	-
			Noise levels	<ul style="list-style-type: none"> The generation of noise as a result of construction vehicles, the use of machinery and people working on the site. 	-		S	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Since there is no tourism facility in close proximity to the site, the decommissioning activities not have an impact on tourism in the area. 	N/A	N/A	N/A	N/A	-
			Heritage resources	<ul style="list-style-type: none"> It is not foreseen that the decommissioning phase will impact on any heritage resources. 	N/A	N/A	N/A	N/A	-

(N/A) No impact (+) Positive Impact (-) Negative Impact (S) Short Term (M) Medium Term (L) Long Term

v. 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)

- Increased ambient noise levels resulting from geophysical surveys site fly-overs and increased traffic movement during all prospecting phases.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity with in the area resulting in the possible destruction and disturbance of fauna and flora.
- Poor access control to farms which may impact on cattle movement, breeding and grazing practices.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.
- Potential visual impacts caused by prospecting activities.
- Prospecting will be undertaken by specialist sub - contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

vi. 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).

vii. The outcome of the site selection Matrix. Final Site Layout Plan

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

Refer to superimposed map attached as **Appendix 5**.

viii. Motivation where no alternative sites were considered.

As discussed in the previous section, based on outcomes of previous studies in the vicinity of the proposed site, the possibility to encounter Chrome ore and Platinum Group Metals (PGM) on the Remaining Extent of Portion 1, Portion 2, Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454, the farm Zandfontein 923 and Portion 44 (portion of portion 5), Portion 45 (portion of portion 5), Remaining Extent of Portion 46 (portion of portion 5), Remaining Extent of Portion 226, Portion 343 (portion of portion 41), Portion 369, Portion 370, Portion 371 and Portion 372 of the farm Zandfontein 447, Registration Division: JQ, North West Province, were identified.

ix. Statement motivating the preferred site.

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

The site is preferred due to its possibility of having Chrome ore and Platinum Group Metals (PGM).

H) PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

i. Description of alternatives to be considered including the option of not going ahead with the activity.

The option of not approving the activities will result in a significant loss of valuable information regarding the mineral status (in terms of Chrome ore and Platinum Group Metals (PGM)) present on these properties. In addition to this, should economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

ii. Description of the aspects to be assessed as part of the environmental impact assessment process

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).

Table: Aspects to be assessed

Aspects / potential impacts	Description of the aspect	Specialist studies / technical information
Biophysical Environment		
Impacts on the fauna and flora	Refer to Matrix table	EAP assessment (using desktop studies, GIS, site visits and the book written by Mucina and Rutherford (The Vegetation of South Africa, Lesotho and Swaziland)
Impacts on the air quality	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Impacts on the soil	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Impacts associated with the geology of the site	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Impacts on existing services infrastructure	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Impacts on ground and surface water	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Socio / Economic Environment		
Impacts on local employment rate	Refer to Matrix table	EAP assessment (using desktop studies, IDP's and SDF's)
Impacts on visual landscape	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Impacts on traffic volumes	Refer to Matrix table	EAP assessment (using desktop studies, GIS using BGIS data, site visits)
Impacts on health & safety	Refer to Matrix table	EAP assessment (desktop studies, site visits)

iii. Description of aspects to be assessed by specialists

A biodiversity study will be conducted.

iv. Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

The environmental assessment aims to identify the various possible environmental impacts that could result from the proposed activity. Different impacts need to be evaluated in terms of their significance and in doing so highlight the most critical issues to be addressed.

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in the table below.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

v. The proposed method of assessing duration significance

Impact Rating System

Impact assessment must take account of the nature, scale and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the project phases:

- planning
- construction
- operation
- decommissioning

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance should also be included. The rating system is applied to the potential impacts on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each impact the following criteria is used:

Table: The rating system

NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).

3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered indefinite.
INTENSITY/ MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.

4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.
2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects
SIGNIFICANCE		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula: (Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.		
The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.		
Points	Impact significance rating	Description
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.

29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive effects.

vi. The stages at which the competent authority will be consulted

Consultation with the competent and commenting authorities will continue throughout the duration of impact assessment phase. The authorities will also comment on whether they deem it necessary to conduct any specialist studies. On-going consultation will include:

- Submission of the Scoping following a 30 day public review period (and consideration of comments received).
- Submission of the EIR following a 30 day public review period (and consideration of comments received).
- Arrangements will be made to discuss the report with the Environmental Officer responsible for the project during the review period.
- An opportunity to visit and inspect the site.

vii. Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

1. Steps to be taken to notify interested and affected parties.

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

All registered I&APs and relevant State Departments will be given the opportunity to review the Scoping, EIR and EMP in accordance with Regulation R326. A minimum of 30 days commenting period will be allowed and all stakeholders and I&APs will be given an opportunity to forward their written comments within that period. All issues identified during this public review period will be documented and compiled into a Comments and Response Report to be included as part of the Final EIR to be submitted to the North West Department of Mineral Resources.

2. Details of the engagement process to be followed.

(Describe the process to be 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 and records of such consultation will be required in the EIA at a later stage).

The public participation process will be conducted strictly in accordance with Regulations 39-44. The following three categories of variables will take into account when deciding the required level of public participation:

- The scale of anticipated impacts.
- The sensitivity of the affected environment and the degree of controversy of the project.
- The characteristics of the potentially affected parties.

the following public participation mechanisms will be used:

- Newspaper advertisement in local newspaper
- Site notices
- Direct notification of surrounding land owners and occupiers
- Circulation of scoping report
- Circulation of EIR
- Public participation meeting
- Direct notification to all stakeholders of the Environmental Authorisation given

3. Description of the information to be provided to Interested and Affected Parties.

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land).

The letter provided to I&As comprises of a activity, extent and location description, including a locality map of the proposed activity and a Dropbox link to the full Scoping report and Appendices. It also indicates where a hard copy of the report can be viewed or if the need arises for a copy of the report a request can be sent to the relevant EAP who will forward a CD containing all the relevant information.

viii. Description of the tasks that will be undertaken during the environmental impact assessment process

Tasks to be undertaken

The following sections describe the tasks that will be undertaken as part of the EIA process.

- **Project Description**

Further technical and supporting information will be gathered to provide a more detailed project description. This will include a detailed site layout plan that will be compiled once the low – medium areas of sensitivity have been indicated.

- **Location alternatives**

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. No other properties have at this stage been secured by **Thabo Galebale Mineral Resources (Pty) Ltd** near Madibeng area to potentially mine Chrome ore and Platinum Group Metals (PGM). Also, it is expected that the Chrome ore and Platinum Group Metals (PGM), is on this farm and therefore the applicant would like to commence with their prospecting activities.

- **Activity alternatives**

The scoping process also needs to consider if the development of a Chrome ore and Platinum Group Metals (PGM), mine would be the most appropriate land use for the particular site.

Mining of other commodities – None

Agriculture – Due to the site being Arable, the proposed area is used for cultivation.

- **Design and layout alternatives**

Design alternatives were considered throughout the planning and design phase (i.e. where is the chrome ore located?). In this regard discussions on the design were held between the EAP and the developer. The layout follows the limitations of the site and aspects such as, roads, site offices and workshop area as well as fencing– refer **Appendix 3**.

- **Operational alternatives**

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage services are required.

Prospecting activities described in this Prospecting Work Programme (“PWP”) are aimed at determining the Chrome Ore (Cr) and Platinum Group Metals (PGM), content and overall mineral resource potential of the Prospecting Right Area. The activities will be a combination of both non-invasive and invasive techniques. A suitable level of feasibility study (technical and economic evaluation) will also be undertaken. The Prospecting Work Programme will take on a phased approach to assess the potential reserves in the area:

Access Negotiations

Once the prospecting right is granted and executed by the applicant, the applicant will negotiate further access with the surface owner and occupiers in order to do a detail technical evaluation of the prospecting area.

A contract will be drawn and negotiated with the surface owner regarding access and the suitability and time of year that is preferred that prospect drilling can commence.

Data Gathering and Evaluation

From existing geological information, geophysical and topographical data, a geological base map will be produced and used as a basis for the exploration programme.

Additional detail geological field mapping will be conducted in order to finalize 8 (eight) borehole drilling programme.

Geophysical Survey Programme

A gravimetric survey will be undertaken over certain areas only where drilling indicated economical mineral layers and warrants areal determination. The major geological features that affect the Merensky Reef and UG2 chromitite layer are faults, dykes, potholes and mafic/ultramafic pegmatites. Emphasis will be placed

upon recognition of faults. Mapped faults, shear zones and geophysical lineaments will be treated as a single evidence layer in the modelling and it is assumed that they represent the same style of deformation.

Phased Geological Core Drilling Programme

Eight (8) geological boreholes (TNW) will be drilled in Year 1 and Year 2 in targeted areas of the prospecting area to a depth of 80m where economical mineral seams should be present. All borehole cores will be logged, surveyed and plotted on the base plan.

The core will be tested for Cr and PGM minerals. All drill holes will be rehabilitated by replacing unused cores back and replacing the blasted rock to the ground together with the overburden. The drilling sump will also be closed and any other materials removed from the drill site. If the quality and density of the minerals warrants further investigation, full oxide analysis will be undertaken.

Pitting, Trenching and Blasting

Preliminary exploration will be performed by pitting and trenching of the outcrop to observe and take bulk samples on a continuous basis across the mineralized zone. This is done to provide initial information to the geologist in order to improve the parameters estimated for this sampling program.

Bulk sampling will include the excavation of 2 pits and 16 trenches. The dimensions of the pits will be 115m x 115m x 50m deep and 132m x 322m x 55m deep. Dimensions for trenches to be excavated will be 10 m x 1.8 m x 2.5 m deep. Blasting will be done only when resistant rock is intercepted during trenching. The floor area will be wide enough to allow access for a front end loader/excavator to collect sample material.

- **No-go alternative**

This alternative considers the option of 'do nothing' and maintaining the status quo. The description provided in section H of this report could be considered the baseline conditions (status quo) to persist should the no-go alternative be preferred. The site is currently zoned for agricultural land uses. Should the proposed activity not proceed, the site will remain unchanged and will continue to be used for cultivation and or grazing.

- **Compilation of Environmental Impact Report**

An EIR will be compiled to meet the content requirements as per Appendix 3 of GNR326 of the EIA Regulations (7 April 2017) and will also include a draft Environmental Management Programme containing the aspects contemplated in Appendix 4 of GNR326.

- (ix) **Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.**

ACTIVITY whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	POTENTIAL FOR RESIDUAL RISK
Impacts on the fauna and flora	Surface disturbance	Monitor through rehabilitation	Low
Impacts on the air quality	dust	Dust Control	Medium
Impacts on the soil	Erosion	Storm water control	Medium
Impacts associated with the geology of the site	Fly rock	Blasting controls	Medium
Impacts on ground and surface water	Ground and surface water contamination	Storm water control, avoidance	Medium
Impacts on visual landscape	dust	Dust control measures	Medium
Impacts on traffic volumes	dust	Dust control measures	Low

I) AN UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP

I, **Lizanne Esterhuizen** (EAP) herewith confirms

- A. the correctness of the information provided in the reports
- B. the inclusion of comments and inputs from stakeholders and I&APs ;
- C. the inclusion of inputs and recommendations from the specialist reports where relevant; and
- D. the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed;



Signature of the environmental assessment practitioner:

Milnex 189 CC – Environmental Consultants

Name of company:

05 – 07 - 2018

Date:

J) UNDERTAKING REGARDING LEVEL OF AGREEMENT

I, Lizanne Esterhuizen, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of the EAP

DATE: 05 - 07 - 2018

K) OTHER 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 Chrome ore and Platinum Group Metals (PGM), prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The prospecting will not impact directly on any socio-economic aspects. Indirect socio-economic benefits are expected to be associated with the creation of employment in the North West Province.

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

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or Chrome ore and Platinum Group Metals (PGM), 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).

Identifying possible cultural or heritage resources on site seems unlikely since most of the area is transformed and used for crop production. In terms of the National Heritage Resource Act no 25 of 1999, heritage resources including archaeological and paleontological sites over 100 years old, graves older than 60 years, structure older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA will be contacted immediately and work will stop.

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

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

From a local perspective, the Remaining Extent of Portion 1, Portion 2, Portion 3 (portion of portion 1) of the farm Lekker Sukkel Landgoed 454, the farm Zandfontein 923 and Portion 44 (portion of portion 5), Portion 45 (portion of portion 5), Remaining Extent of Portion 46 (portion of portion 5), Remaining Extent of Portion 226, Portion 343 (portion of portion 41), Portion 369, Portion 370, Portion 371 and Portion 372 of the farm Zandfontein 447, Registration Division: JQ, North West Province, is preferred due to the sites mineral resources. The specific site has been chosen for its mineral resources thus making an alternative site selection null and void.

-END-