SAMRAD File Reference: NW 30/5/1/1/2/12301 PR (EM)

Applicant:

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Company Reg. No. 2017/511313/07
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Report Name:

Detailed Site Description of the Four Drill Sites
associated with
Prospecting and Related Activities on Portions of the Farm Hartebeespoort B 410 JQ, located between Segwaelane and Sonop in Madibeng Local Municipality, North West Province

Prospecting Area: Portions 966, 967 and 1041, and parts of portions 884, 940, 942, 949, 955, 956, 957, 958, 959, 960, 994, 1133, 1134, 1135, RE/1137, 1138, 1387 and RE of Farm Hartebeespoort B 410 JQ

Report Status: Version 1

11 11 March 2019

Prepared on behalf of: The Mineral Corporation

Prepared By:

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PROJECTS INFORMATION

Prospecting Right

NW 30/5/1/1/2/12301 PR

Prospecting Right Applicant

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T: 012 312 8409 I F: 011 706 8616
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Responsible Person: Fumanekile Samuel Gqiba (Director)
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Prospecting Right Area

278 hectares of land covering Portions 966, 967 and 1041, and parts of portions 884, 940, 942, 949, 955, 956, 957, 958, 959, 960, 994, 1133, 1134, 1135, remaining extent (RE)/1137, 1138, 1387 and RE of Farm Hartebeespoort B 410 JQ

Region / District

Bojanala Platinum District Municipality, North-West Province
Madibeng Local Municipality, Ward 40

Towns

Sonop (300 m west), Segwaelane (500 m east), Bapong (5 km south), Makolokwe (3.5 km north), Brits (10 km east), Marikana (9 km west).

Minerals

Platinum Group Metals and associated minerals (Platinum, Palladium, Rhodium, Iridium, Osmium, Ruthenium, Chrome, Gold, Silver, Copper, Nickel and Cobalt)

Report

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Abbreviations and Terms

~	Approximately
BAR	Basic Assessment Report
BH	Borehole
BHP	Planned New Borehole
CBA	Critical Biodiversity Area
CBA1	Critical Biodiversity Area 1, also called ‘CBA Irreplaceable’
CBA2	Critical Biodiversity Area 2, also called ‘CBA Optimal’
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
ESA	Ecological Support Area
ESA1	Ecological Support Area 1, ESA in good or fair ecological condition
ESA2	Ecological Support Area 2, ESAs in severely modified ecological condition
GA	General Authorisation
GN	Government Notice
IAP	Interested or Affected Party
MPRDA	Mineral and Petroleum Resources Development Act 28 of 2002
NEMA	National Environmental Management Act 107 of 1998
NW	North West (Province)
NWA	National Water Act 36 of 1998
RE	Remaining Extent
WUL	Water Use Licence

Critical Biodiversity Area (CBA)
Area required to meet biodiversity targets for ecosystems, species and ecological processes, is identified in a systematic biodiversity plan. Together with protected areas, CBAs ensures that a viable representative sample of all ecosystem types and species can persist. In most circumstances, a site will be designated as a CBA only if it is currently in good ecological condition. In some circumstances it may be necessary to select a site in fair ecological condition as a CBA. Only in exceptional circumstances will a site that is severely modified be selected as a CBA. The broad management objective is that the areas must stay in a largely natural ecological condition. The distinction between CBA1 and CBA2 is based on irreplaceability.

Critical Biodiversity Area 1 (CBA1 / CBA Irreplaceable)
Areas that are irreplaceable or near-irreplaceable for meeting biodiversity targets. There are no or very few other options for meeting biodiversity targets for the features associated with these areas.

Critical Biodiversity Area 2 (CBA2 / CBA Optimal)
Areas that present the best option for meeting biodiversity targets, based on complementarity, efficiency, connectivity and/or avoidance of conflict with other land or resources uses.

Ecological Support Area (ESA)
Area not essential for meeting biodiversity targets but that play an important role in supporting the ecological functioning of CBAs and/or in delivering ecosystem services. ESAs are designated to ensure the long-term ecological functioning of the landscape as a whole. ESAs could include sites in good, fair or even severely modified ecological condition, as long as the current ecological condition is compatible with fulfilling the purpose for which the ESA has been selected. The broad management objective is that the areas must retain ecological processes, which often requires at least semi-natural ecological condition. The distinction between ESA1 and ESA2 is based on ecological condition.

Ecological Support Area 1 (ESA1)
ESAs that are currently in either good or fair ecological condition, for which the objective is to retain the area in at least fair ecological condition.

Ecological Support Area 2 (ESA2)
ESAs that are currently in severely modified ecological condition (e.g. cultivated areas in riparian zones) but that nevertheless retain sufficient ecological functioning to fulfil the purpose for which the ESA was selected. The objective is to prevent further deterioration in ecological condition.

1 INTRODUCTION AND BACKGROUND

1.1 Details of the Prospecting Right Application (NW 30/5/1/1/3/2/1/12301 PR)

Team Core Investments No 21 (Pty) Ltd applied for a prospecting right on various portions of the farm Hartebeespoort B 410 JQ on 16 February 2018. The application covers 278 hectares and falls on portions 966, 967 and 1041, and parts of portions 884, 940, 942, 949, 955, 956, 957, 958, 959, 960, 994, 1133, 1134, 1135, remaining extent (RE)/1137, 1138, 1387 and RE of Farm Hartebeespoort B 410 JQ.

The Department of Mineral Resources (DMR) reference number for the application by Team Core Investments No 21 (Pty) Ltd is: NW 30/5/1/1/3/2/1/12301 PR.

1.2 History of Prospecting on the same Property (NW 30/5/1/1/3/2/1/1250 PR)

A prospecting right on the same area was previously held by Inkosi Platinum (Pty) Ltd. An aeromagnetic survey and aerial photography were undertaken on in 2004 and 2008 respectively; and diamond drilling of eight boreholes was completed between 2008 and 2012. The depth of drilling ranged from ~1000 to ~1300 m.

This right expired on 11 February 2018 and Inkosi Platinum (Pty) Ltd is in the process of applying for closure of their prospecting right and the eight boreholes in terms of Section 43 of the Mineral and Petroleum Resources Development Act.

The DMR reference number for the expired prospecting right that was held by Inkosi Platinum (Pty) Ltd is NW 30/5/1/1/3/2/1/1250 PR. An assessment of the eight drill sites are provided in Section 6.

1.3 Location

The prospecting right application area is located between Segwaelane and Sonop, ~9 km west of Brits and ~10 km east of Marikana, and ~2 km north of Wolhuterskop railway station, in Madibeng Local Municipality, Bonjala Platinum District Municipality, North West Province.

The regional locality is illustrated on Figure 1 and the prospecting right boundary, four proposed borehole positions as well as the eight old boreholes drilled between 2008 and 2012 by the previous prospecting right holder is depicted on Figure 2. The location of the prospecting area in relation to the topocadastral data is provided in Figure 3.

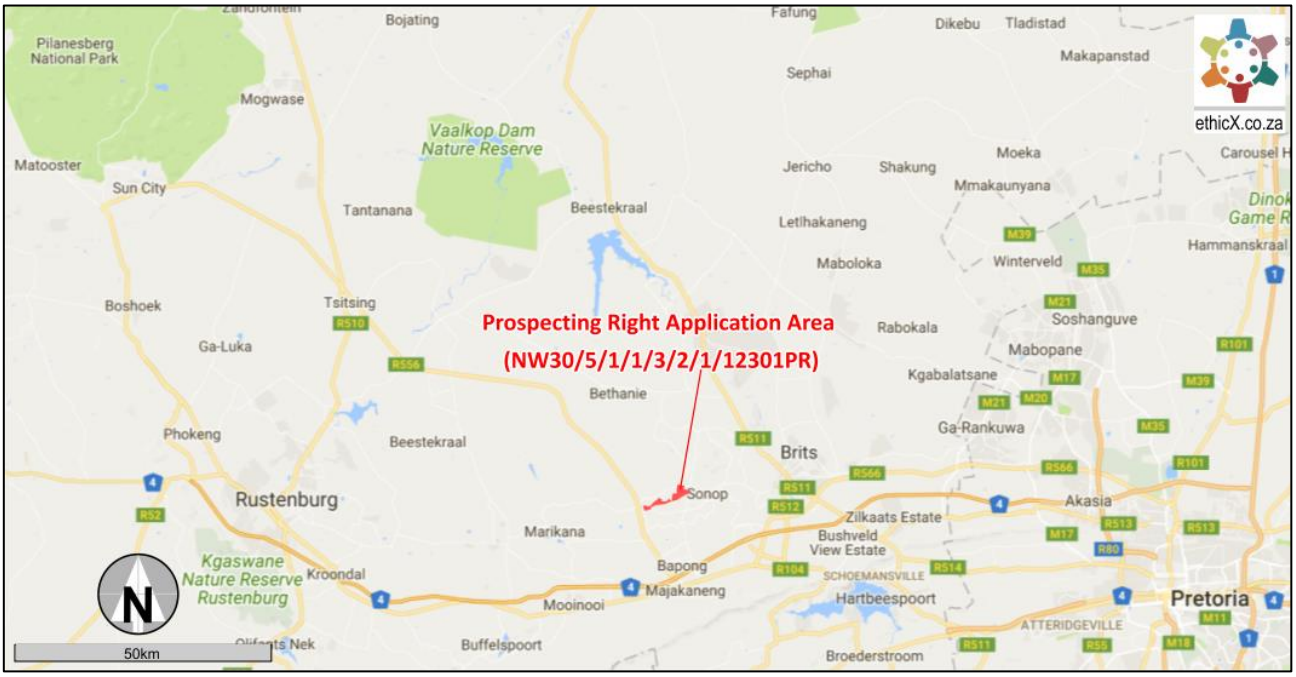


Figure 1: Regional Locality

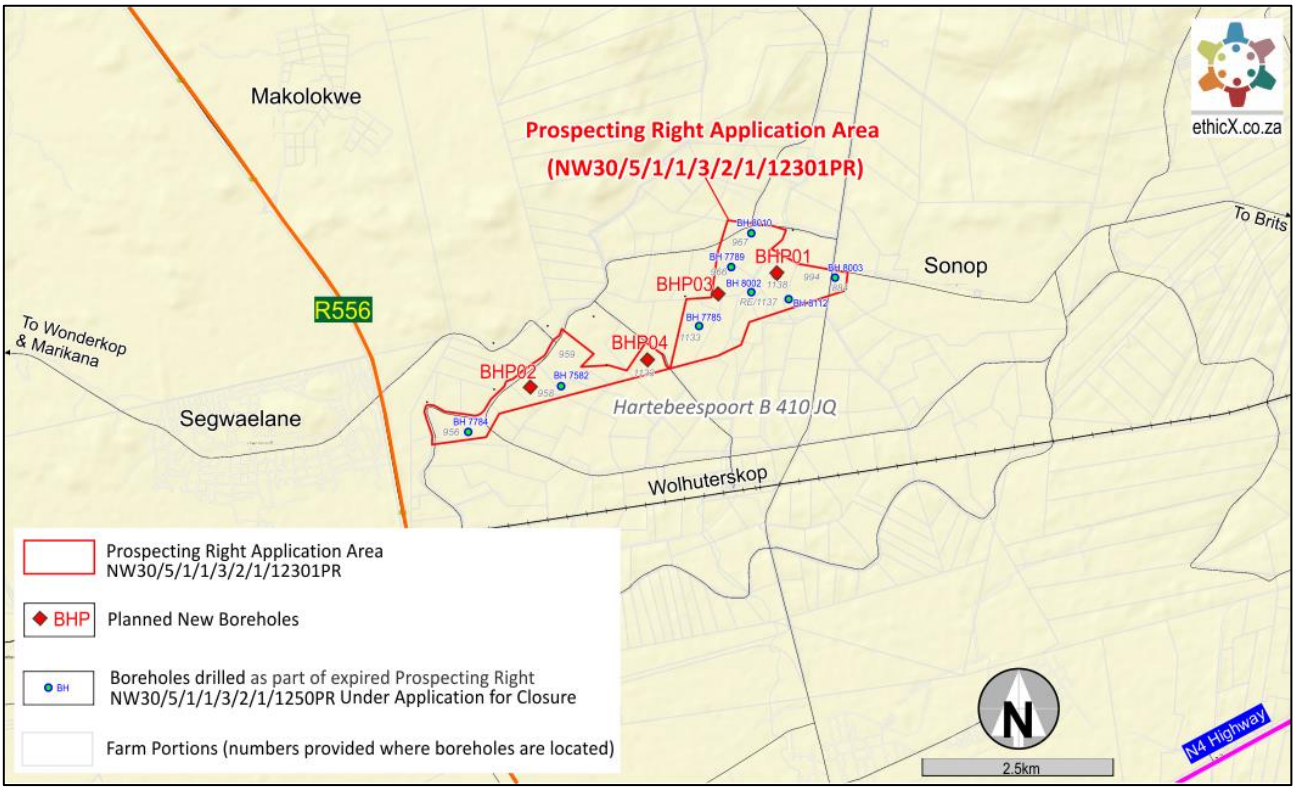


Figure 2: Location of Prospecting Right Area and Prospecting Activities

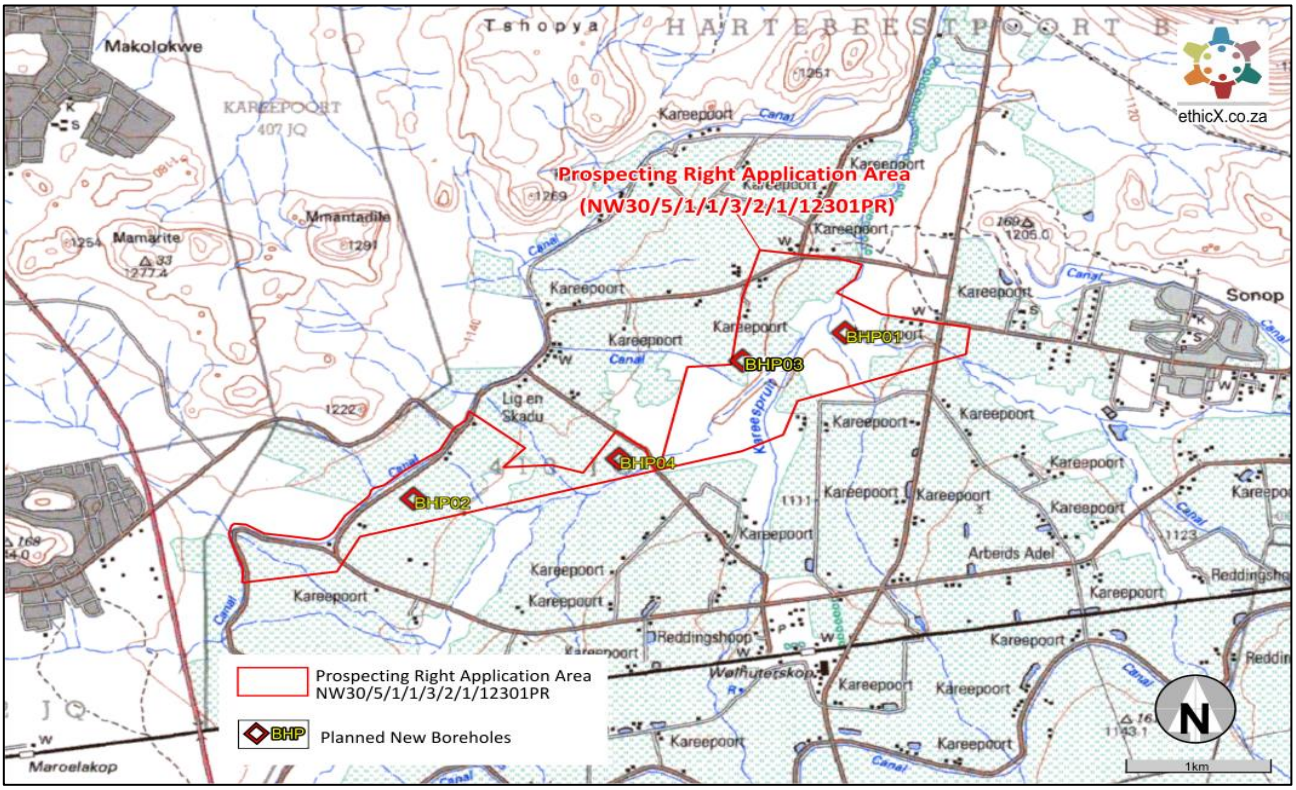


Figure 3: Topocadastral Map (22527 DA Wolhuterskop)

1.4 Geology and Mining

The geology (including the ore bodies) underlying the prospecting area comprises lithologies of the Rustenburg Layered Suite in the Brits section of the Western Limb of the Bushveld Igneous Complex, as illustrated on Figure 4. The prospecting area is surrounded by various mining and prospecting operations for platinum group metals and chrome, as indicated Figure 5. There are also various current and historical dimension stone quarries in the area.

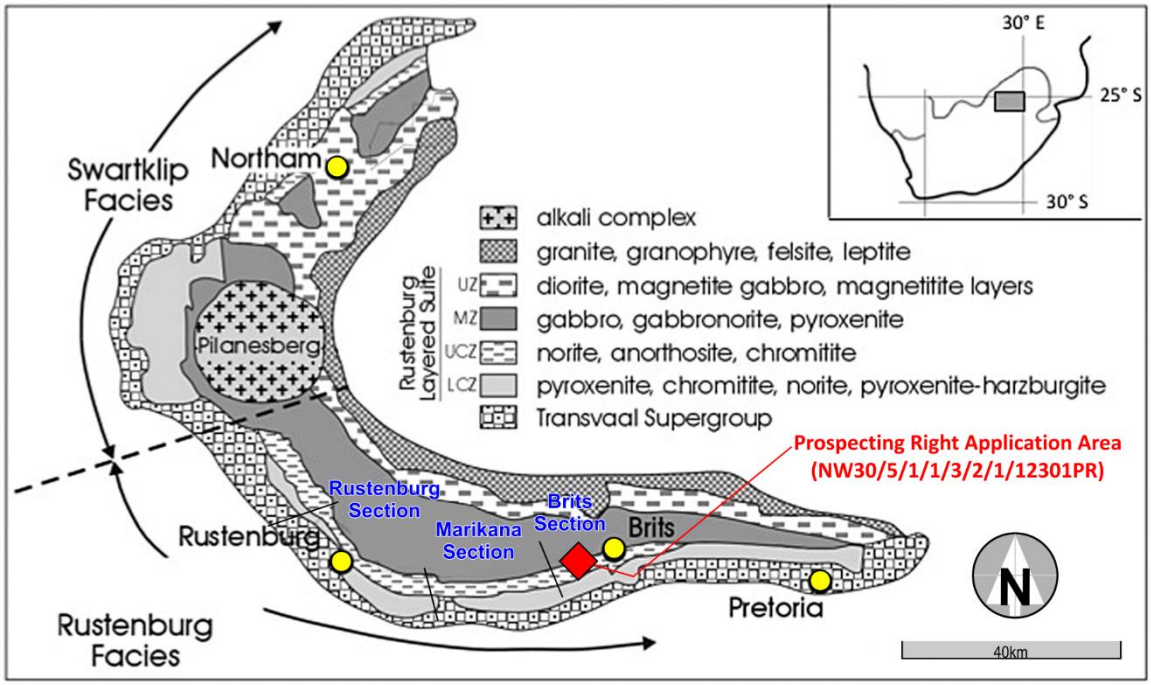
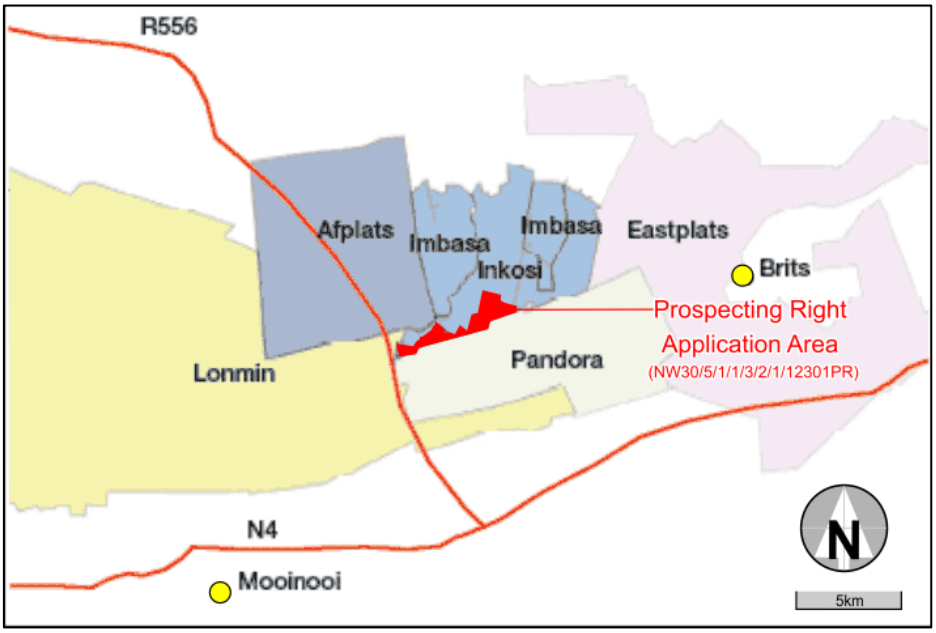


Figure 4: Western Bushveld Complex, Simplified Geology



Note: Right Holders as at 2017

Figure 5: Surrounding Mining and Prospecting Areas

1.5 Land Parcels of Farm Hartebeespoort B 410 JQ within the Application Area

The application covers portions 966, 967 and 1041, and parts of portions 884, 940, 942, 949, 955, 956, 957, 958, 959, 960, 994, 1133, 1134, 1135, RE/1137, 1138, 1387 and RE of Farm Hartebeespoort B 410 JQ. Details of these land parcels are tabled below and illustrated on Figure 6.

Table 1: Details of Hartebeespoort B 410 JQ Land Parcels within the Prospecting Right Application Area

Parcel No	21 Digit Code	Portion Description	Title Deed	SG Number	Surface Owner	BH New	BH Old
RE/1137	T0JQ00000000041001137	A part of portion 1137	T43929/2016	A4145/1972	Deale John Henry/ Deale Jaco/ Deale Juane		BH 8002
1134	T0JQ00000000041001134	A part of portion 1133	T113416/2002	A4142/1972	Eglington Charles Samuel/ Annandale Denise		
1387	T0JQ00000000041001387	A part of portion 1387	T142230/2005	1542/2005	Ngwanadirane Communal Property Association		
1041	T0JQ00000000041001041	Portion 1041	T145170/2006	A6115/1944	Ngwanadirane Communal Property Association		
1133	T0JQ00000000041001133	A part of portion 1133	T102801/2008	A4141/1972	Ngwanadirane Communal Property Association		BH 7785
1135	T0JQ00000000041001135	A part of portion 1135	T7755/2010	A4143/1972	Ngwanadirane Communal Property Association		
940	T0JQ00000000041000940	A part of portion 940	T38111/2007	A1767/1938	Ngwanadirane Communal Property Association	BHP 04	
942	T0JQ00000000041000942	A part of portion 942	T45152/2007	A1769/1938	Ngwanadirane Communal Property Association		
949	T0JQ00000000041000949	A part of portion 949	T131666/2007	A1776/1938	Ngwanadirane Communal Property Association		
955	T0JQ00000000041000955	A part of portion 955	T160716/2006	A1782/1938	Ngwanadirane Communal Property Association		
956	T0JQ00000000041000956	A part of portion 956	T8994/2007	A1783/1938	Ngwanadirane Communal Property Association		BH 7784
957	T0JQ00000000041000957	A part of portion 957	T160749/2006	A1784/1938	Ngwanadirane Communal Property Association		
958	T0JQ00000000041000958	A part of portion 958	T148337/2006	A1785/1938	Ngwanadirane Communal Property Association	BHP 02	
959	T0JQ00000000041000959	A part of portion 959	T33287/2007	A1786/1938	Ngwanadirane Communal Property Association		BH 7582

960	T0JQ00000000041000960	A part of portion 960	T145169/2006	A1787/1938	Ngwanadirane Communal Property Association		BHs 7580 7581
966	T0JQ00000000041000966	Portion 966	T145170/2006	A1793/1938	Ngwanadirane Communal Property Association	BHP 03	BH 7789
967	T0JQ00000000041000967	Portion 967	T32657/2008	A1794/1938	Ngwanadirane Communal Property Association		BH 8010
994	T0JQ00000000041000994	A part of portion 994	T13776/2014	A5152/1940	Rand Swallows Pty Ltd		BH 8112
884	T0JQ00000000041000884	A part of portion 884	T26597/2013	A1711/1938	Raphadu Matshidiso David \ Raphadu Moniccah Dipuo (owner could not be reached)		BH 8003
RE	T0JQ00000000041000000	A part of portion RE	T2737/1927		Republiek Van Suid-Afrika		
1138	T0JQ00000000041001138	A part of portion 1138	T169171/2006	A4146/1972	Tabane Masentle	BHP 01	

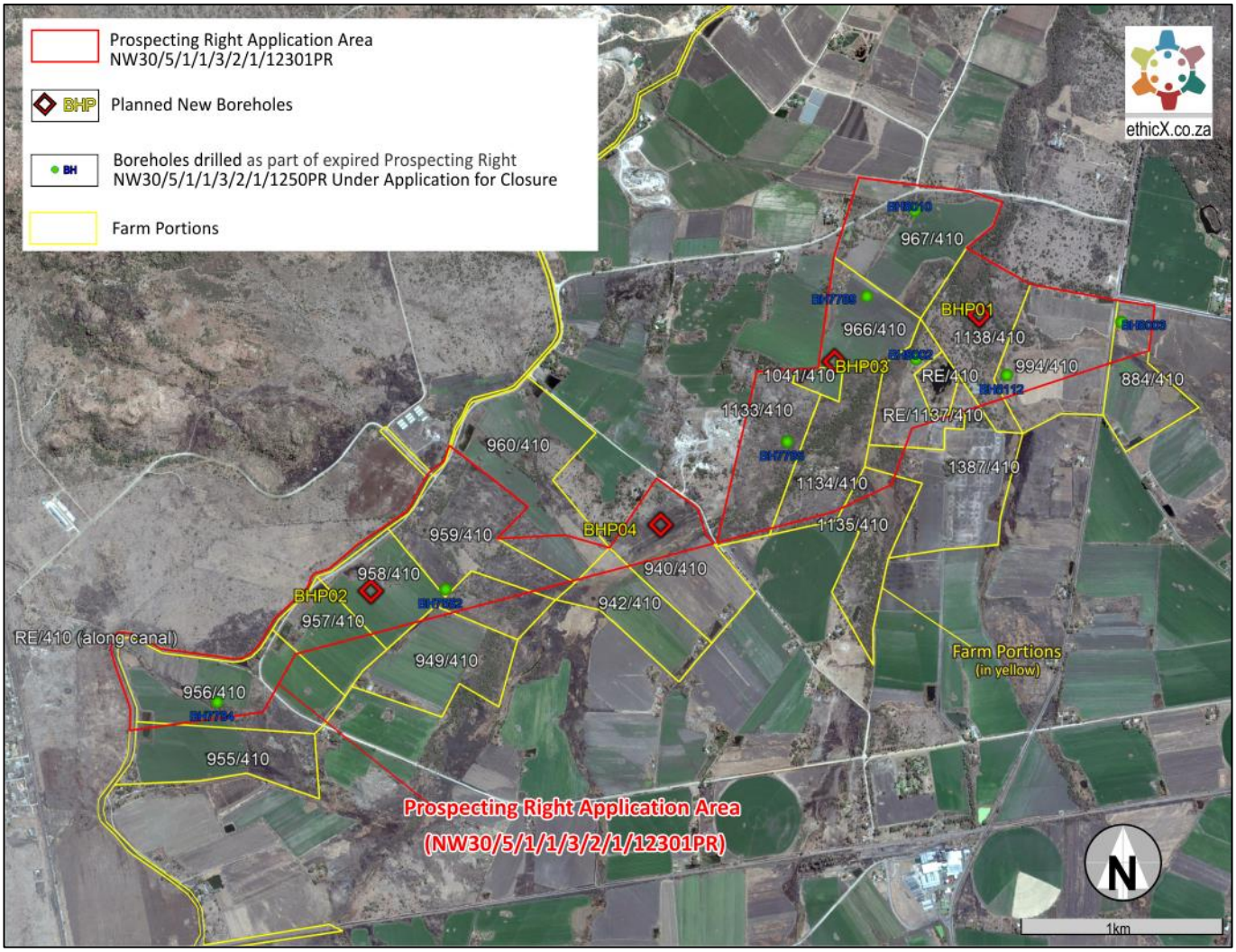


Figure 6: Hartebeespoort B 410 JQ Land Parcels within the Prospecting Right Application Area

2 DESCRIPTION OF THE PROSPECTING ACTIVITIES

Team Core Investments No 21 (Pty) Ltd plans to conduct prospecting over a five-year period in five stages, targeting the following minerals: Platinum Group Metals and associated minerals (Platinum, Palladium, Rhodium, Iridium, Osmium, Ruthenium, Chrome, Gold, Silver, Copper, Nickel and Cobalt). All stages within the five-year exploration period and the successive years' work will depend on the previous year's findings and interpretation.

The only intrusive activities will occur in Year 2 when drilling of boreholes will take place. The main focus of the BAR and EMP is on the impacts and environmental management during drilling operations.

2.1 Desktop studies, target generation and surface investigations

During Year 1, non-invasive exploration activities will be completed that include desktop studies, target generation and surface investigations including field mapping and rock sampling. This phase of work will form the basis for refining potential target areas for drilling work.

2.2 Drilling of boreholes

Year 2 will entail drilling of four new boreholes that would require approximately 1 year of elapsed time to complete. The planned boreholes are located on Portions 940, 958, 966 and 1138, respectively. The final position of the boreholes will be determined based on the outcome of the surface investigations during Year 1. Before drilling takes place, Team Core Investments No 21 (Pty) Ltd and their geologist responsible for overseeing the drilling activities, will discuss further details with landowners of the affected farm portions, including the final location of the drill pad and associated activities, property access points and security, and routes for access tracks.

Drill rig pads will be established at each of the four boreholes and a temporary drill camp will consist of a drill rig over drip trays and impermeable tarpaulin, parking for site vehicles, ablutions and chemical toilets, waste bins and skips, water tanks, sumps, storage of drilling fluids, equipment storage, accommodation and/or shelter, fuel and chemical storage on drip trays or liners, waste bins and skips, core storage and geologist logging area, topsoil stockpile, temporary fencing and a security control point. A typical example of a drill site is pictured in Plate 1. The drill rig will operate 24 hours a day for 3 to 6 months and the drill site area will be ~500 m^2.

Access tracks will be required to reach each drill site. Existing roads, paths and tracks will be used wherever possible and the establishment of new tracks will be kept to a minimum. Tracks will be ≤ 4 m wide. During their field investigations in Year 1, the geologists will determine suitable routes to access drill sites, based on the requirements of the EMP. The final routes will be agreed with landowners prior to drilling in Year 2.

Generators will be used for power supply. Small quantities of general and hazardous waste will be generated and stored in bins or skips for off-site disposal at a suitable landfill site. No waste will be disposed on site. Chemical toilets will be provided.

Potential water supply sources include:

- Old abandoned quarries filled with water (with appropriate permissions in place)
- Various man-made irrigation water storage dams and canals (with appropriate permissions in place)
- Abstraction from existing farmer boreholes (with appropriate agreements in place, only registered boreholes to be used, authorisation abstraction volumes not to be exceeded)
- Municipal water supply

A lined sump will be established at each drill site to contain drilling fluids. On completion of drilling, the sump will be removed, the borehole will be sealed with a concrete or metal cap and the site will be cleared and reinstated in accordance with the Environmental Management Programme (EMP). The geologist and/or drilling contractor will consult with the landowners at the end of the drilling period to discuss reinstatement of the sites. An environmental performance assessment (audit) will be conducted to assess compliance with the approved EMP and to verify the success of rehabilitation after drilling is complete.

Plate 1: Example of a Drill Site

2.3 Data interpretation, construction of a geological model

Year 3 will entail data interpretation, construction of a geological model and estimation of a Mineral Resource over the prospecting right area.

2.4 Metallurgical test work

Metallurgical test work and preliminary geotechnical studies will form part of Year 4.

2.5 Geological scoping study

A scoping study will be conducted in Year 5.

2.6 Possible renewal of the prospecting right

In the event that the prospecting work is successful in Year 5, an application for renewal of prospecting right will be prepared and submitted to the DMR for further work.

3 DEVELOPMENT ALTERNATIVES

3.1 Motivation for the development footprint

The location of the prospecting right application area is dictated by the target mineral as well as historical and existing mining and mining right held over the area, as well as existing and expiring mining and prospecting rights held over the target mineral resource, in this case the Merensky and UG2 ore bodies as main targets. It follows that no locality alternatives are being considered for the footprint of the prospecting right application area.

3.2 Motivation for the process followed to define the borehole positions and drill pads

The position of boreholes is dictated by the information required to develop an understanding of the targeted ore bodies within the prospecting right area. Eight boreholes were drilled in the prospecting right application area between 2008 and 2012 as part of a previous prospecting right over the land. Any new boreholes need to be positioned in such a way as to provide additional and sufficient information required to enable the geologists to define a mineral resource with sufficient confidence to determine the feasibility of targeting to mineral resource for mining. It is anticipated that four boreholes will be needed to ensure sufficient information is available to accurately define the target ore body and any features that could limit the potential for economic extraction.

Consideration was given to avoiding water courses and known sensitive areas. However, as can be seen from Figure 3 and Figure 7, extensive agricultural fields exist throughout the prospecting area and it would not be possible to

avoid placing boreholes within these fields. Drill pads need to be established at each borehole position. As such, no locality alternatives are being considered for the boreholes and drill rig pads. Prior to the planned drilling in Year 2, the geologists and/or drilling contractor, will liaise with the farmers to ensure impacts on agricultural crops are minimised and mitigated.

3.3 Motivation for the process followed to define the position of access routes

Existing paths and tracks will be used wherever possible and the establishment of new tracks will be kept to a minimum. Tracks will not be wider than 4 meters. Based on the requirements of the EMP, the geologists will determine suitable routes to access drilling sites during their field investigations planned for Year 1. The final route will be agreed with the landowner prior to drilling in Year 2. Therefore, no route alternatives are being assessed at this stage.

3.4 Motivation for technology used

Prospecting methods and technology options are dictated by the nature of the rock formations and depth of the target ore body below surface as well as the information needed to inform the geological mapping, modeling and metallurgical test work. With the target ore body being more than 1000 m deep, drilling is required to recover core samples from the ore body for analysis. It follows that there are no alternatives to drilling.

3.5 Layout of the drill sites

An example of a drill site is pictured in Plate 1. It does not involve any extensive or long-term surface infrastructure to be developed, and the footprint is limited. Each drill site will consist of: a drill rig over drip trays and impermeable tarpaulin, parking for site vehicles, ablutions and chemical toilets, waste bins and skips, water tanks and sumps, storage of drill water, equipment storage, accommodation and/or shelter, drilling fuel and chemical storage on drip trays, waste bins and skips, core storage and geologist logging area, topsoil stockpile, temporary fencing and a security control point within an area of ~ 500 m. The exact layout of each drill site and positioning of its components are dependent on the terrain and the outcome of the geological field investigations, discussions with landowners, the presence of crops, large shrubs and trees (damage to be avoided) and practical issues such as site drainage and the presence of existing paths, tracks and cleared areas. It is therefore not practical or necessary to dictate or determine a fixed layout at this stage.

3.6 No-Go alternative

The No-Go development alternative implies that none of the prospecting activities that constitute listed activities under the EIA Regulations and Listing Notices will be undertaken and the status quo maintained and environmental impacts will be avoided. At the same time, it implies that Team Core Investments No 21 (Pty) Ltd will be unable to complete their planned exploration programme to define a Mineral Resource and determine the viability mining the targeted ore body. Since no significant impacts or risks were identified, there is no reason to enforce the No-Go alternative.

3.7 Scope of the Drilling and Related Activities

Details of activities requiring authorisation are listed in Table 2.

Table 2: Scope of Drilling and Related Activities

Activity	Extent / Size
Four boreholes will be drilled to extract geological cores.	Each drill pad and associated activities will be ≤ 500 m^2, and ≤ 2000 m^2 total footprint. However, grading and physical disturbance of the soil layers will be limited to the immediate area around the drill pad and sump, about 100 m^2 per drill pad, and 400 m^2 in total.
Access tracks will be created by driving over the veld and cutting vegetation where needed to provide access to the drill pads from existing roads, paths and tracks. Grading of tracks and entire drill sites not envisaged.	Average length of the access tracks is ~125 m. Tracks will be ≤ 4 m wide. ~2000 m^2 total footprint.
Excavations will be limited to the small sumps at each drill site.	Total area of excavations, including sumps, is ≤ 15m^2 at each drill site.

Activity	Extent / Size
Disturbance associated with all activities:	Total area of disturbance is ~4 000 m^2 (~0.4 hectare). However, grading and physical disturbance of soil layers will be limited to ≤ 100 m^2 per drill site (400 m^2 or ~0.04 hectare).
- Two boreholes (BHP02 and BHP03) are in working croplands and one in a fallow field (BHP04). - The access tracks (linear activity) to these three drill pads are in Ecological Support Areas 2 (ESA2).	≤ 1000 m^2 total footprint for two drill sites. Tracks are ~125 m each and ≤ 4 m wide, ~1000 m^2 footprint. ~2 000 m^2 total area in agricultural crops.
- One borehole (BHP01) is located in a Critical Biodiversity Area 2 (CBA2), 70 m from natural drainage lines. - The access tracks to this drill site will run through the CBA2 and partially within 100 m from the edge of the natural drainage lines.	Drill site ≤ 500 m^2. Tracks is ~125 m and ≤ 4 m wide, ~500 m^2 footprint. Total footprint in CBA2 is ~1 000 m^2. However, activities are temporary and most of the area would not require grading and disturbance of the soil layers. As such, most of the vegetation is expected to recover without the need for revegetation.
Chemical toilets will be provided at each drill pad.	≥100 m from edge of water course at BHP02, BHP03 and BHP04. ≥ 50 m from edge of water course at BHP01.
Diesel and chemicals (dangerous goods) storage on site would not exceed cumulative total 30 m^3. No dangerous goods will be stored closer than 100 m to the edge of a water courses.	Less than 30 m^3. Not within 100 m from edge of water course.
No waste will be disposed on site. All waste will be collected and stored in impervious covered bins or skips for removal to a waste disposal facility.	No waste disposal on site.
On completion of the drilling, the drill sites will be decommissioned. All drilling equipment, waste, and temporary accommodation will be removed from site. Disturbed areas will be re-instated in accordance with the requirements of an approved EMP.	Total footprint of all activities is 4 000 m^2 (0.4 ha)
Based on available satellite images (2004 to 2017), it appears that there are potential wetland areas in the prospecting area along the drainage lines and Karee River and within 500 m from the planned boreholes BHP01, BHP03 and BHP04.	
Water used on site for drilling purposes. Potential water supply sources include:	~ 10 m^3/day at drill site
- Municipal water	
- Old abandoned quarries filled with water (appropriate permissions to be in place)	
- Various man-made irrigation water storage dams and canals (appropriate permissions to be in place)	
- Abstraction from existing farmer boreholes	

4 NEED AND DESIRABILITY ASSESSMENT

The prospecting area is located over the western limb of the Bushveld Igneous Complex. Platinum group minerals associated with the Merensky and UG2 reefs are targeted. The prospecting area is surrounded by other mining and prospecting areas targeting these reefs. Prospecting is needed to collect geological data and define the Mineral Resource with sufficient confidence to eventually determine the feasibility for economic extraction.

Due to the depth of the targeted ore bodies, drilling is needed to recover core samples from the ore body for metallurgical analysis. Four boreholes are needed to ensure sufficient information is available over the full extent of the target ore bodies to accurately define the target ore body and any features that could limit the potential for economic extraction.

The prospecting area is located in Bojanala Platinum District Municipality and the Madibeng Local Municipality where Platinum mining is an integral part of the economy. The vision for Madibeng as outlined in the Integrated Development Plan (2017-2021) is: *'Madibeng, the Prosperous Platinum and Green Tourism City'*. Platinum mining is one of the three building blocks of this vision, which are:

1. Prosperous – economically healthy and growing
2. Platinum – high value resource; mining
3. Green – agriculture; natural beauty; and water

The planned prospecting will enhance the 'Platinum' building block without compromising the other two building blocks in Madibeng's vision. Madibeng is ideally located in terms of prospecting and mining services, being close to the N4 Bakwena-Platinum Highway and with good connectivity to key urban areas such as Brits, Rustenburg, Pretoria and Randburg.

Due to the limited nature, scale and during of the prospecting activities, there will have no discernible impact on service delivery or the availability of resources in the area, and the biodiversity management objectives of habitats in the prospecting area, as defined in the North West Biodiversity Sector Plan (2015), will not be compromised. Working agricultural cropping may be affected within a limited footprint area (~1 000m^2) for a number of months while the drill site is operational, depending on the timing of the operations in relation to cropping seasons.

5 DETAILED DESCRIPTION OF THE FOUR SITES POTENTIALLY AFFECTED BY DRILLING

The prospecting right area falls in an important agricultural region. As indicated by the extensive agricultural activities, the prospecting right area is associated with fertile soils. Soils are strongly structured, mainly dark coloured, dominated by swelling clays (vertic soils) and a cracking surface. They may be melanic or red. Topsoil is expected to be more than 500 mm deep.

There is an irrigation canal, from Hartbeespoort Dam, that supplies irrigation water to farms in the area. Generally, two crops are produced per year, first soya beans followed by wheat.

The topography over the prospecting area is relatively flat, with drainage towards the Karee River, which runs north-north-east through the prospecting area to the Crocodile River. A number of small water courses drains towards the Karee River. Planned Borehole BHP01 is located within 100 m of two of these drainage lines.

Natural drainage patterns have been modified in places by an irrigation canal, fed from Hartbeespoort Dam that runs just within the western and north-western boundary of the prospecting area, and the various associated channels, storage dams, and extensive cropping areas found throughout the prospecting area.

Figure 7 depicts the topography of the area based on 5 m contour lines, the Karee River and its various small tributaries, as well as the irrigation canal and some of the larger channels visible on available satellite images.

The sites and immediate surroundings the 4 drill sites (BHP01 to BHP04) are described below.

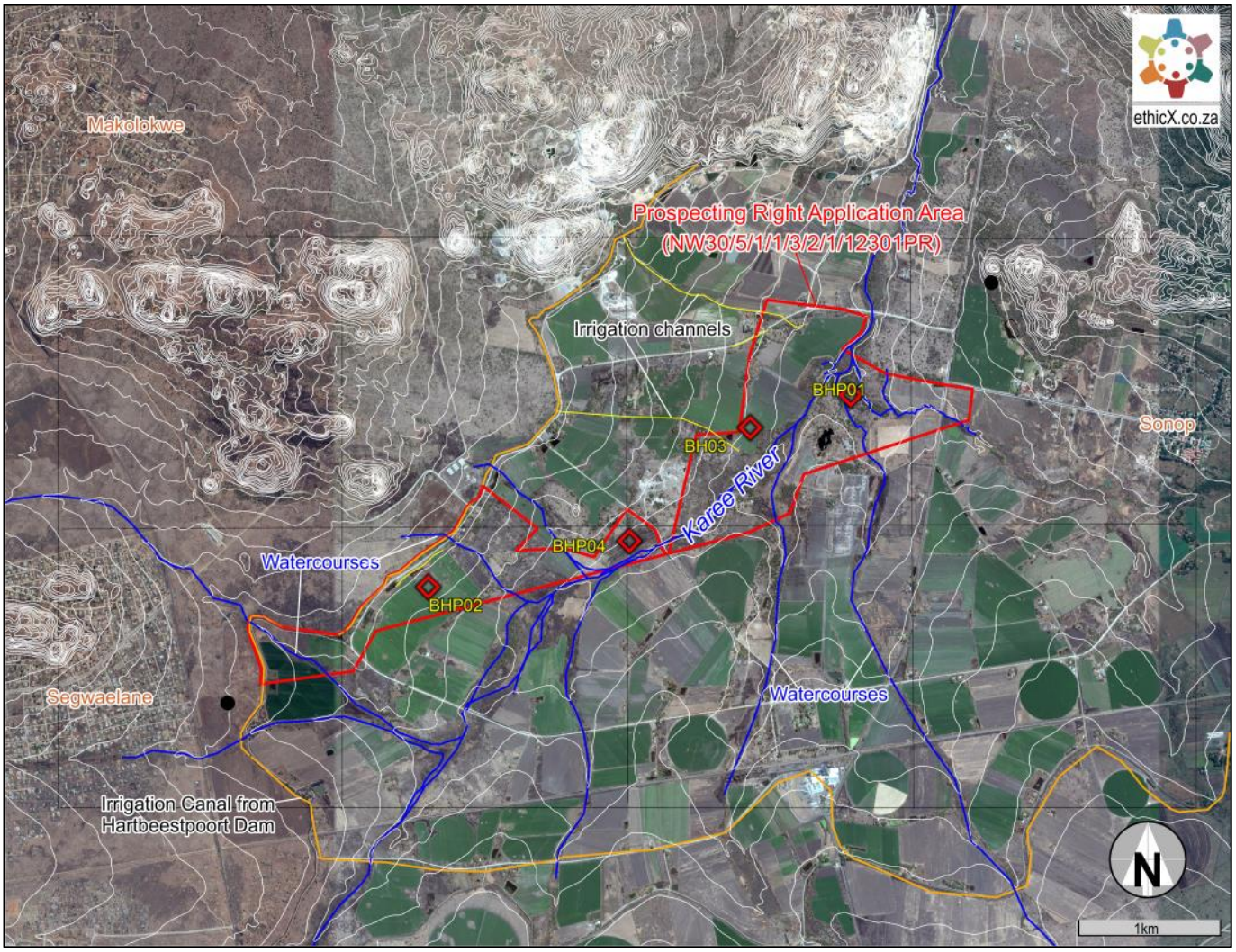


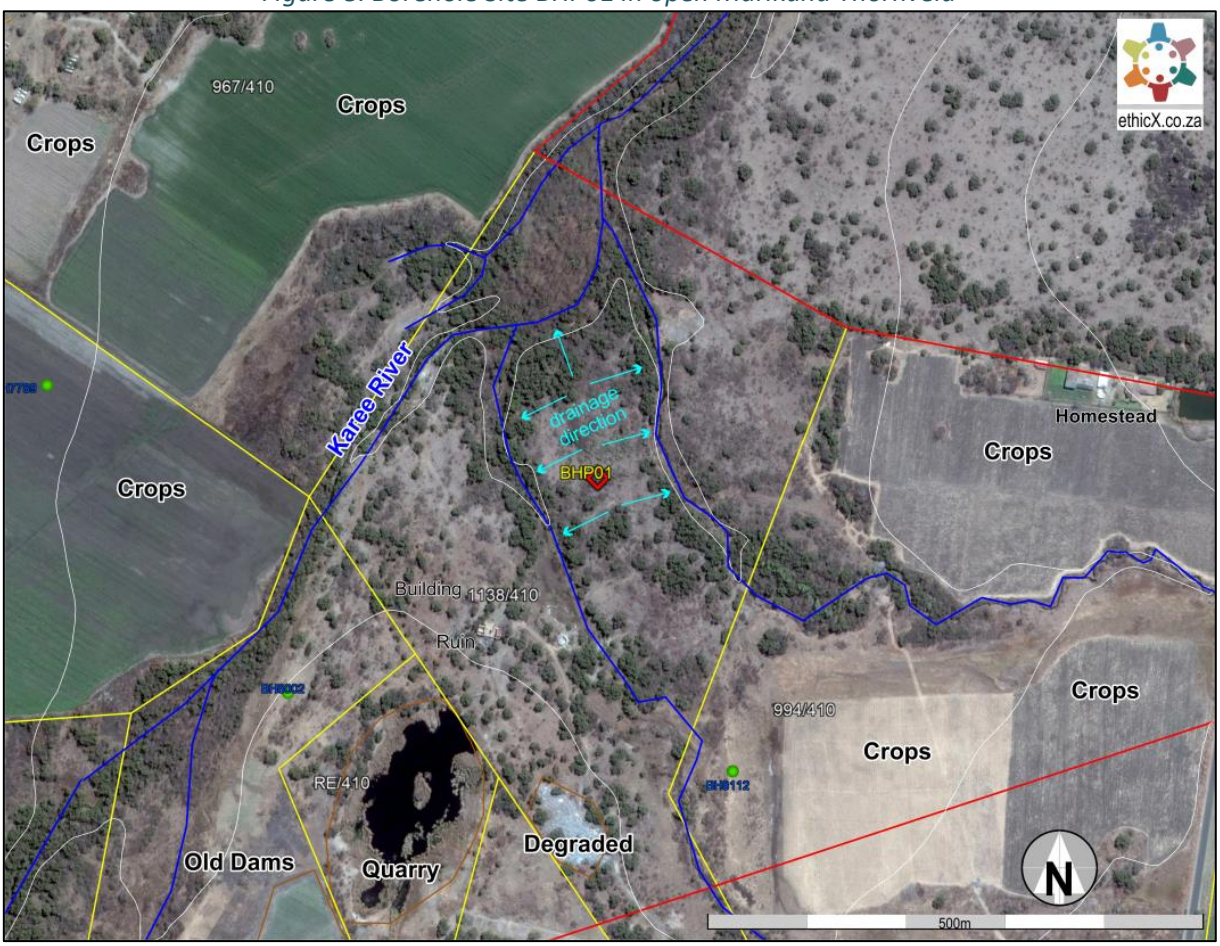
Figure 7: Topography (5m Contours) and Water courses

5.1 Drill Site BH 01

The site for BHP01 is located between two water courses, about 70 m from both, and in Marikana Thornveld that is open with sparse shrubs and small trees. There are sufficient open areas to establish a drilling site without having to remove any large shrubs or trees or affect the riparian zone or beds and banks of the water course. It would be possible to establish access to the site without impacting the water courses or any large shrubs or trees as there are existing paths and tracks on all sides of the water courses as well as existing crossings and there is no need to alter or impede the flow in the water courses.

The wider area is characterised by extensive agricultural fields. To the south, there is an old quarry filled with water 300 m away on Portion RE/410, partially ruined buildings 200 m away, and a degraded area that appears to be covered with rubble or quarried waste rock. The homestead on Portion 994/410 is located 400 m to the east of the site.

Figure 8: Borehole Site BHP01 in open Marikana Thornveld



The following on-foot and drone photographs were taken in September 2018.

Figure 9: Borehole Site BHP01 in open Marikana Thornveld (from centre viewing North)

Figure 10: Borehole Site BHP01 in open Marikana Thornveld (from centre viewing East)

Figure 11: Borehole Site BHP01 in open Marikana Thornveld from centre (viewing South)

Figure 12: Borehole Site BHP01 in open Marikana Thornveld (from centre viewing West)

Figure 13: Borehole Site BHP01 in open Marikana Thornveld (Soil Profile)

Figure 14: Borehole Site BHP01 in open Marikana Thornveld (Aerial View from Top)

Figure 15: Borehole Site BHP01 in open Marikana Thornveld (Oblique Aerial View North)

Figure 16: Borehole Site BHP01 in open Marikana Thornveld (Oblique Aerial View East)

Figure 17: Borehole Site BHP01 in open Marikana Thornveld (Oblique Aerial View South)

Figure 18: Borehole Site BHP01 in open Marikana Thornveld (Oblique Aerial View West)

5.1.1 Drill Site BHP02

The site for BHP02 is located in working agricultural fields with some small, low rocky areas immediately to the north. There is an irrigation canal 250 m to the north along the boundary of the prospecting area associated with various water storage dams along the length of the canal. Most of the buildings in the area appear to be ruined. The nearest water course is 400 m to the east and drainage is south-eastwards to the Karee River, which is 750 m away.

The drill site and access track can be established without impacting on any natural vegetation and water courses. Agricultural cropping may be affected for a short period while the drill site is operational, depending on the timing of the operations in relation to cropping seasons.

Figure 19: Borehole Site BHP02 in cropping area

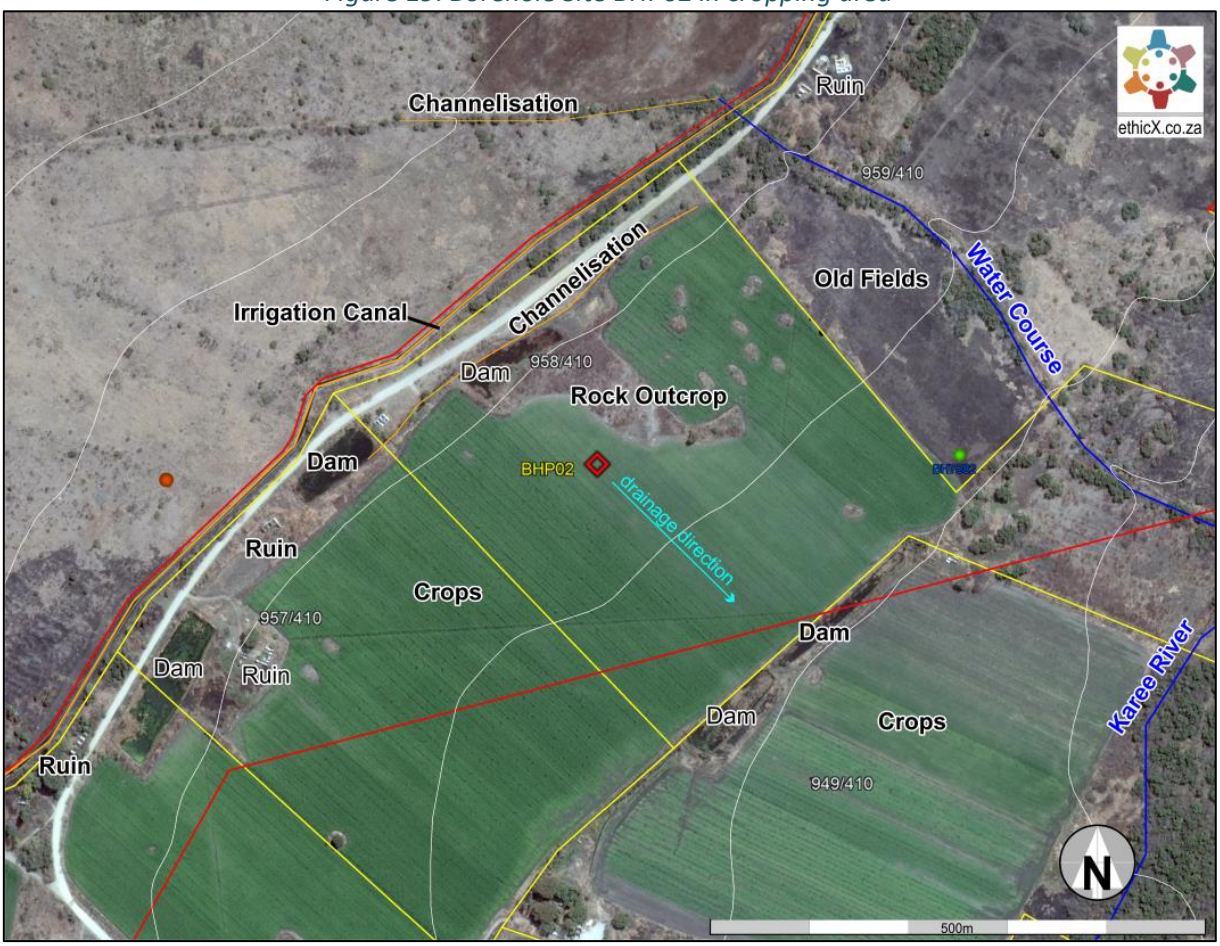


Figure 20: View towards BHP02 (March 2018)

The following drone photographs were taken in September 2018. Due to waterlogged conditions, the site was not accessible on foot.

Figure 21: Borehole Site BHP02 in cropping area (Aerial View from the Top)

Figure 22: Borehole Site BHP02 in cropping area (Oblique Aerial View North)

Figure 23: Borehole Site BHP02 in cropping area (Oblique Aerial View East)

Figure 24: Borehole Site BHP02 in cropping area (Oblique Aerial View South)

Figure 25: Borehole Site BHP02 in cropping area (Oblique Aerial View West)

5.1.2 Drill Site BHP03

Borehole site BHP03 is located in working agricultural fields. There are small irrigation channels that feed a water storage dam located 100 m to the west.

Most of the buildings in the area appear to be ruined. Drainage is south-eastwards to the Karee River, which is 180 m away.

The old quarry on Portion RE/41 is located 500 m to the east. On Portion RE/1137/RE/410, to the south and east of the old quarry, is an area where satellite images from 2004 to 2011 indicate various dams and seepage towards the Karee River. After 2011 the dams were dry and the areas was ploughed and planted in 2017.

The drill site and access track can be established without impacting on natural vegetation and water courses. Agricultural cropping may be affected for a short period while the drill site is operational, depending on the timing of the operations in relation to cropping seasons.

Figure 26: Borehole Site BHP03 in cropping area

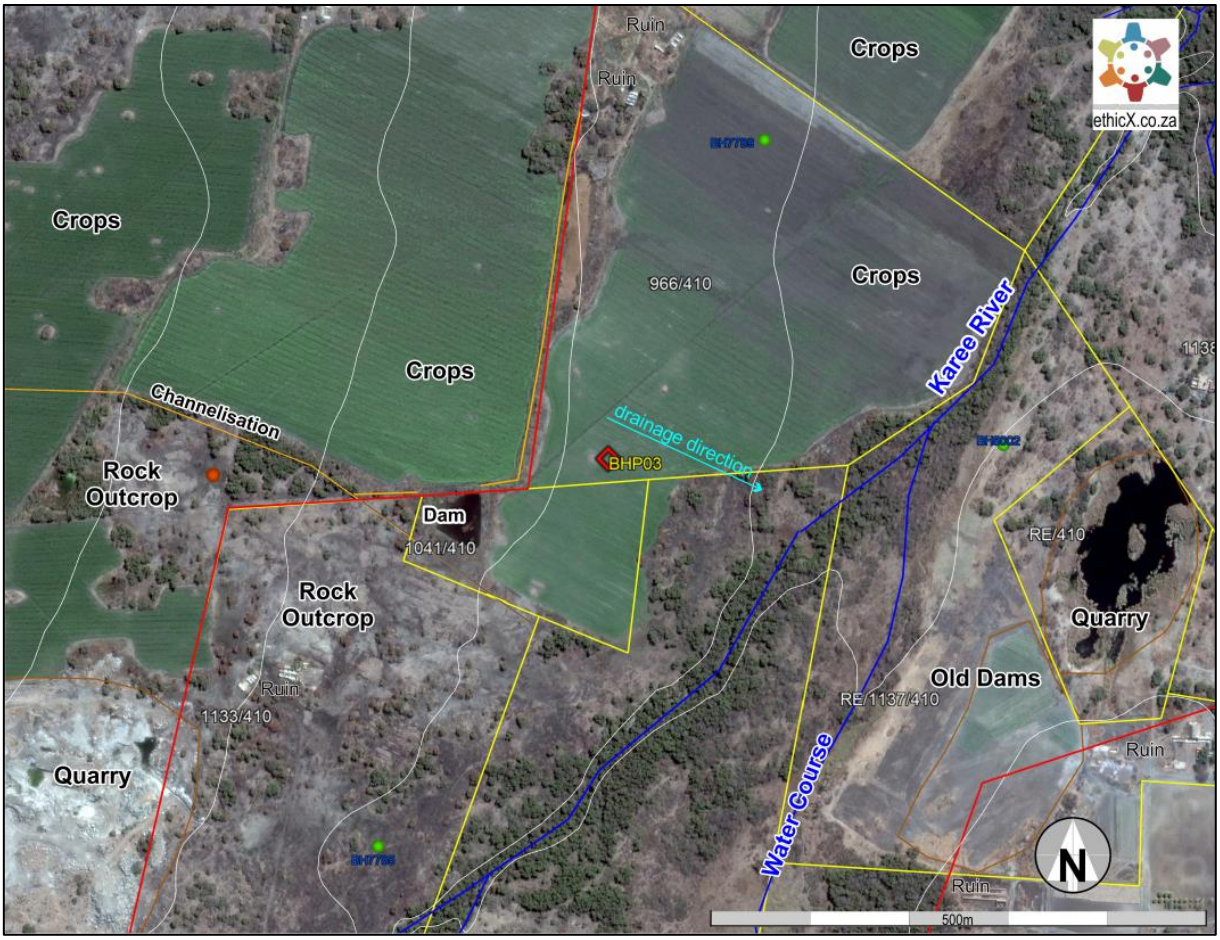


Figure 27: Borehole Site BHP03 in cropping area (view from centre North)

Figure 28: Borehole Site BHP03 in cropping area (view from centre East)

Figure 29: Borehole Site BHP03 in cropping area (view from centre South)

Figure 30: Borehole Site BHP03 in cropping area (view from centre West)

Figure 31: Borehole Site BHP03 in cropping area (Soil Profile)

Figure 32: Borehole Site BHP03 in cropping area (Aerial View from the Top)

Figure 33: Borehole Site BHP03 in cropping area (Oblique Aerial View North)

Figure 34: Borehole Site BHP03 in cropping area (Oblique Aerial View East)

Figure 35: Borehole Site BHP03 in cropping area (Oblique Aerial View South)

Figure 36: Borehole Site BHP03 in cropping area (Oblique Aerial View West)

5.1.3 Drill Site BHP04

Borehole site BHP04 is located in agricultural fields that have been fallow for at least 10 years, based on satellite images from 2008 onwards. Drainage is south-eastwards to the Karee River, which is 100 m away. The homestead on Portion 940/410 is located 500 m to the south.

There is small abandoned quarry filled with water 180 m to the north-west and larger quarry to the north-east, outside the prospecting area.

The drill site and access track can be established through the old fields, thus not affecting intact natural vegetation and water courses.

Figure 37: Borehole Site BHP04 in fallow fields

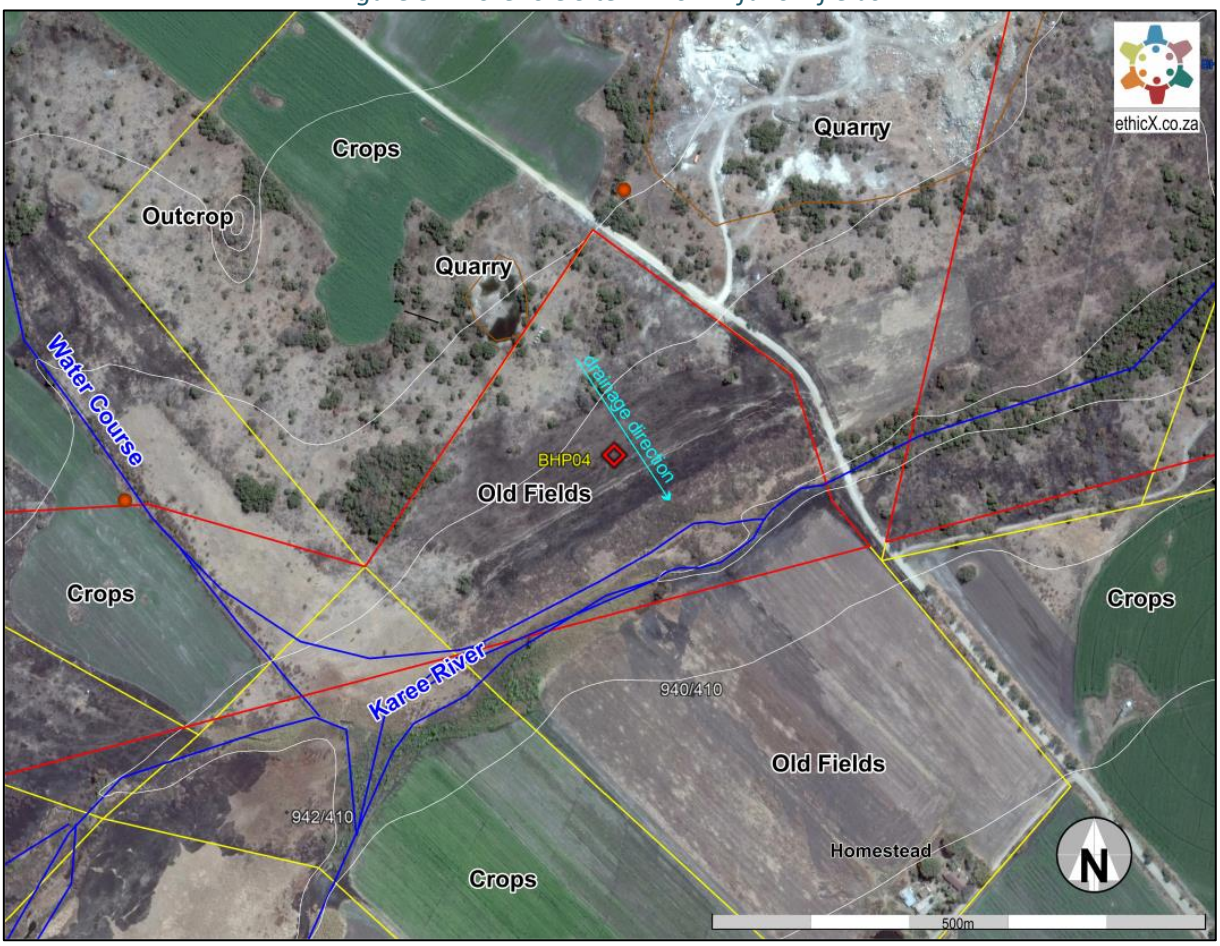


Figure 38: Borehole Site BHP04 in fallow fields (view from centre North)

Figure 39: Borehole Site BHP04 in fallow fields (view from centre East)

Figure 40: Borehole Site BHP04 in fallow fields (view from centre South)

Figure 41: Borehole Site BHP04 in fallow fields (view from centre West)

Figure 42: Borehole Site BHP04 in fallow fields (Soil Profile)

Figure 43: Borehole Site BHP04 in fallow fields (Aerial View from the top)

Figure 44: Borehole Site BHP04 in fallow fields (Oblique Aerial View North)

Figure 45: Borehole Site BHP04 in fallow fields (Oblique Aerial View East)

Figure 46: Borehole Site BHP04 in fallow fields (Oblique Aerial View South)

Figure 47: Borehole Site BHP04 in fallow fields (Oblique Aerial View West)

6 PREVIOUS DRILLING OPERATIONS AND CURRENT REHABILITATION STATUS OF THOSE DRILL SITES

The eight drilling sites drilled during previous prospecting right on the same Property (NW 30/5/1/1/3/2/1/1250 PR) were assessed and it was found that no notable residual impacts remain and no further environmental rehabilitation at these sites are required. The sites, before and after (current situation in 2017) drilling, are depicted on a series of satellite images below (Figure 48 to Figure 55).

Figure 48: Previous Drilling BH 7582 (Before and After)

Figure 49: Previous Drilling BH 7784 (Before and After)

Figure 50: Previous Drilling BH 7785 (Before, Shortly After and After)

Figure 51: Previous Drilling BH 7789 (Before, Shortly After and After)


BH 8002
Before Drilling
ethicX.co.za
RE/410


BH 8002
Shortly After Drilling
RE/410


BH 8002
After Drilling
BH
Boreholes drilled as part of expired Prospecting Right
NW30/5/1/1/3/2/1/1250PR Under Application for Closure
RE/410
N
80 m

Figure 52: Previous Drilling BH 8002 (Before, Shortly After and After)

Figure 53: Previous Drilling BH 8003 (Before, Shortly After and After)

Figure 54: Previous Drilling BH 8010 (Before, During and After)

Figure 55: Previous Drilling BH 8112 (Before and After)