

**HIA Desktop for the Prospecting and Related Activities on  
Portions of the Farm Hartebeespoort B 410 JQ, Madibeng  
Local Municipality, North West Province**

**For Ethical Exchange Sustainability Services (Pty) Ltd**

**Date: 25 March 2019**

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## Abbreviations

HP	Historical Period
IIA	Indeterminate Iron Age
LIA	Late Iron Age
EIA	Early Iron Age
ISA	Indeterminate Stone Age
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
HIA	Heritage Impact Assessment
PIA	Palaeontological Impact Assessment

## INTRODUCTION

Ethical Exchange Sustainability Services has been appointed by The Mineral Corporation to conduct an Environmental Authorisation (EA) and Basic Environmental Assessment for proposed prospecting on several portions of the farm Hartebeestpoort B 410 JQ, North West Province [NW 30/5/1/1/2/12301 PR (EM)]. A final Basic Assessment Report (BAR) has been submitted in terms of the National Environmental Management Act, No 107 of 1998 (NEMA), NEMA Environmental Impact Assessment (EIA) Regulations for activities that trigger the Mineral and Petroleum Resources Development Act, No 28 of 2002 (MPRDA)(As amended). Prospecting activities will include the drilling of four new boreholes, drill camp and access roads.

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.

Umlando was requested to undertake a desktop study of the four boreholes to determine the impact it would have on potential heritage resources.

The location of the proposed boreholes is shown in Figures 1 - 4

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

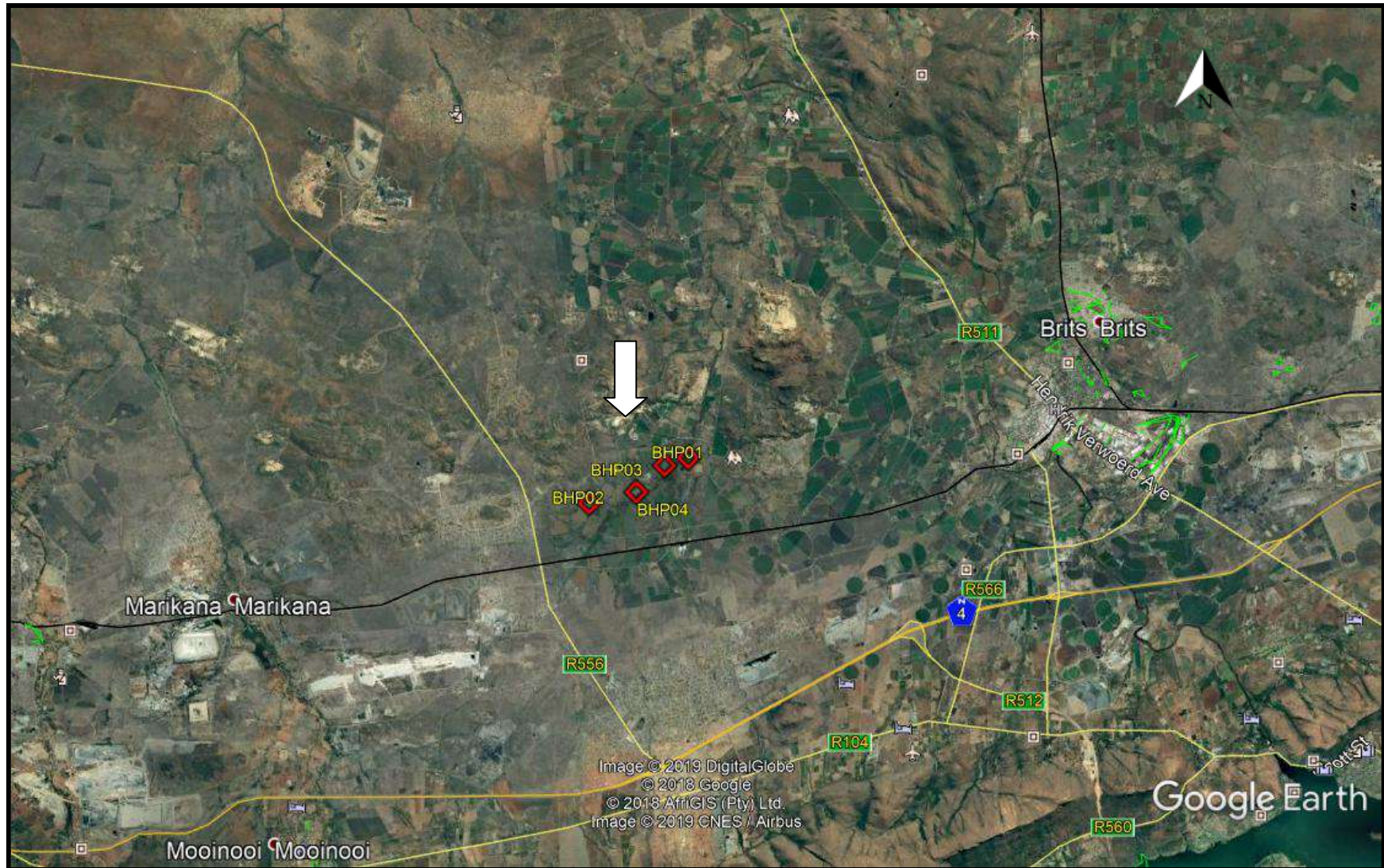




FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA





FIG. 3: TOPOGRAPHICAL MAP OF THE STUDY AREA





FIG. 4: LOCATION OF BOREHOLES 1, 2, 4, 3 (CLOCKWISE)





## NATIONAL HERITAGE RESOURCES ACT OF 1999

The National Heritage Resources Act of 1999 (pp 12-14) protects a variety of heritage resources. These resources are defined as follows:

1. “For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
2. Without limiting the generality of subsection (1), the national estate may include—
  - 2.1. Places, buildings, structures and equipment of cultural significance;
  - 2.2. Places to which oral traditions are attached or which are associated with living heritage;
  - 2.3. Historical settlements and townscapes;
  - 2.4. Landscapes and natural features of cultural significance;
  - 2.5. Geological sites of scientific or cultural importance;
  - 2.6. Archaeological and palaeontological sites;
  - 2.7. Graves and burial grounds, including—
    - 2.7.1. Ancestral graves;
    - 2.7.2. Royal graves and graves of traditional leaders;
    - 2.7.3. Graves of victims of conflict;
    - 2.7.4. Graves of individuals designated by the Minister by notice in the Gazette;
    - 2.7.5. Historical graves and cemeteries; and
    - 2.7.6. Other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
3. Sites of significance relating to the history of slavery in South Africa;
  - 3.1. Movable objects, including—

4. Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  - 4.1. Objects to which oral traditions are attached or which are associated with living heritage;
  - 4.2. Ethnographic art and objects;
  - 4.3. Military objects;
  - 4.4. objects of decorative or fine art;
  - 4.5. Objects of scientific or technological interest; and
  - 4.6. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).
5. Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—
  - 5.1. Its importance in the community, or pattern of South Africa's history;
  - 5.2. Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
  - 5.3. Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
  - 5.4. Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
  - 5.5. Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
  - 5.6. Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
  - 5.7. Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
  - 5.8. Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and



5.9. sites of significance relating to the history of slavery in South Africa”

## METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. These database contain archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (<http://www.vuvuzela.com/googleearth/monuments.html>) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1<sup>st</sup> and 2<sup>nd</sup> edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually

occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

### **Defining significance**

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

#### **1. State of preservation of:**

- 1.1. Organic remains:
  - 1.1.1. Faunal
  - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
  - 1.5.1. Ash Features
  - 1.5.2. Graves
  - 1.5.3. Middens
  - 1.5.4. Cattle byres
  - 1.5.5. Bedding and ash complexes

#### **2. Spatial arrangements:**

- 2.1. Internal housing arrangements
- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns

#### **3. Features of the site:**

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?



3.2. Is it a type site?

3.3. Does the site have a very good example of a specific time period, feature, or artefact?

**4. Research:**

4.1. Providing information on current research projects

4.2. Salvaging information for potential future research projects

**5. Inter- and intra-site variability**

5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?

5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

**6. Archaeological Experience:**

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

**7. Educational:**

7.1. Does the site have the potential to be used as an educational instrument?

7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

**8. Other Heritage Significance:**

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites

8.4. Graves and/or community cemeteries

8.5. Living Heritage Sites

8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

The above significance ratings allow one to grade the site according to SAHRA's grading scale. This is summarised in Table 1.

**TABLE 1: SAHRA GRADINGS FOR HERITAGE SITES**

<b>SITE SIGNIFICANCE</b>	<b>FIELD RATING</b>	<b>GRADE</b>	<b>RECOMMENDED MITIGATION</b>
<b>High Significance</b>	National Significance	Grade 1	Site conservation / Site development
<b>High Significance</b>	Provincial Significance	Grade 2	Site conservation / Site development
<b>High Significance</b>	Local Significance	Grade 3A / 3B	
<b>High / Medium Significance</b>	Generally Protected A		Site conservation or mitigation prior to development / destruction
<b>Medium Significance</b>	Generally Protected B		Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
<b>Low Significance</b>	Generally Protected C		On-site sampling monitoring or no archaeological mitigation required prior to or during development / destruction



## **DESKTOP STUDY**

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. I also used various sources for historical information.

### **PREVIOUS ACHAEOLOGICAL & HERITAGE SURVEYS**

According to the SAHRIS map there have been several proposals and surveys around the study area. A prospecting right on the same area was previously held by Inkosi Platinum (Pty) Ltd and eight diamond drilling of eight boreholes was completed between 2008 and 2012. This right expired on 11 February 2018. Most of these are notifications of intent for prospecting and only two heritage studies were noted on adjacent lands (National Cultural History Museum 1997; Prins 2008). The former found stone walled settlements and Iron Age pottery, while the latter noted historical buildings. Five kilometres to the east is Broederstroom that was declared a national Monument on 19 September 1980 (Government Gazette 1980 No. 1030). Other archaeological sites have been noted further away from the study area and include Stone Age, Iron Age and Colonial Period sites (fig. 5).

No national monuments, battlefields, or historical cemeteries are known to occur along the route.

The first official Surveyor General maps of the area dates to 1937 (fig. 6 – 7; 10G4WJ01, 10G7NH01). These maps only indicate when the farm was surveyed and ignores previous occupations. Neither of the maps shows the occurrence of buildings. This is either an omission or an indication that there were no houses in that area.

The 1943 topographical map indicates that the area is extensively farmed and that there are several houses and settlements in the general area (fig. 8). None occur within the study areas. The map indicates that the area around BH01 was under agricultural cultivation. This is in contrast to the 1949 aerial photographs (fig. 9 - 10) that indicate that the area is natural bushveld.

A close up of BH01 (fig 10) suggests that the area was not farmed as there are no visible fields. The topographical map also indicates that there are no structures in this area, but they are visible as white squares/rectangles on the two 1949 photos. Furthermore, there are no stone walled features that would date to the Iron Age or Colonial Period. There is thus a low probability that there will be archaeological graves near BH01.

BH02 – 04 occur in agricultural fields that have existed before the 1940s. There is thus a low probability that intact features would exist in the ploughed fields.

Google Earth imagery from 2004 to 2018 does not show any signs of stone walling or terraces normally associated with Late Iron Age or Colonial Period settlements.

FIG. 5: KNOWN HERITAGE SITES IN THE AREA

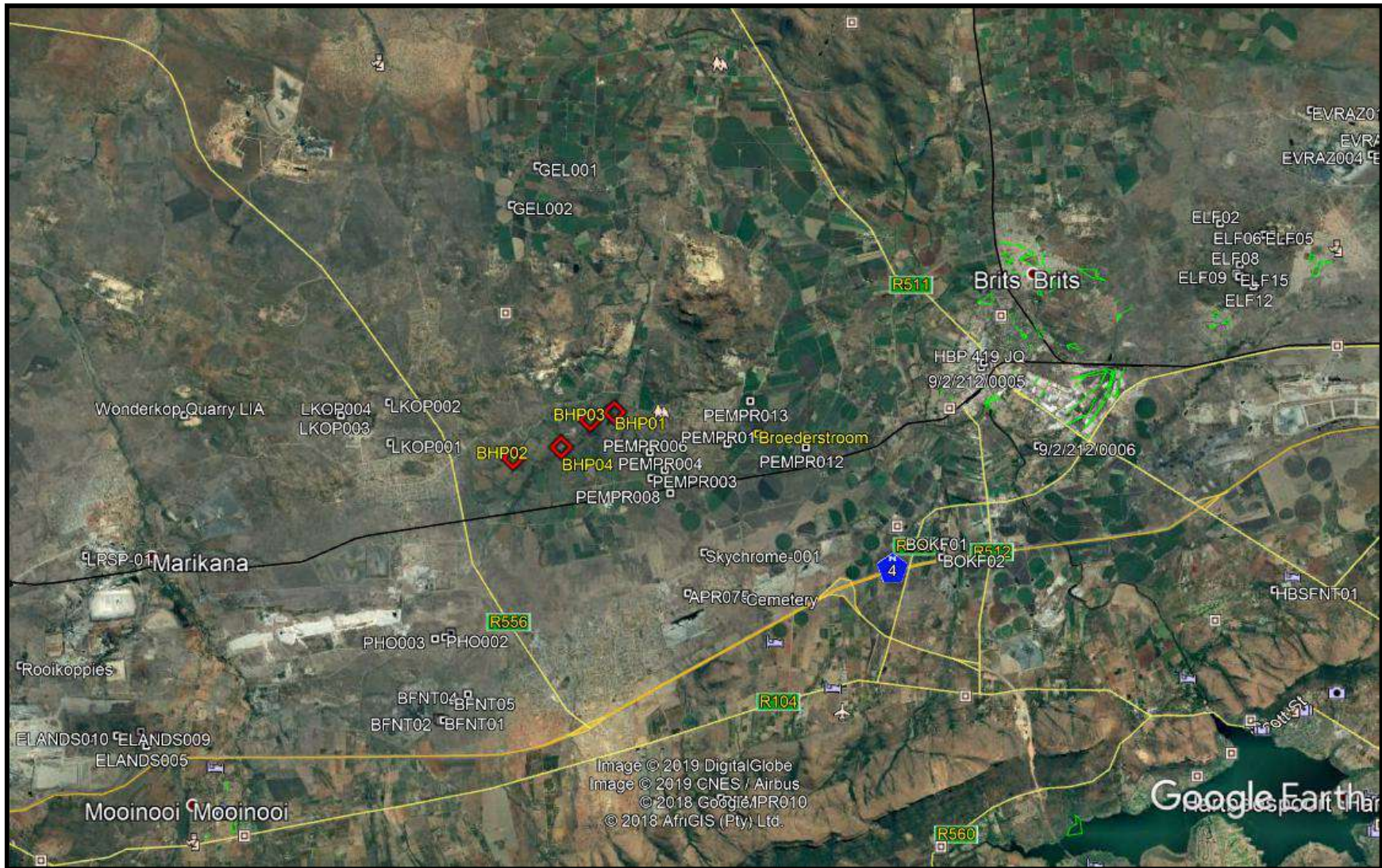




FIG. 6: SURVEYOR GENERAL MAP OF THE FARM HARTEBEESTPOORT (1937)

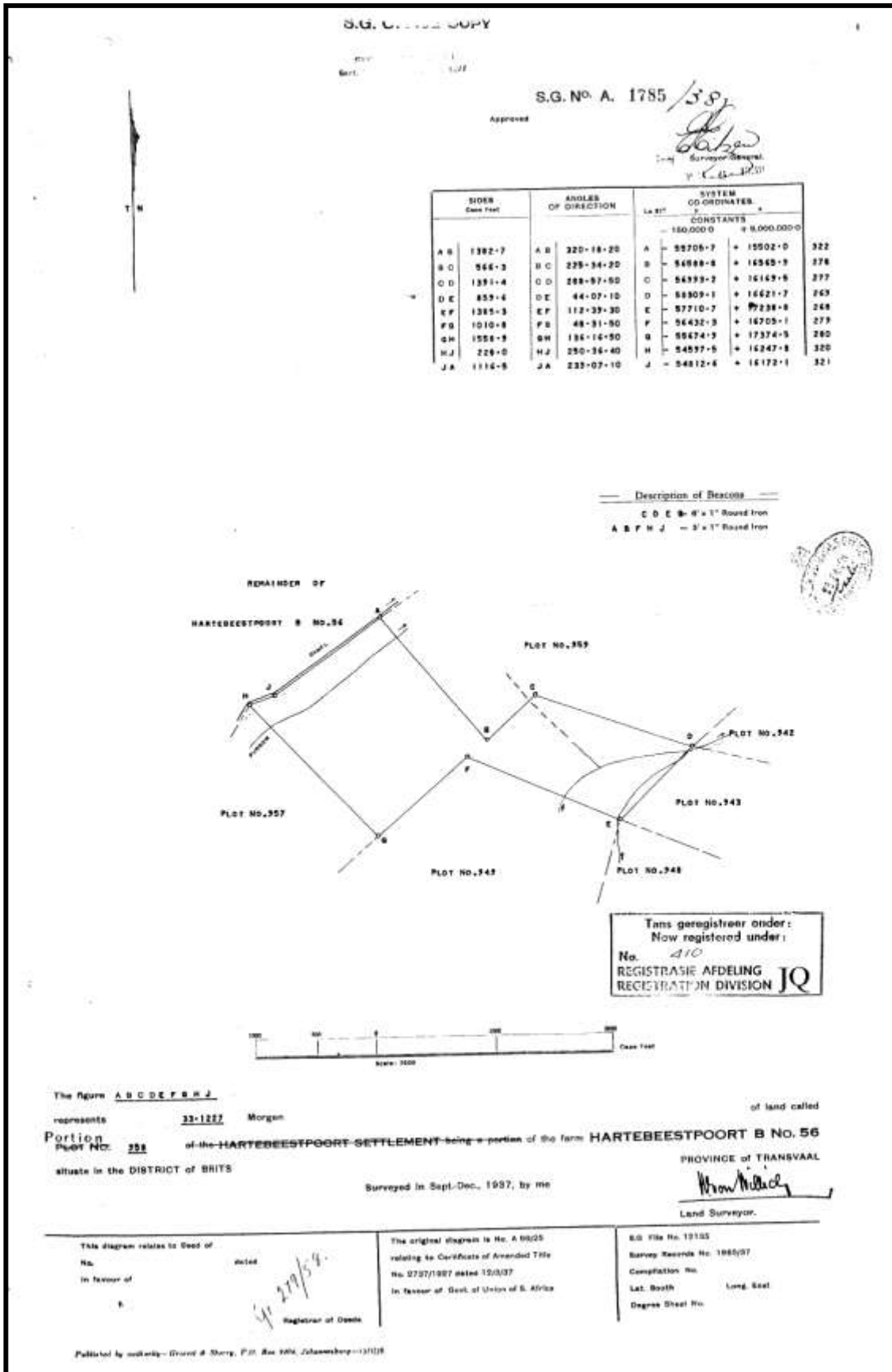




FIG. 7: SURVEYOR GENERAL MAP OF THE FARM HARTEBEESTPOORT (1937)

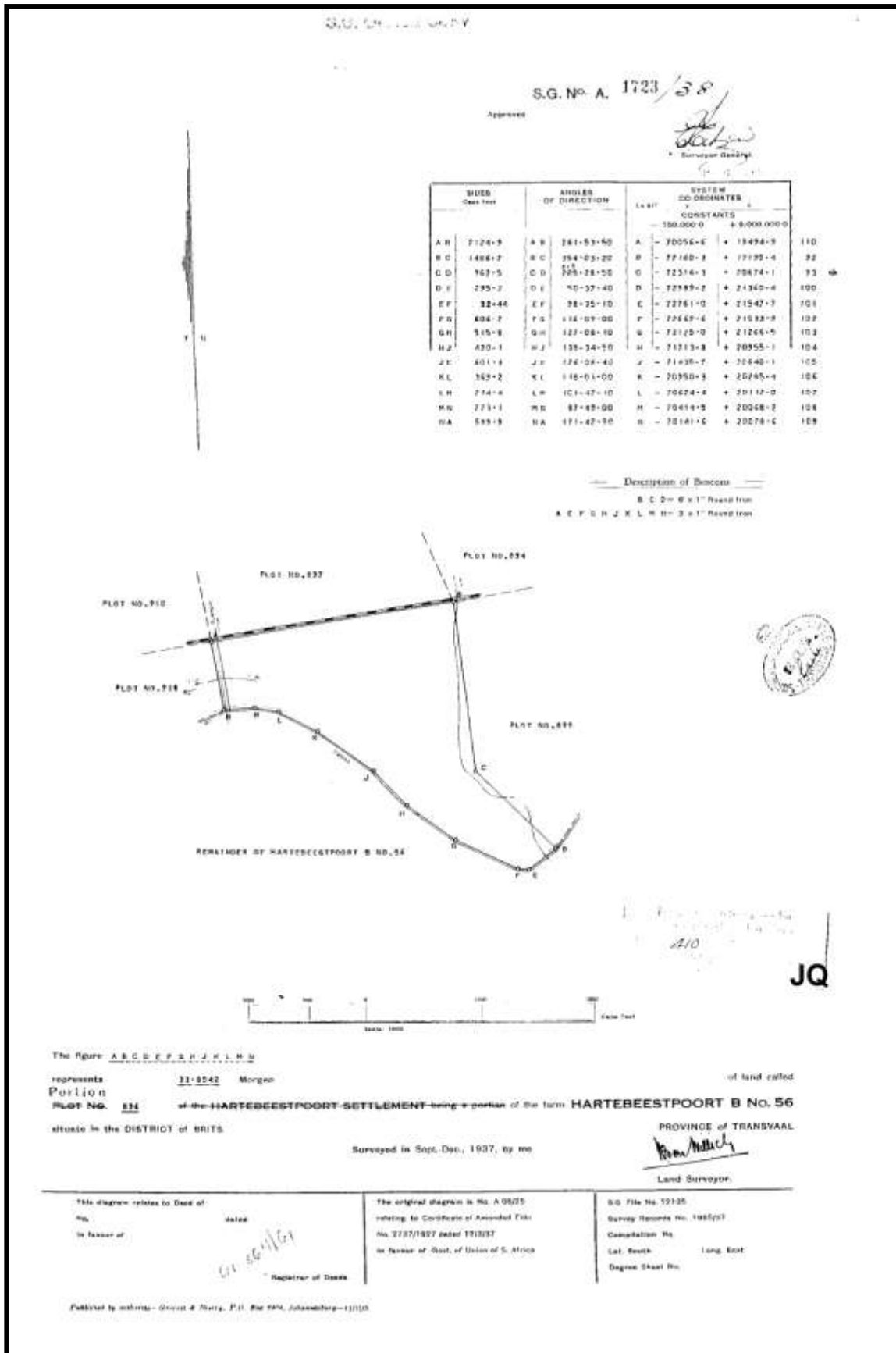


FIG. 8: 1:50 000 TOPOGRAPHICAL MAP OF THE STUDY AREA IN 1943

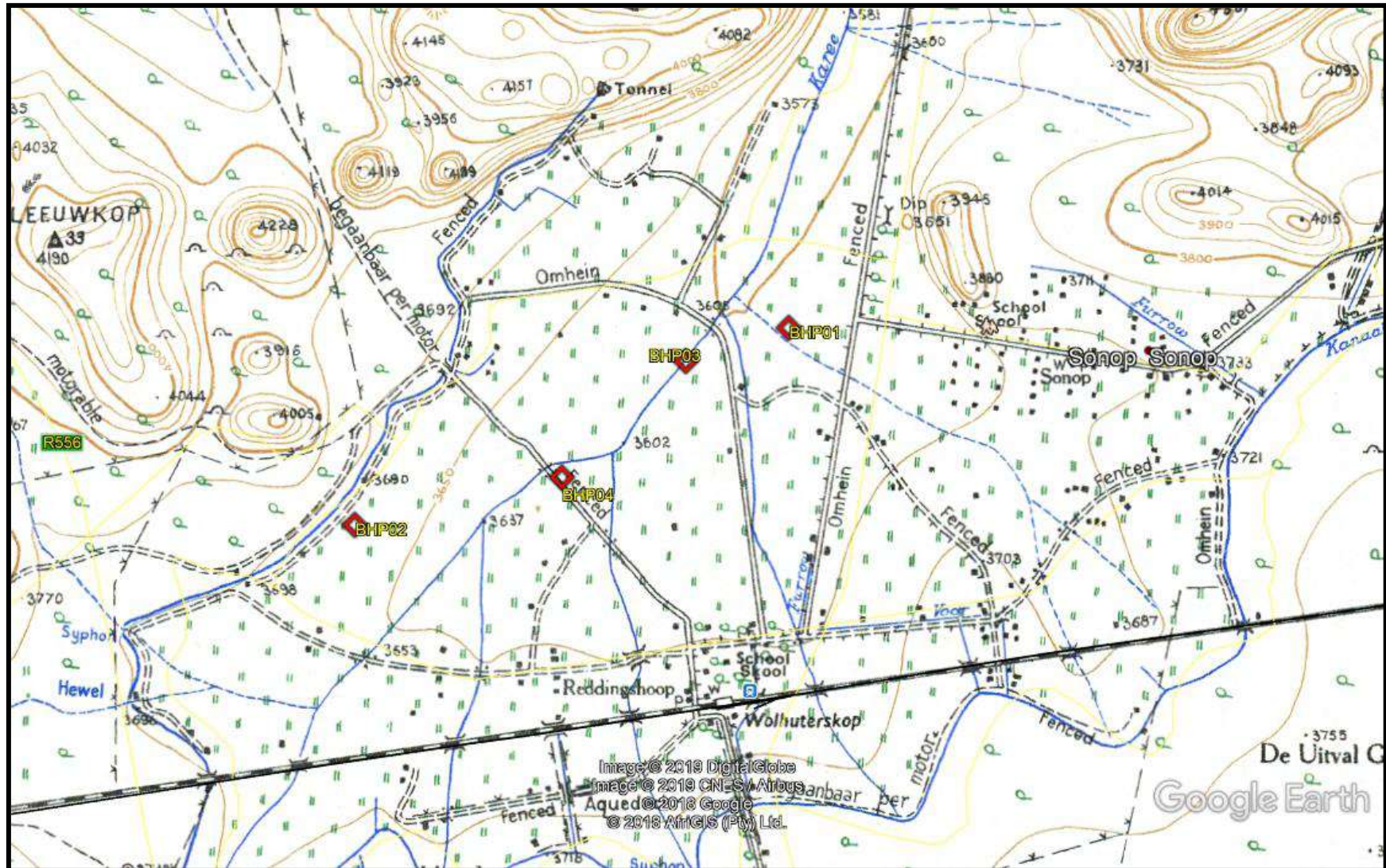




FIG. 9: AERIAL PHOTOGRAPH OF THE STUDY AREA IN 1949



FIG. 10: AERIAL PHOTOGRAPH OF BH01 IN 1949





## PALAEONTOLOGICAL ASSESSEMENT

The SAHRIS palaeontological sensitivity map indicates that the area is grey in colour. This means that the area is insignificant and no further PIA work is required.

**FIG. 11: PALAEONTOLOGICAL SENSITIVITY MAP OF THE GENERAL AREA**



## CONCLUSION

A desktop heritage survey was undertaken for the proposed prospecting of four boreholes on the farm Hartebeestpoort. Three boreholes are located in existing agricultural fields. These have been ploughed at least from the 1940s. No *in situ* features are visible from the various maps, nor are they likely to occur.

BH01 occurs in an area that appears to be natural vegetation, despite the topographical map. That is the 1943 topographical map has this area under agricultural fields while the 1949 map has the area under natural vegetation. There are no signs of ploughing activity on the aerial photograph. All of the maps

indicate that there is no stone walling on this site, and thus there is very little likelihood of human graves occurring here.

Similarly, there does not appear to be any structures that could be damaged by prospecting activity. If artefacts do occur on the surface, or below the ground, then the impact will be negligible.

The palaeontological sensitivity for the area is zero, and no further work is required.

I suggest that the application be exempt from further HIA study for prospecting only. Any additional boreholes and later mining activity will require an HIA and PIA study.

## REFERENCES

### **Maps:**

2527DA Wolhouterskop 1943, 1996

232\_005\_00409

10G7NH01

10G4WJ01

### **Database:**

SAHRIS Database

### **Literature:**

Natural History Museum 1997 Reconnaissance Of Four Proposed Quarry Areas In The Brits And Odi 1 Districts, North-West Province

Prins, F. 2008. Cultural Heritage Impact Assessment For The Pandora EMPR Project.

### **EXPERIENCE OF THE HERITAGE CONSULTANT**

Gavin Anderson has a M. Phil (in archaeology and social psychology) degree from the University of Cape Town. Gavin has been working as a professional archaeologist and heritage impact assessor since 1995. He joined the Association of Professional Archaeologists of Southern Africa in 1998 when it was formed. Gavin is rated as a Principle Investigator with expertise status in Rock Art, Stone Age and Iron Age studies. In addition to this, he was worked on both West and East Coast shell middens, Anglo-Boer War sites, and Historical Period sites.

### **DECLARATION OF INDEPENDENCE**

I, Gavin Anderson, declare that I am an independent specialist consultant and have no financial, personal or other interest in the proposed development, nor the developers or any of their subsidiaries, apart from fair remuneration for work performed in the delivery of heritage assessment services. There are no circumstances that compromise the objectivity of my performing such work.

A handwritten signature in black ink, appearing to read 'G. Anderson', with a horizontal line underneath.

Gavin Anderson  
Archaeologist/Heritage Impact Assessor