

Phase 1 Heritage Impact Assessment for proposed Phase 2  
and Phase 3 prospecting activities on the Remaining Extent  
of the farm Windhoek 393, near Douglas, Hay District,  
Northern Cape Province.

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## Summary

A Phase 1 Heritage Impact Assessment was carried out for a proposed prospecting right application by Electri City Mining (Pty) Ltd, over the Remaining Extent of the farm Windhoek 393, near Douglas in the Northern Cape Province. Activities will involve excavation of testing pits and trenches in four separate areas, each within a 1 ha grid. Each of the 4 proposed prospecting areas are capped by an aeolian sand and sorted gravel matrix underlain by a well-developed and crudely bedded calcrete hardpan. A small cemetery (GPS coordinates 29° 5'6.09"S 23°18'42.00"E) is located within the study area. There are no indications of *in situ* Stone Age sites, prehistoric structures or rock engravings at each of the four proposed prospecting areas. There is also no above ground evidence of historically significant structures older than 60 years within the confines of the four proposed prospecting areas. Areas 1 – 4 are not considered archaeologically vulnerable and is assigned a site rating of Generally Protected C, where localized prospecting is concerned. It is advised that the cemetery is protected by a proper fence and a 20 m no-go buffer zone. No aboveground evidence of fossils or fossil exposures were observed in Areas 1 – 4. It is advised that the proposed development may proceed with pinpoint prospecting activities provided that such activities are restricted to prospecting and not mining and that a professional palaeontologist is brought in to monitor freshly exposed calcrete exposures for late Neogene vertebrate fossils during Phase 2 (test pit phase) of the project.

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## Introduction

A Phase 1 Heritage Impact Assessment was carried out for a proposed prospecting right application by Electri City Mining (Pty) Ltd, over the Remaining Extent of the farm Windhoek 393, near Douglas in the Northern Cape Province (**Fig. 1**). Activities will involve excavation of testing pits and trenches in 4 separate areas, each within a 1 ha grid. The extent of the proposed development (over 5000 m<sup>2</sup>) falls within the requirements for a Heritage Impact Assessment (HIA) as required by Section 38 (Heritage Resources Management) of the South African National Heritage Resources Act (Act No. 25 of 1999). The task involved identification of possible archaeological and paleontological sites or occurrences in the proposed zone, an assessment of their significance, possible impact by the proposed development and recommendations for mitigation where relevant.

### Methodology

The heritage significance of the affected area was based on existing field data, database information, published literature and maps. This was followed up with a field assessment by means of a pedestrian survey within the footprint. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes.

Site significance classification standards prescribed by SAHRA (2005) were used to indicate overall significance and mitigation procedures where relevant (**Table 1**).

## Locality Data

Maps: 1:50 000 topographical map 2923 AB Witberg

1:250 geological map 2922 Prieska

Site coordinates of proposed prospecting areas (see **Fig. 2**):

Area 1: 29° 5'4.00"S 23°18'43.01"E

Area 2: 29° 5'40.73"S 23°18'46.20"E

Area 3: 29° 6'45.29"S 23°19'6.47"E

Area 4: 29° 6'36.53"S 23°18'48.45"E

Invasive prospecting activities will involve excavation of testing pits in 4 separate areas, each within a 1 ha grid (Phase 2), followed by the excavation of 10 x 60 x 5m (deep) trenches within each of the 4 areas (Phase 3) (**Fig. 3 & 4**).

## Background

### Palaeontology

The geology of the study area is shown on the 1: 250 000 geology map 2922 Prieska (**Fig. 5**). Oldest rocks in the region are represented by Precambrian, Ventersdorp Supergroup lavas, composed of resistant-weathering, dark green lavas and associated pyroclastic rocks. The Ventersdorp lavas are unconformably overlain by Carboniferous Dwyka Group tillites of the Mbizane Formation, (*C-Pd*, Karoo Supergroup), which represents valley and inlet fill deposits left behind on Ventersdorp basement rocks by retreating glaciers about 300 million years ago (Visser *et al.* 1977-78, 1990; Johnson *et al.* 2006). The glacial tillites of the Dwyka Group have yielded sparse fossil remains, but are not considered to be very fossiliferous. The Karoo Supergroup rocks are mantled by polymict surface gravels made up of Plio-Pleistocene or older calcretized terraces (*T-Qc*), red brown aeolian sands (*Qs*) and alluvium. Well-developed calcretes in the region are considered palaeontologically significant (**Fig. 6**).

### Archaeology

The Stone Age archaeological footprint in the region is represented by Early, Middle and Later Stone Age sites associated with pans and alluvial contexts, while away from rivers, the landscape in general is characterized by low-density surface scatters (Beaumont 1995; Kiberd 2006). The base and lower levels of Kalahari Group sands which cover vast areas in the region, have produced localized densities of Middle Stone Age artefacts, especially around the lower Vaal basin (Beaumont and Morris 1990). The incidence of Early as well as Later Stone Age surface scatters are also common along the lower Vaal and middle Orange River basins, which highlights the antiquity and continuity of human occupation on the landscape (**Fig. 7**). Rock engravings in the region are consistently found on Ventersdorp andesites. Engraving sites are known from Wonderdraai and Omdraaisvlei near Prieska and De Kalk, Kentani, Mazelsdontein and Readsdrift near Douglas as well as Driekopseiland on the Riet River near Plooyburg. Engraving sites have also been recorded on a number of farms in the Hopetown district, including Beeshoek, Brandfontein Disselfontein, Doornbult Karee Kloof Lemietkop and Rooikop. Multiple rock engraving sites are found on the dolerite hills flanking the Riet River west of Plooyburg. Archaeological records and historical eyewitness accounts show evidence of Bushman hunter-gatherer and Khoi herder occupation in the region prior to European settlement (Sampson 1972; Elphick 1977)

while early travelers frequently encountered Koranna, Griqua and Bushmen groups in the region (Burchell 1824; Skead 2009) (**Fig. 8**). Iron Age occupation is absent from the region as the most southerly distribution of Iron Age settlement in the northern Cape was limited to north of the Orange River by the end of 18<sup>th</sup> century (Maggs 1974; Humphreys 1976). The Orange River area between Douglas and Hopetown also lies within the confines of the historical Albania Settlement of Griqualand West that lasted from 1866 to its demise in 1878 (Kurtz 1988) (**Fig. 9**).

## **Field Assessment**

Each of the 4 proposed prospecting areas are capped by an aeolian sand and sorted gravel matrix underlain by a well-developed and crudely bedded calcrete hardpan (**Fig. 10**). No fossil remains or localities were observed within the surface deposits at each of the proposed prospecting areas during the survey. A small cemetery (GPS coordinates 29° 5'6.09"S 23°18'42.00"E) and two modern farmsteads (GPS coordinates 29° 4'38.33"S 23°17'39.18"E and 29° 6'4.76"S 23°17'29.03"E) are located within the study area. There are no indications of *in situ* Stone Age sites, prehistoric structures or rock engravings at each of the four proposed prospecting areas. There is also no above ground evidence of historically significant structures older than 60 years within the confines of the four proposed prospecting areas.

## **Impact Statement and Recommendation**

The study area is located within a historically as well as prehistorically significant landscape. The field assessment indicates that the proposed prospecting application will primarily affect small, localized areas that are underlain by well-developed surface calcretes.

### **Archaeology**

Areas 1 – 4 are not considered archaeologically vulnerable and is assigned a site rating of Generally Protected C, where localized prospecting is concerned (**Table 1**). It is advised that the cemetery is protected by a proper fence and a 20 m no-go buffer zone.

### **Palaeontology**

No aboveground evidence of fossils or fossil exposures were observed in Areas 1 – 4 and it is advised that the proposed development may proceed with pinpoint prospecting activities provided that:

- such activities are restricted to prospecting and not mining;

- and that a professional palaeontologist is brought in to monitor freshly exposed calcrete exposures for late Neogene vertebrate fossils during Phase 2 (test pit phase) of the project.

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#### DECLARATION OF INDEPENDENCE

Paleo Field Services act as an independent specialist consultant and do not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference. Paleo Field Services has no interest in secondary or downstream developments as a result of the authorization of this project.



## Tables & Figures

**Table 1.** Field rating categories as prescribed by SAHRA.

| <b>Field Rating</b>          | <b>Grade</b> | <b>Significance</b>      | <b>Mitigation</b>                            |
|------------------------------|--------------|--------------------------|--|
| National Significance (NS)   | Grade 1      | -                        | Conservation; national site nomination       |
| Provincial Significance (PS) | Grade 2      | -                        | Conservation; provincial site nomination     |
| Local Significance (LS)      | Grade 3A     | High significance        | Conservation; mitigation not advised         |
| Local Significance (LS)      | Grade 3B     | High significance        | Mitigation (part of site should be retained) |
| Generally Protected A (GP.A) | -            | High/medium significance | Mitigation before destruction                |
| Generally Protected B (GP.B) | -            | Medium significance      | Recording before destruction                 |
| Generally Protected C (GP.C) | -            | Low significance         | Destruction                                  |





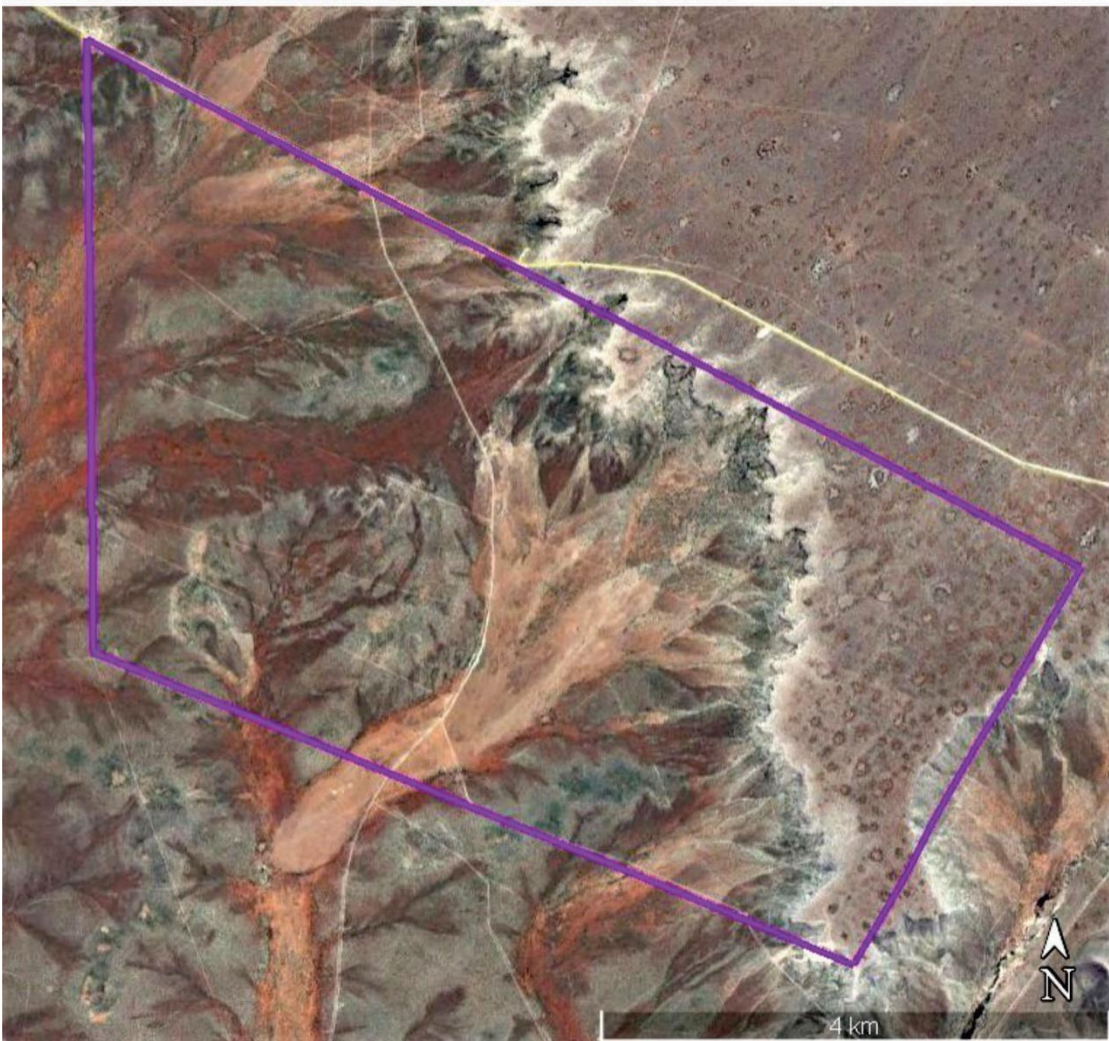


Figure 2. Aerial view of Remaining Extent of the farm Waaihoek 392.





Figure 3. Position of the proposed prospecting sites.





Figure 4. General view of the four prospecting sites, Area 1 looking east (above left), Area 2 looking south (above right), Area 3 looking southeast (below left) and Area 4 looking northeast (below right).



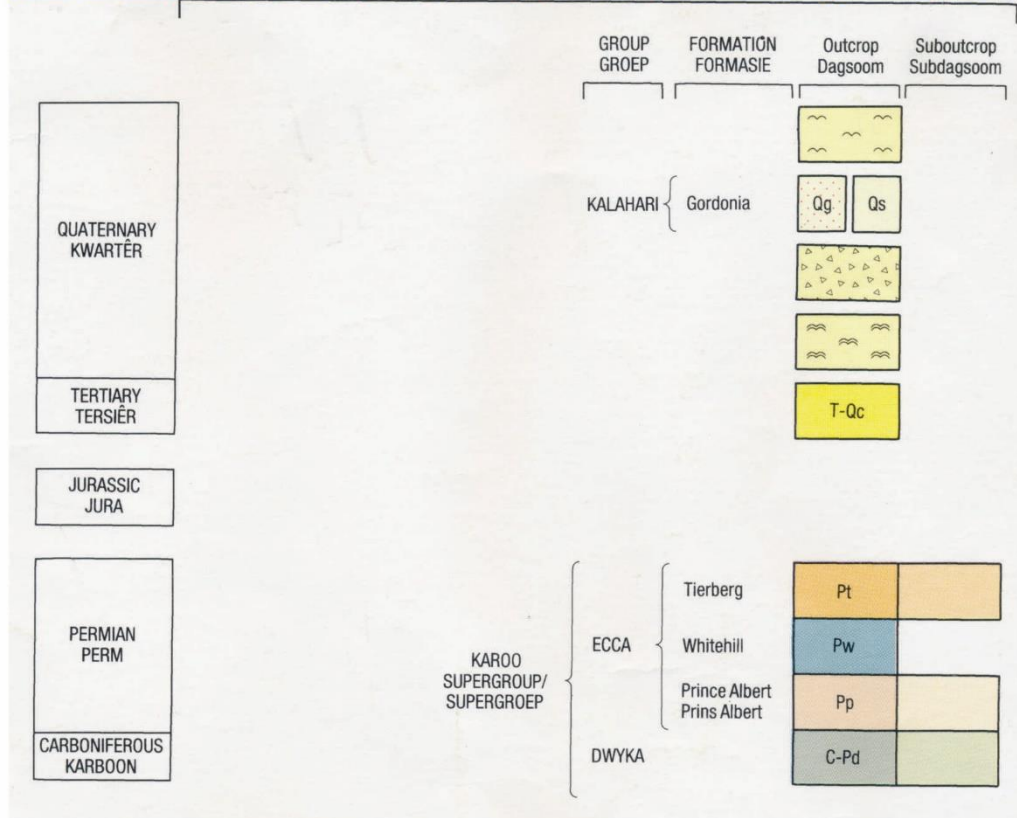
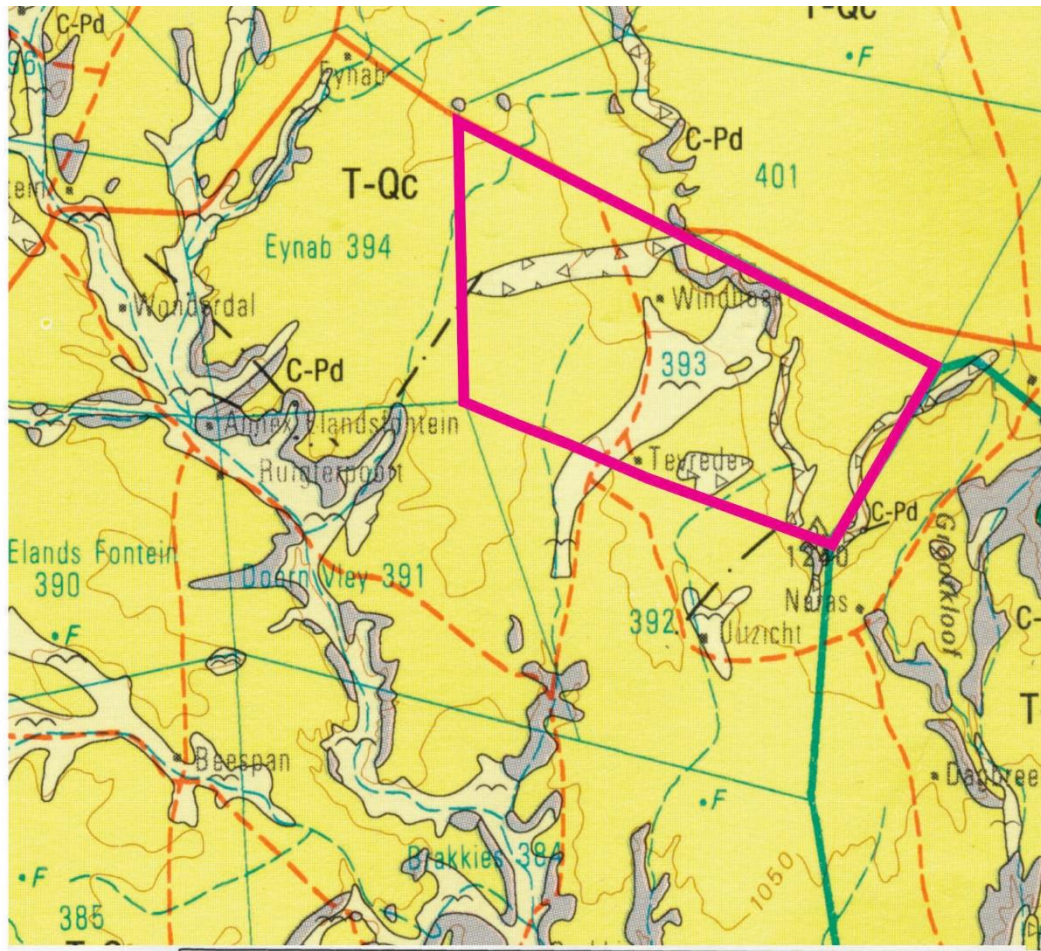


Figure 5. According to the 1:250 000 scale geological map 2922 Prieska, the farm is primarily covered by Tertiary calcretes (*T-Qc*), underlain by Dwyka Group sediments of the Mbizane Formation (*C-pd*); the latter largely exposed along geologically recent alluvial channels.

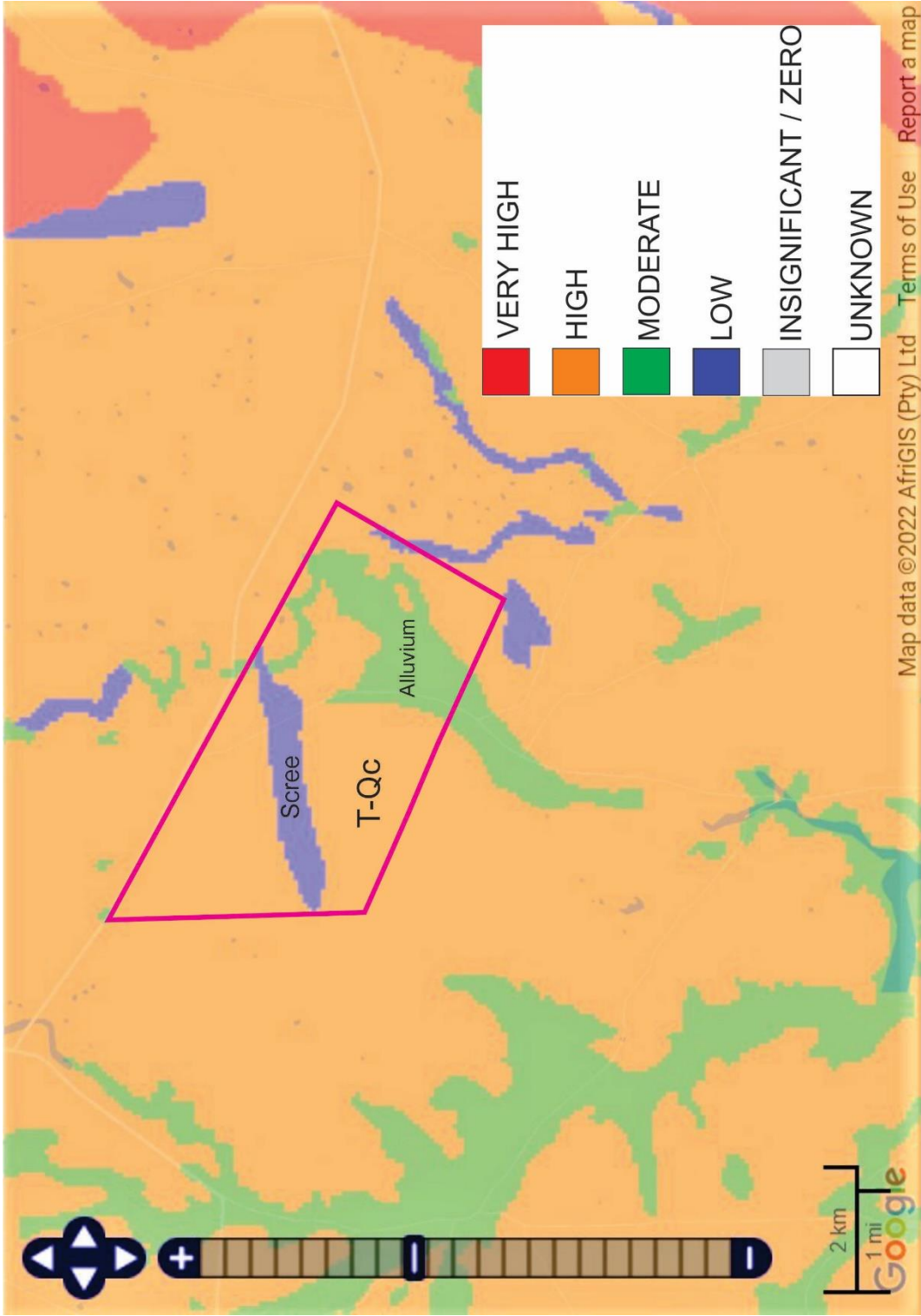
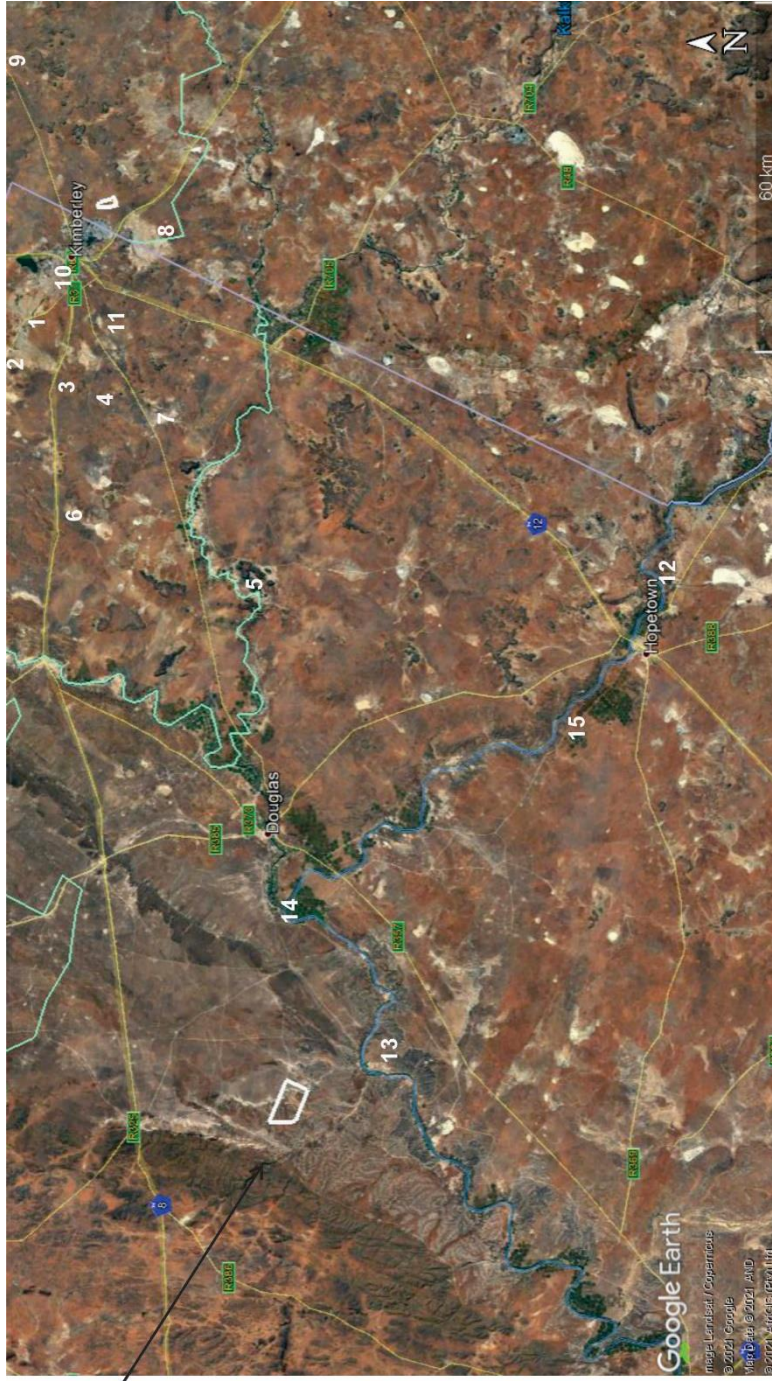


Figure 6. Study area marked on SAHRIS palaeosensitivity map (<https://sahris.sahra.org.za/map/palaeo> 2022).





1. Priel, Nooitgedacht & Powers Site - ESA, MSA and LSA
2. Canteen Kopple - ESA
3. Rooidam - ESA
4. Biesiesput - MSA
5. Driekopselind - Glacial straitlions, Rock engravings
6. Doorniaagte - ESA
7. Kareevloer - ESA, MSA
8. Alexanderfontein - 'palaeo-lake'
9. Liebensraum - ESA
10. Wildebeestkuij - Rock engravings
11. Witpan - Rock engravings
12. Orange River Station, Blockhouse & Concentration Camp
13. Readsdrift - Rock engravings
14. Orange-Vaal confluence - Engravings on andesite
15. Slypsteen - Rock engravings

Figure 7. The Stone Age archaeological footprint is well-represented north of Hopetown and around Kimberley by Early and Middle Stone Age localities from lacustrine and alluvial contexts as well as rock engravings on andesite and dolerite outcrop.





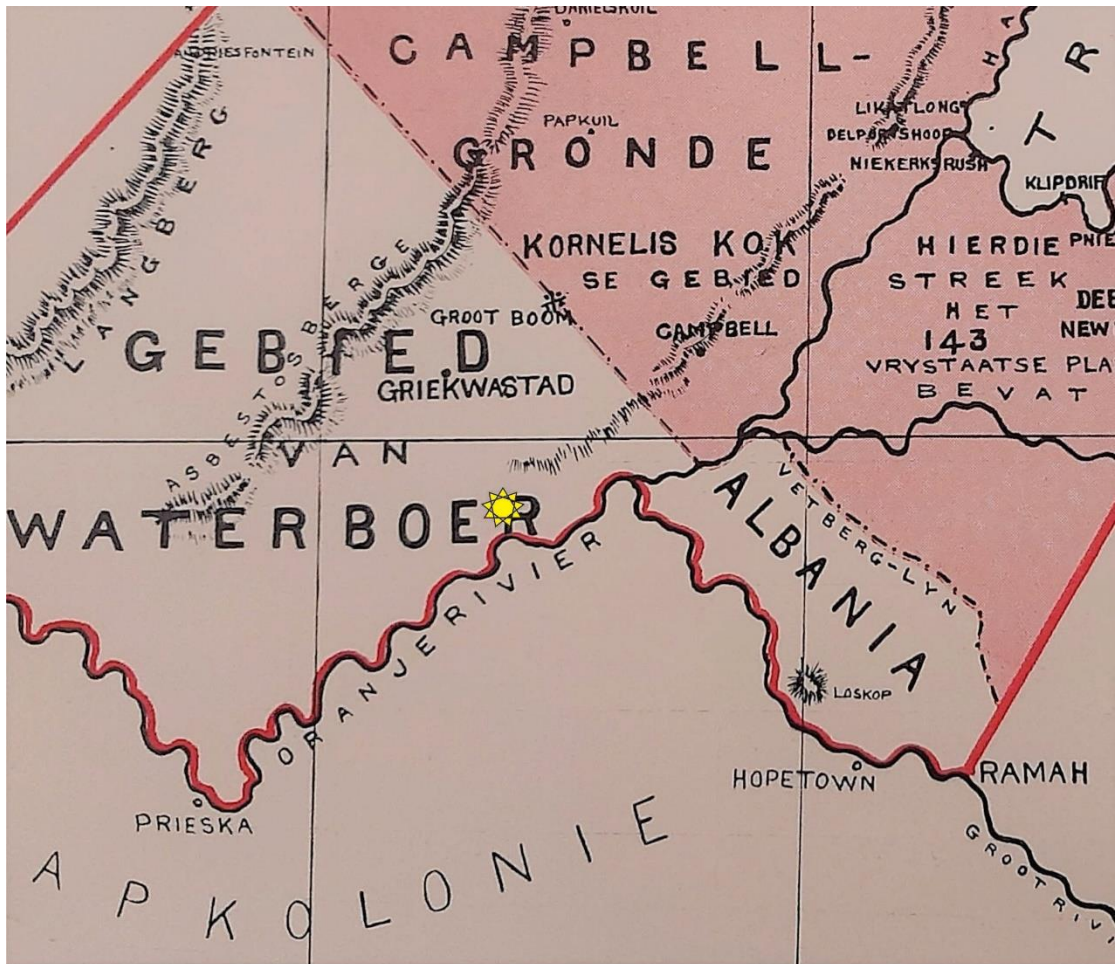


Figure 9. The study area (yellow star) lies within the historical Griqualand West territory of Andries Waterboer, leader of the Griqua people 1820 - 1852. The Albania Settlement occupied the area east of the Orange River between Douglas and Hopetown. It lasted from 1866 to 1878.



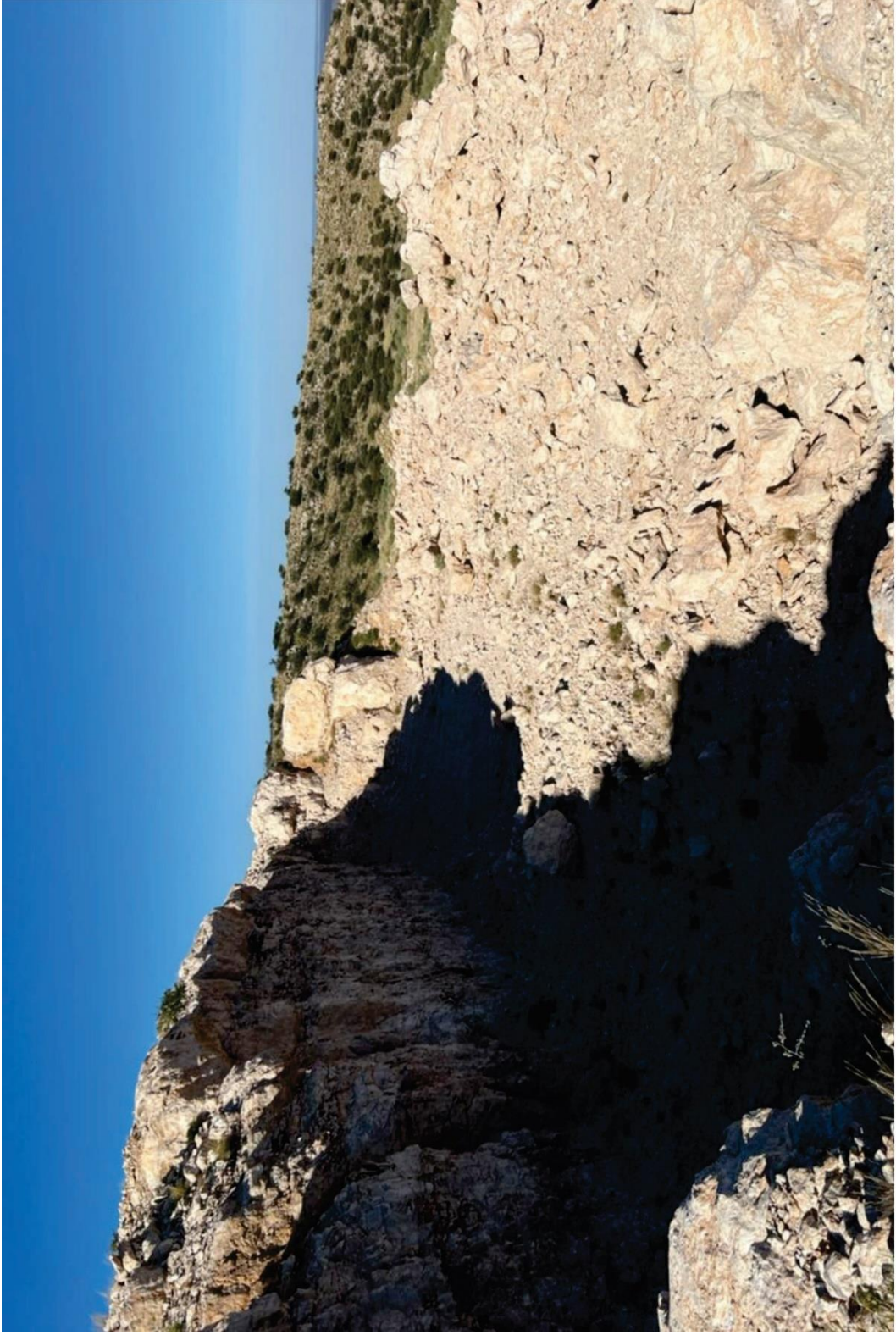


Figure 10. Limestone outcropping along upland area at the base of Ghaap de Berg, looking southeast.





Figure 11. General view of a dilapidated cemetery recorded south of proposed prospecting Area 1.

# Appendix 1: Track Log

| Index | Coordinates           |
|-------|-----------------------|
| 1     | S29 03.616 E23 17.118 |
| 2     | S29 03.892 E23 17.183 |
| 3     | S29 04.231 E23 17.406 |
| 4     | S29 04.491 E23 17.536 |
| 5     | S29 04.691 E23 17.662 |
| 6     | S29 04.914 E23 17.690 |
| 7     | S29 04.990 E23 17.792 |
| 8     | S29 04.959 E23 17.873 |
| 9     | S29 04.835 E23 17.804 |
| 10    | S29 05.076 E23 18.031 |
| 11    | S29 05.355 E23 18.659 |
| 12    | S29 05.423 E23 18.874 |
| 13    | S29 05.355 E23 18.826 |
| 14    | S29 05.423 E23 18.951 |
| 15    | S29 05.461 E23 18.943 |
| 16    | S29 05.223 E23 18.826 |
| 17    | S29 05.223 E23 18.826 |
| 18    | S29 05.012 E23 18.740 |
| 19    | S29 04.876 E23 18.704 |
| 20    | S29 04.861 E23 18.538 |
| 21    | S29 04.763 E23 18.509 |
| 22    | S29 04.646 E23 18.493 |
| 23    | S29 04.774 E23 18.432 |
| 24    | S29 04.752 E23 18.116 |
| 25    | S29 04.752 E23 18.104 |
| 26    | S29 04.752 E23 18.120 |

