

**DESKTOP HERITAGE SURVEY OF THE PROPOSED
MOUNT ASHLEY PIGGERY, MPHOPHOMENI,
KWAZULU-NATAL**

FOR NATURESTAMP

DATE: 12 APRIL 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

The proponent wishes to develop a piggery breeder site on the Mount Ashley farm: Remainder 941 of Farm Groot Vallei near Midmar Dam. The footprint of the site would be 112m x 172 m which equates to 19 262m², 1.9 ha. The development would take place on lands that are already cultivated

The development would consist of 7 new houses to be developed, allowing for an expansion that accommodates:

- 1 000 sows,
- 3 600 piglets up to 28 days,
- approximately 100 replacement gilts, and
- 10 boars.

There would be a Staff Facility associated with the piggery, which includes –

- Office;
- Showers;
- Ablutions;
- Seating area/dining area(food brought in from outside) and;
- Basic workshop, used for fixing broken pipes, pens and slats (no petrochemicals / lubricants on site).

Furthermore, there would be an Effluent Management system, which includes

- Effluent Holding Sump (capacity 32m³);
- Separator;
- Solids bunker (capacity 20 m³);
- Effluent Lagoon (capacity 1200m³);
- Composting platform (area 200 m³); and
- Estimated average of solid waste treated per day by composting = 1 ton.

All effluent would be controlled within a contained, impermeable system, with no contaminated runoff being generated off the site. Waste management at the existing piggery is taken care of independently to the new proposed piggery site.

Fig.'s 1 – 4 show the location of the development.

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

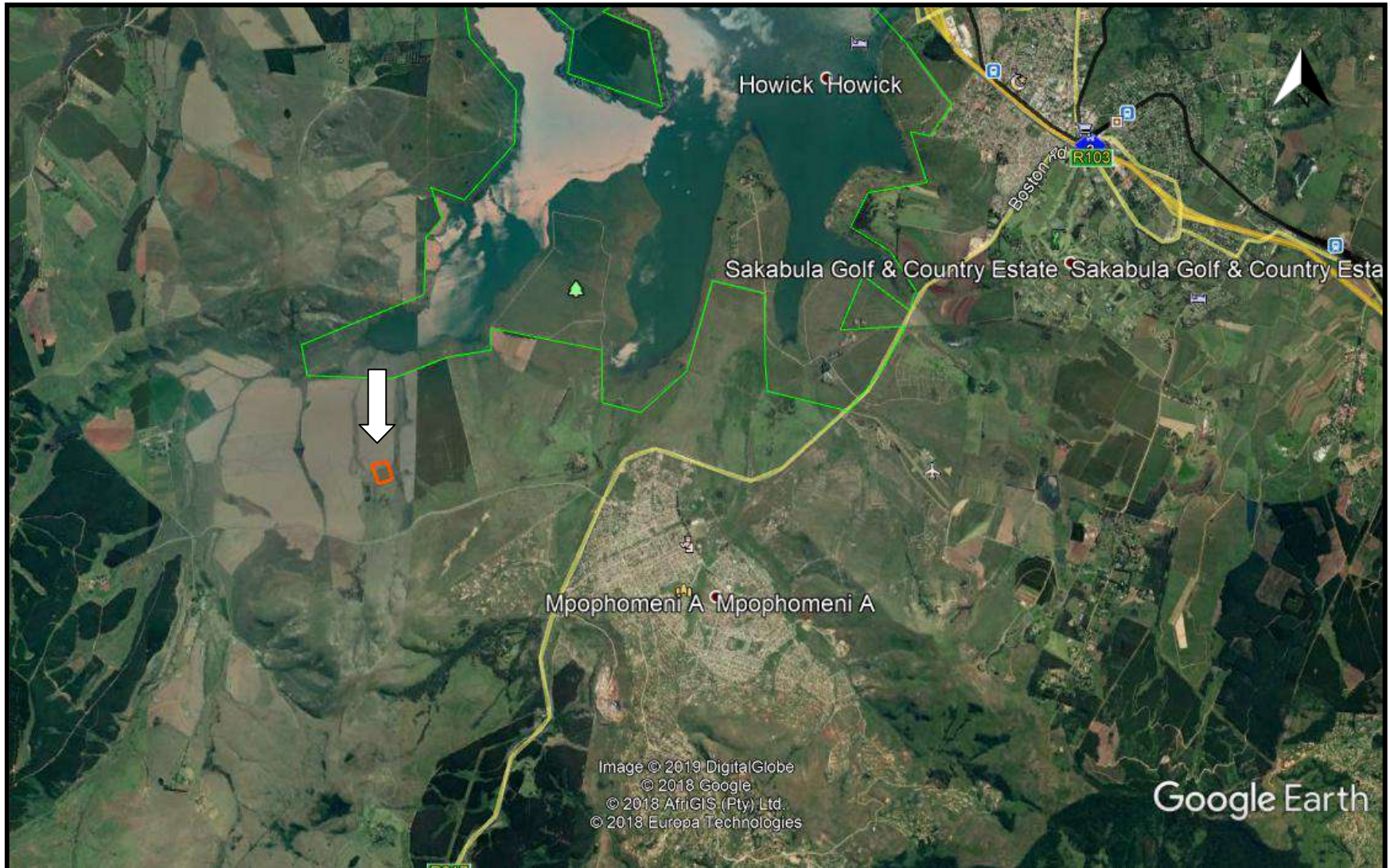
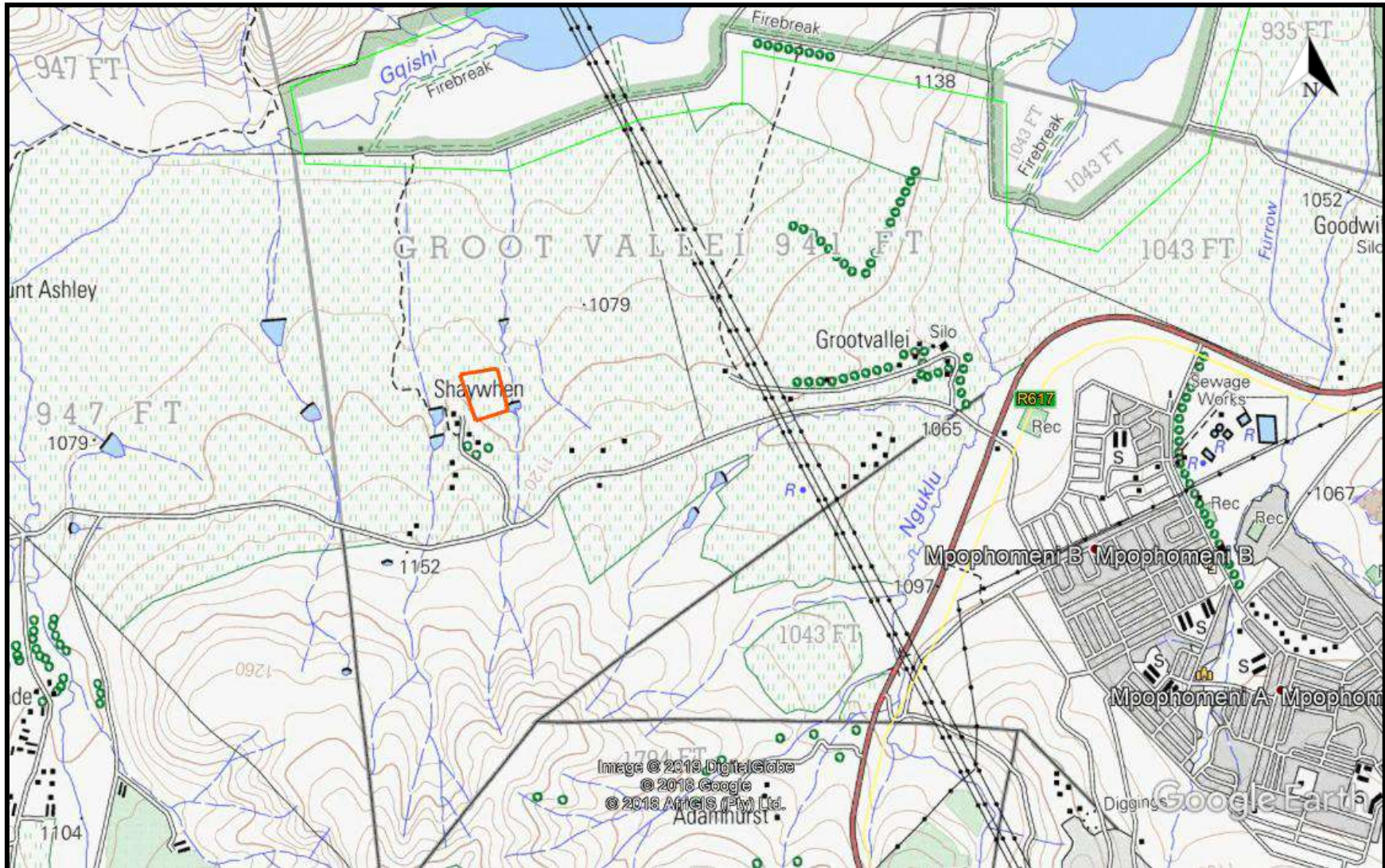


FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA



FIG. 3: TOPOGRAPHICAL OVERVIEW OF THE STUDY AREA



KWAZULU NATAL AMAFA AND RESEARCH INSTITUTE, ACT 05, 2018

“General protection: Structures.—

- No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Council having been obtained on written application to the Council.
- Where the Council does not grant approval, the Council must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- The Council may, by notice in the *Gazette*, exempt—
- A defined geographical area; or
- defined categories of sites within a defined geographical area, from the provisions of subsection where the Council is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

General protection: Graves of victims of conflict.—No person may damage, alter, exhume, or remove from its original position—

- the grave of a victim of conflict;
- a cemetery made up of such graves; or
- any part of a cemetery containing such graves, without the prior written approval of the Council having been obtained on written application to the Council.
- General protection: Traditional burial places.—
- No grave—
- not otherwise protected by this Act; and
- not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Council having been obtained on written application to the Council.

The Council may only issue written approval once the Council is satisfied that—

- the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

- No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Council without delay.
- The Council may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Council to be inappropriate within 50 metres of a rock art site.
- No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or

- use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Council having been obtained on written application to the Council.
- The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vest in the Provincial Government and the Council is regarded as the custodian on behalf of the Provincial Government.” (KZN Heritage Act of 2008)

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 databases contains 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 1st and 2nd 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

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

	mitigation required prior to or during development / destruction
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RESULTS

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. The archaeological database indicates that there are archaeological sites in the general area (fig. 4). These sites include all types of Stone Age and Iron Age sites. No sites occur in the study area.

No national monuments, battlefields, or historical cemeteries are known to occur in the study area.

The Surveyor General maps indicate that the land was first surveyed in 1851 (fig. 6). The next available map indicates that there is a building on the property, but not the study area in 1945, and might be Shaywhen (fig. 7).

The 1937 aerial photograph indicates that the study area was grasslands (fig. 8). The buildings (for Shaywhen?) are visible on this map as are settlements ~700m to the southeast of the study area.

In 1972, the study area is still grasslands (fig. 10). The 2006 Goggle Earth image shows that the area was converted to agricultural fields between 1972 and 2006 (fig. 9).

The desktop work suggests that there is a very low chance of archaeological and historical sites occurring in the study area.

FIG. 5: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA

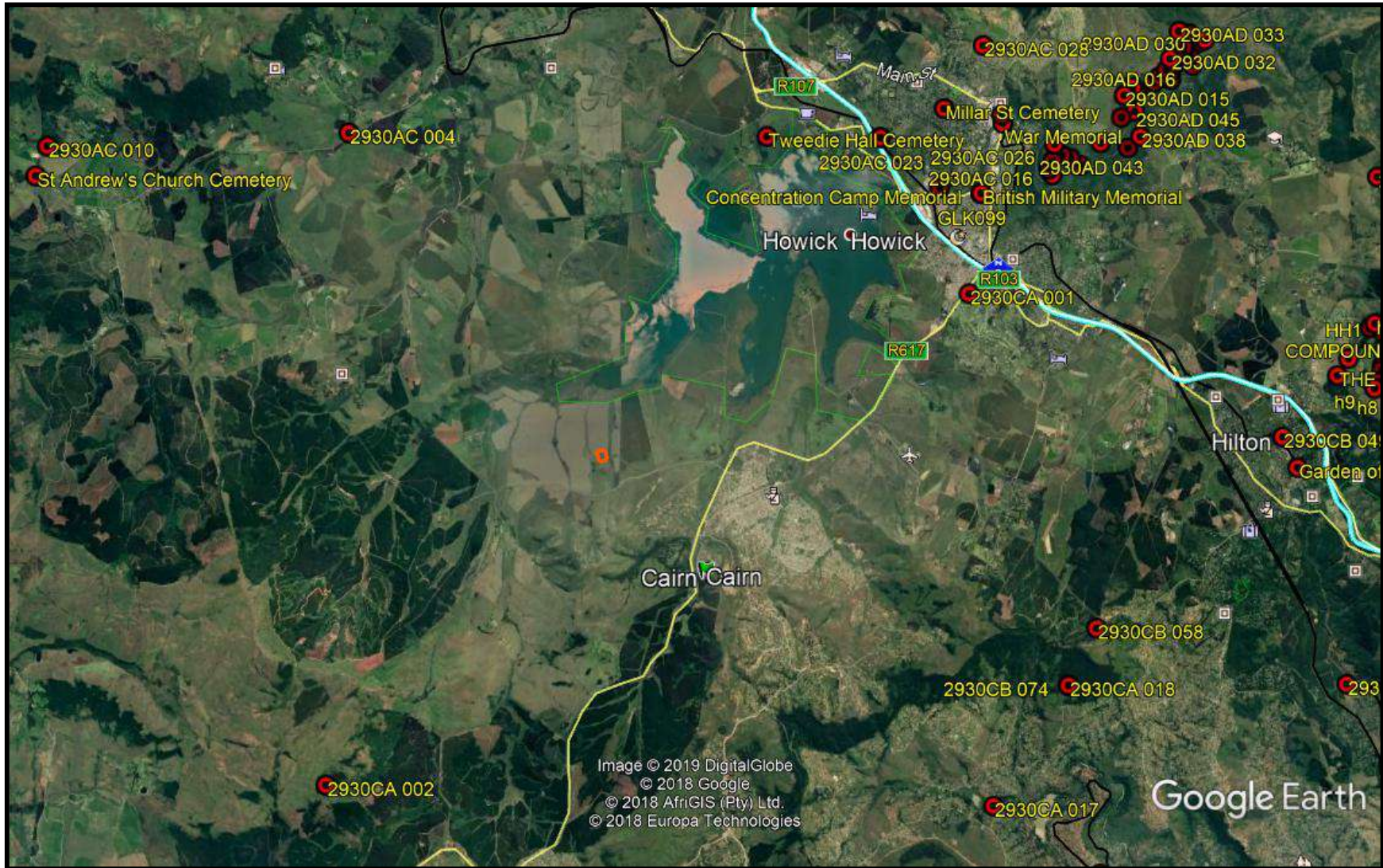


FIG. 6: ORIGINAL SURVEYOR GENERAL MAP (1851)

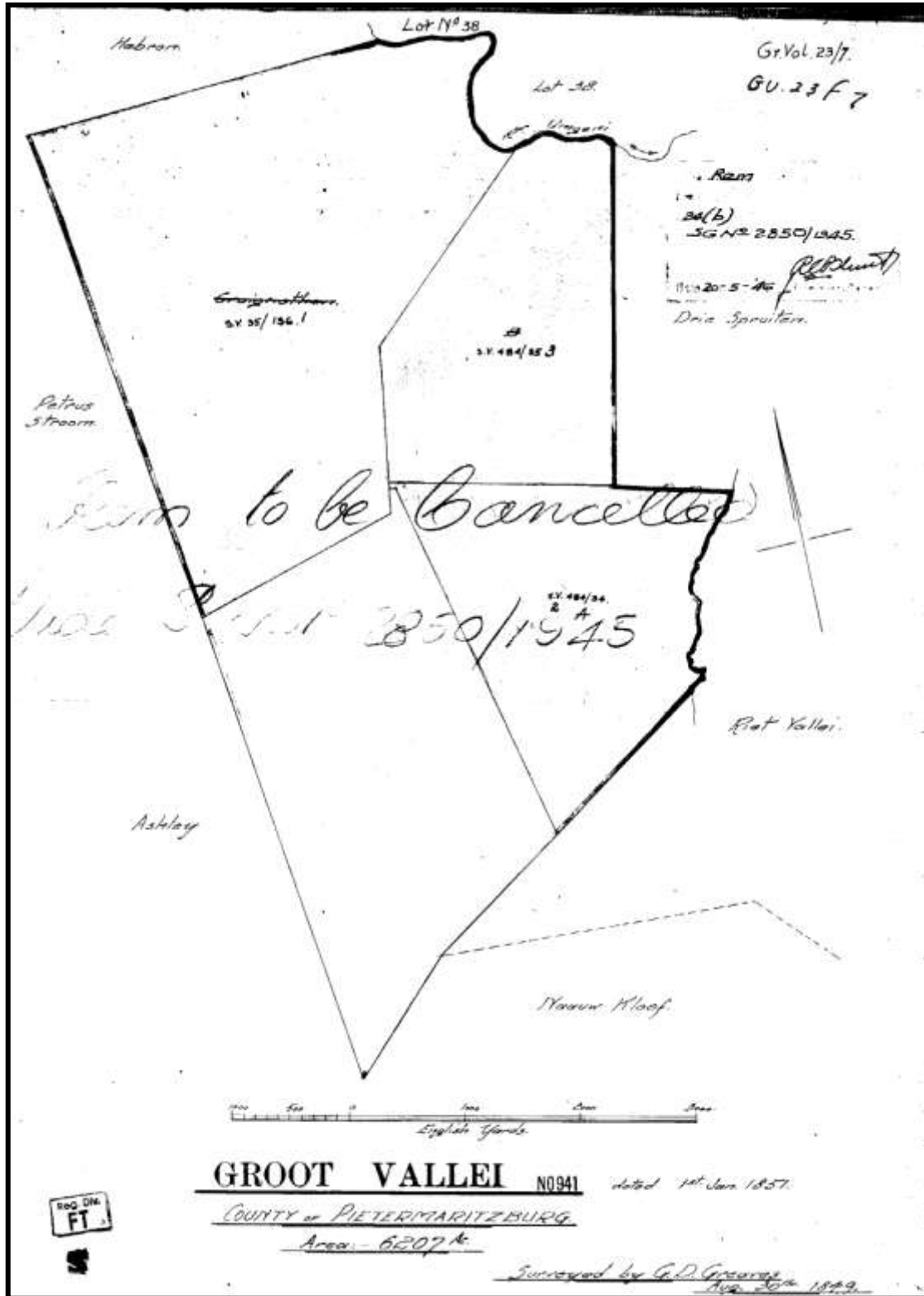


FIG. 7: SURVEYOR GENERAL MAP (1945)

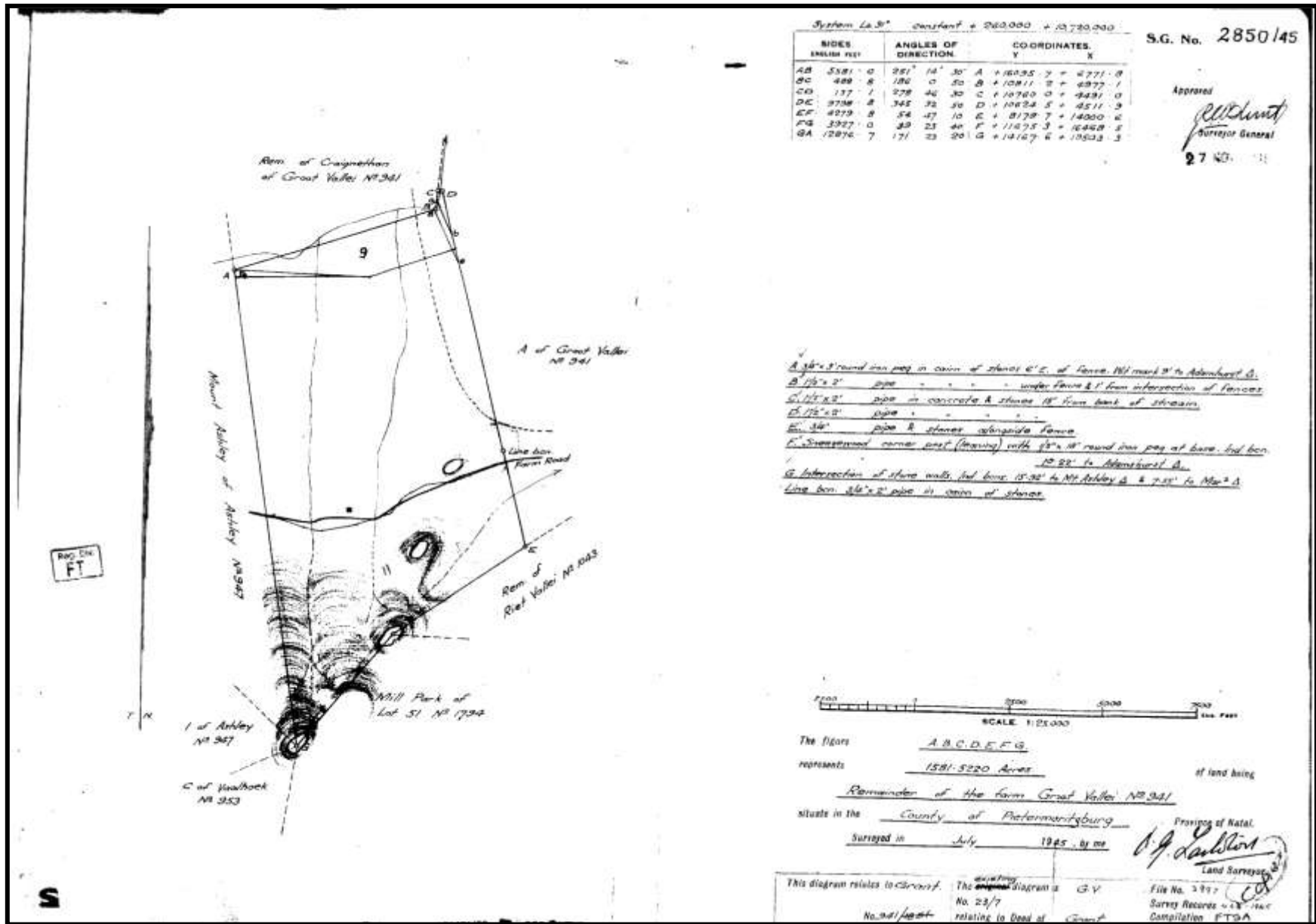


FIG. 8: STUDY AREA IN 1937¹



¹117B_001_54103

FIG. 9: STUDY AREA IN 1972

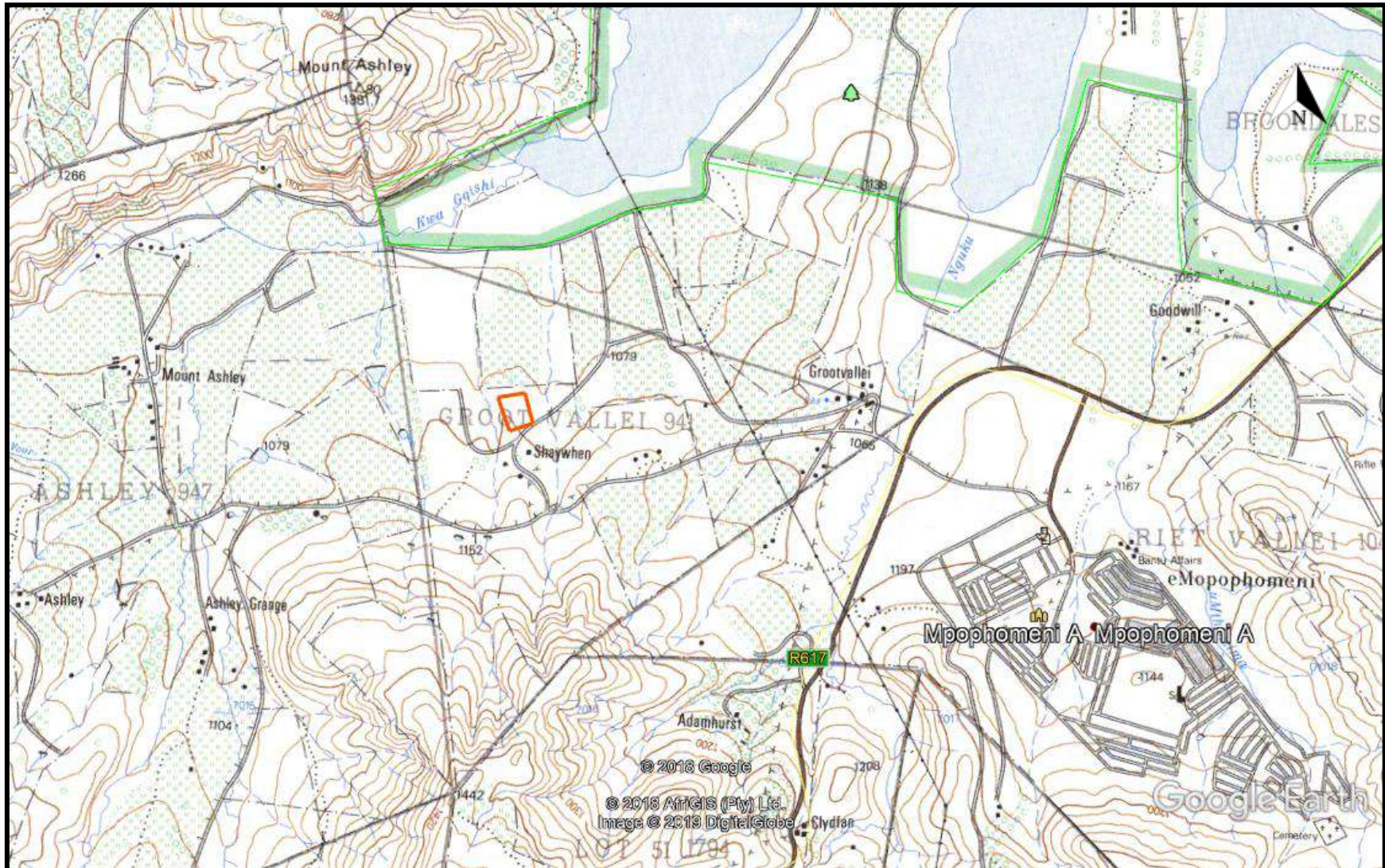


FIG. 10: STUDY AREA IN 2006



PALAEONTOLOGICAL IMPACT ASSESSMENT

A desktop PIA was undertaken since the area is classified as being highly sensitive for palaeontology (fig. 11) – see Appendix A. The results from the desktop are as follows:

“The Volksrust Formation on this site is already disturbed and weathered. Significant fossils are very unlikely to be present and, if present, would be significantly deeper than the disturbance planned for this proposed project. No further palaeontological action is required.”

FIG. 11: PALAEONTOLOGICAL SENSITIVITY



COLOUR	SENSITIVITY	REQUIRED ACTION
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

CONCLUSION

A desktop heritage survey was undertaken for the proposed Mount Ashley piggery. The proposed piggery will consist of a few buildings and related infrastructure. The overall impact on the area will be minimal.

The HIA desktop indicates that there are no buildings or graves in the proposed area. The area is also highly unlikely to yield archaeological sites, except for isolated individual stone tools.

The area is rated as highly sensitive for palaeontological remains; however, the deep weathering in the area suggests that no fossils will occur in the upper 1.5m of the ground.

No further HIA mitigation is required.

REFERENCES

117B_001_54103

2930CA Merrivale 1:50 000 topographical map 1972, 2002

KwaZulu-Natal Museum Site Record Database

SAHRIS Database

Umlando Data Base

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 'Anderson', with a stylized flourish above the name.

Gavin Anderson
Archaeologist/Heritage Impact Assessor

**APPENDIX A
PIA DESKTOP**

**For the proposed expansion of a piggery on Mount Ashley Farm,
on Remainder 941 of the Farm Groot Vallei near Midmar Dam,
Umngeni Local Municipality, uMgungundlovu District of
KwaZulu-Natal
DESK-TOP PALAEOLOGY REPORT**

FOR

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EXECUTIVE SUMMARY: The proposed site may be developed without further palaeontological investigation. Should fossils be present they will be well below the depth of the disturbance conceived within this proposed development.

PROPOSED PROJECT

Project information

Mount Ashley Farm is an existing piggery, dairy and crop farm. The site is located within Quaternary Catchment U20C; falling under the uMvoti to Mzimkulu Management Area (WMA) and the uMgeni waterboard (uMgeni Water). The proposed development site is found on a small catchment area of the UMgeni River. Currently, the proponent has a 9 house piggery production enterprise, comprising of 7000 pigs. The proposed development of the new piggery site would allow the sow breeding to be separated from the grower unit, and also allow for growth in total pig numbers. Although the proposed piggery is planned for a new site, it forms an integral part of the existing piggery enterprise. Breeding, disease control, and feeding operations, for example, would all be collectively managed across the existing and proposed new site. Thus, the proposed development of the piggery is seen as an **EXPANSION** activity only.

LOCATION

Mount Ashley Farm is located south of Midmar Dam, near Mphophomeni in the Umngeni Local Municipality of KwaZulu-Natal. The proposed project would occur on Mount Ashley Farm, Remainder 941 of Farm Groot Vallei, near Mphophomeni in the Umngeni Local Municipality of the UMgungundlovu District in KwaZulu-Natal (Figure 1)



Fig. 1: Mount Ash locality map. The proposed site is located at: 29° 33' 12.16" S ; 30° 08' 25.75" E. Image source UMLANDO: Archaeological Surveys & Heritage Management; GoogleEarth.

GEOLOGY

The proposed expansion is within an area underlain by the Permian Volksrust Formation (2930 Durban 1:250 000 Geological Map). The Volksrust Formation is generally a blue shale but becomes sandy upwards, where sandstone beds can occur. This unit can contain trace and plant fossils and the bivalve *Megadesmus* (Cairncross et al. 2005) has been recorded in the upper sandy strata.

At this locality no sandstone has been reported and the stratigraphic level is below that where *Megadesmus* was found. This area may contain trace or plant fossils but these are by no means rare. Further this is formerly agricultural land so is disturbed.

Founding depths will not exceed 1.5 m. The land where this proposed project would be located is very flat. Generally this is sign of deep weathering, a characteristic of the Volksrust Formation.

CONCLUSIONS

The Volksrust Formation on this site is already disturbed and weathered. Significant fossils are very unlikely to be present and, if present, would be significantly deeper than the disturbance planned for this proposed project. No further palaeontological action is required.

REFERENCES

Cairncross, B., Beukes, N.J., Coetzee, L.L. and Rehfeld, U. (2005) The bivalve *Megadesmus* from the Permian Volksrust Shale Formation (Karoo Supergroup), northeastern Karoo Basin, South Africa Implications for Late Permian basin development. *South African Journal of Geology*, vol. 108(4), 547-556.

Durban 2930. 1:250 000 Geological Map. Council for Geosciences, Pretoria.