

**Annexure C<sub>2</sub>**  
Heritage Report



Phase 1 Heritage Impact Assessment for proposed new  
residential development on Portion 20 of Farm Lilyvale  
2313, Bloemfontein, Free State of Province.

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## Summary

A Phase 1 Heritage Impact Assessment was carried out for a proposed new residential development on Portion 20 of Farm Lilyvale 2313 in Bloemfontein, Free State Province. The site covers 25 ha of primarily open, undulating terrain, located on Portion 20 of Farm Lilyvale 2313 in De Bruin Street, Rayton Smallholdings. As far as the **palaeontological heritage** is concerned, the proposed development will primarily affect geologically insignificant volcanic rock (dolerite). The proposed development may proceed with no further palaeontological assessments required, provided that all development activities are restricted to the demarcated footprint. The survey revealed no evidence of *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no aboveground indications of rock art (engravings), prehistoric structures or graves within the boundaries of the proposed footprint. During a prior survey of the site, Dreyer (2004d) found multiple historically significant features, including South African War – related military artifacts, stone-built structures and graves (the latter being located outside the perimeter of the proposed footprint). Of those only one sangar, the remains of a single, rectangular stonewalled building and a potential ash heap (rubbish dump) were identified during the current survey. It is presumed that uncapped military artifacts and other stone-built structures originally identified by Dreyer were removed or destroyed in the interim. Accordingly, as far as **archaeological heritage** is concerned, the proposed development may proceed, provided that (1) all development activities are restricted to within the boundaries of the proposed footprint; (2) the sangar and rectangular stonewalled building are protected as part of a designated open / green area, accompanied by appropriate information displays, and preferably with a clearly visible fence during the construction phase of the development and that (3) the ash heap area, covering approximately 60 m<sup>2</sup>, is protected as part of a designated open / green area, preferably capped by grass. Furthermore, the likelihood that isolated, military-related artifacts are recovered from unconsolidated topsoils during construction phase of the development is considered moderate to high. In such an event it is advised that a professional archaeologist / heritage specialist is notified immediately for confirmation and appropriate mitigation.

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## Introduction

A Phase 1 Heritage Impact Assessment was carried out for a proposed new residential development on Portion 20 of Farm Lilyvale 2313 in Bloemfontein, Free State Province (**Fig. 1**). The assessment is required as a prerequisite for new development in terms of the National Environmental Management Act and is also called for in terms of the National Heritage Resources Act (NHRA) 25 of 1999. The region's unique and non-renewable palaeontological heritage sites are 'Generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. As many such heritage sites are threatened daily by development, both the environmental and heritage legislation require impact assessment reports that identify all heritage resources including palaeontological sites in the area to be developed, and that make recommendations for protection or mitigation of the impact of the sites.

The NHRA identifies what is defined as a heritage resource, the criteria for establishing its significance and lists specific activities for which a heritage specialist study may be required. In this regard, categories of development listed in Section 38 (1) of the NHR Act are:

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- The construction of a bridge or similar structure exceeding 50m in length;
- Any development or other activity which will change the character of the site
  - a) exceeding 5000 m<sup>2</sup> in extent; or
  - b) involving three or more existing erven or subdivisions thereof; or
  - c) involving three or more subdivisions thereof which have been consolidated within the past five years;
- The rezoning of a site exceeding 10 000 m<sup>2</sup>; or
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

The task involved identification of possible 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.

## Terms of Reference

- Identify and map possible heritage sites and occurrences using available resources.
- Determine and assess the potential impacts of the proposed development on potential heritage resources;
- Recommend mitigation measures to minimize potential heritage impacts associated with the proposed development.

## Methodology

The assessment was preceded by a desktop study based on database information and published literature. This was followed by a field assessment using a Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera. Geological maps were used to determine fossil-bearing rocks within the study area. Summary of potential impacts pre- and post-site visits is listed in **Table 1**. Site significance classification standards, as prescribed by SAHRA, are summarized in **Table 2**.

## Locality data

Maps: 1:50 000 scale topographical map 2926 AA Bloemfontein.

1:250 000 scale geological map 2926 Bloemfontein.

The site covers 25 ha of primarily open, undulating terrain, located on Portion 20 of Farm Lilyvale 2313 in De Bruin Street, Rayton Smallholdings, Bloemfontein (**Fig. 2 & 3**).

Site Coordinates (Fig. 2):

- A) 29° 3'50.73"S 26°11'37.05"E
- B) 29° 3'49.83"S 26°11'54.81"E
- C) 29° 4'3.18"S 26°11'55.19"E
- D) 29° 4'4.97"S 26°11'34.45"E
- E) 29° 3'56.14"S 26°11'30.68"E

## Background

This segment provides overview of the heritage footprint in the region with the intention to recognize potential sites, landscapes and features that may be found within the study area.

## Palaeontology

The local palaeontological footprint is primarily represented by Late Permian Karoo vertebrate fauna and Late Cenozoic (Quaternary Period, comprising the Pleistocene and Holocene Epochs) mammalian fossils. The Karoo geological strata within the affected area are assigned to the *Dicynodon* Assemblage Zone (AZ) (**Fig. 3, Pa & Fig 4**). Therapsids from this biozone occur generally well-preserved in mudrock horizons and are usually found as dispersed and isolated specimens associated with an abundance of calcareous nodules (Kitching 1995). Molluscs, insects, plant (*Dadoxylon*, *Glossopteris*) and trace fossils (arthropod trails, worm burrows) are also occur in the biozone. Alluvial deposits of the nearby Modder River and its tributaries north of the footprint area, are associated with abundant Quaternary mammalian fossils. The river's fossil-bearing potential has been known for almost 150 years, with a frontlet and horn cores of *Pelorovis antiquus* recovered as far back as 1839 (Cooke 1955) and the remains of *Megalotragus priscus* discovered around the turn of the previous century (Broom 1909).

## Archaeology and History

Cultural remains previously recorded around the northern outskirts of Bloemfontein can be divided into four categories: Stone Age remains, South African War remnants, graveyards and historical structures, including residential buildings, stone-built kraal and dam walls (Dreyer 2004a, 2004b, 2004c, 2005; Henderson 2006; Henderson *et al.* 2008; Rossouw 2012). The Stone Age archaeological record of the Modder River catchment north of Bloemfontein spans back to the early Middle Stone Age. Localized occurrences of *in situ* Middle and Later Stone Age material are preserved within overbank sediments of the Modder River and its tributaries between Maselspoort and Glen north of Bloemfontein (Churchill *et al.* 2000; Rossouw 2006). Widespread traces of prehistoric human habitation, in the form of stone tool scatters and individual surface finds, have previously been recorded at Bayswater 286, Lilyvale 2313 and Hillandale 249 (Goodwin and Van Riet Lowe 1929, Henderson *et al.* 2008; Rossouw 2012). After Bloemfontein was occupied by British forces on 13 March 1900, the city became a major military centre, with several farms north of Bloemfontein requisitioned for military purposes which also included military hospitals, rifle ranges, sangars and a large remount camp at Hillandale (**Fig. 6**). Hillandale was owned by Abraham Fischer, and was expropriated by the British along



with the Tempe farms. In the military correspondence it is referred to as Fischer's Farm (FS Archives). The Tempe Farms were originally expropriated as grazing for the horses of the South African Constabulary in August 1901, and eventually bought by the War Office in 1904. Archaeological remains related to British military activities in the area include stone wall structures and rubbish dumps, kraals, graveyards and surface strewn artifacts (e.g. bullet casings, tin cans, glass & ceramics). Stone wall structures are one of the last remaining traces of the British military occupation of the northern part of Bloemfontein. The walls were built by the British Engineers, which had their camp stationed at Tempe. Some sections can still be seen at the Botanical Gardens, as well as in the Lilyvale and Bayswater areas, between Hillsboro and the R700 road south of the N1 (**Fig. 7**). Graveyards and isolated graves are also known from this area, while remains of several sangars (temporary fortified positions / gun posts / outlook posts with a breastwork originally constructed of stones) have been recorded in the area.

## **Field Assessment and Impact Statement**

A pedestrian survey of the terrain indicated that the study area is completely underlain by palaeontologically insignificant dolerite intrusions (sill) partially covered by a thin veneer of geologically recent topsoils (**Fig. 8**). The survey also revealed no evidence of *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no aboveground indications of rock art (engravings), prehistoric structures or graves within the boundaries of the proposed footprint (**Fig. 9**). During a prior survey of the site, Dreyer (2004d) found multiple historically significant features, including South African War – related military artifacts, stone-built structures and graves (the latter being located outside the perimeter of the proposed footprint) (**Fig. 10**). Of those only one sangar, the remains of a single, rectangular stonewalled building and a potential ash heap (rubbish dump) were identified during the current survey (**Fig. 11 - 14**). It is presumed that uncapped military artifacts and other stone-built structures originally identified by Dreyer were removed or destroyed in the interim.

## **Recommendations**

Summary of potential impacts is listed in **Table 1**.

As far as the **palaeontological heritage** is concerned,

- *the proposed development will primarily affect geologically insignificant volcanic rock (dolerite).*
- *the proposed development may proceed with no further palaeontological assessments required, provided that all development activities are restricted to the demarcated footprint;*

The proposed development will impact the following historically significant structures:

- *The remains of a circular-shaped sangar, about 3 m in diameter and up to 50 cm in height (Fig. 12; GPS coordinates 29° 4'1.00"S 26°11'46.00"E). The locality is assigned a site rating of Local Significance Grade 3B (Table 2).*
- *The remains of a rectangular, stonewalled building located on a dolerite outcrop near the southern perimeter of the footprint (Fig 13; GPS coordinates 29° 4'3.32"S 26°11'44.87"E). The locality is assigned a site rating of Local Significance Grade 3B.*
- *Possible remains of an ash heap with potential for artifact preservation (Fig. 14; GPS coordinates 29° 3'54.00"S 26°11'45.99"E ).*
- *The sangar, rectangular stonewalled building and ash heap form part of a historically significant landscape, central to the South African War and its aftermath. These remains represent the last remaining traces of British military occupation of Bloemfontein during and shortly after the South African War. Accordingly, as far as **archaeological heritage** is concerned, the proposed development may proceed, provided that:*
  - *all development activities are restricted to within the boundaries of the proposed footprint.*
  - *the sangar and rectangular stonewalled building are protected as part of a designated open / green area, accompanied by appropriate information displays,*

*and preferably with a clearly visible fence during the construction phase of the development.*

- *the ash heap area covering approximately 60 m<sup>2</sup> is protected as part of a designated open / green area, preferably capped by grass.*

The likelihood that isolated, military-related artifacts are recovered from unconsolidated topsoils during construction phase of the development is considered moderate to high. In such an event it is advised that:

- *a professional archaeologist / heritage specialist is notified immediately for confirmation and appropriate mitigation.*

## **References**

Dreyer, C. 2004a. First phase archaeological/ heritage assessment of the proposed residential development at Hillandale, Bloemfontein. Unpublished report for CEBO Environmental Consultants cc.

Dreyer, C. 2004b. EIA report on the archaeological and historical investigation of the proposed Rayton Estate township, on subdivision 29 of the farm Lilyvale 2313, Bloemfontein. Unpublished report for CEBO Environmental Consultants cc.

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Henderson, Z.L. 2004. Report on the archaeological survey of subdivision 7, remainder and portion of subdivision 25, of the farm Lilyvale 2313, Bloemfontein. Unpublished report for The Roodt Partnership.

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Henderson, Z.L. Koortzen, C. Philip, L. and Uys, T. 2008. Assessment of Bayswater 2865/10,11,12, 3, Mangaung Municipality, Free State Province, in terms of archaeological and other heritage sites. Unpublished report for the Mangaung Municipality.

Rossouw, L. 2012. Phase 1 Archaeological Impact Assessment of Portions of Lilyvale 2313 and Bayswater 2865, Bloemfontein. Unpublished report for Terraworks Environmental Consultants.

#### *DECLARATION OF INDEPENDENCE*

*I, Lloyd Rossouw, declare that I act as an independent specialist consultant. I do not have or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference. I have no interest in secondary or downstream developments resulting from the authorization of this project.*

## Tables & Figures

**Table 2.** Summary of potential impacts at the proposed footprint.

<b>Geological Unit</b>	<b>Rock types and Age</b>	<b>Potential Palaeontological heritage</b>	<b>Potential Archaeological heritage</b>	<b>Potential Impact pre-site visit</b>	<b>Potential Impact post-site visit</b>
Regolith	Residual soils, (Superficial deposits) Quaternary to Recent	Alluvium, pan dunes & spring mounds: Large-mammal skeletal remains, coprolites; Sediments suitable for preservation of plant microfossils e.g spring mounds, wetlands, alluvium	Stone tools Rock art Prehistoric features (Stone Age open sites) Historical structures Military related remnants, monuments rubbish dumps, graves, graveyards	High	Low
Karoo Dolerite ( <i>Jd</i> )	Intrusive igneous bedrock. Jurassic	None	Rock engravings; Knapping sites near contact metamorphic zones	Moderate	Low
Adelaide Subgroup ( <i>Pa</i> )	Fluvial and lacustrine mudstones and sandstones. Late Permian	<i>Dicynodon</i> Assemblage Zone Therapsids, amphibians, fish, amniotes, invertebrates, plant fossils, trace fossils.		Moderate	None

**Table 2.** Field rating categories for archaeology 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

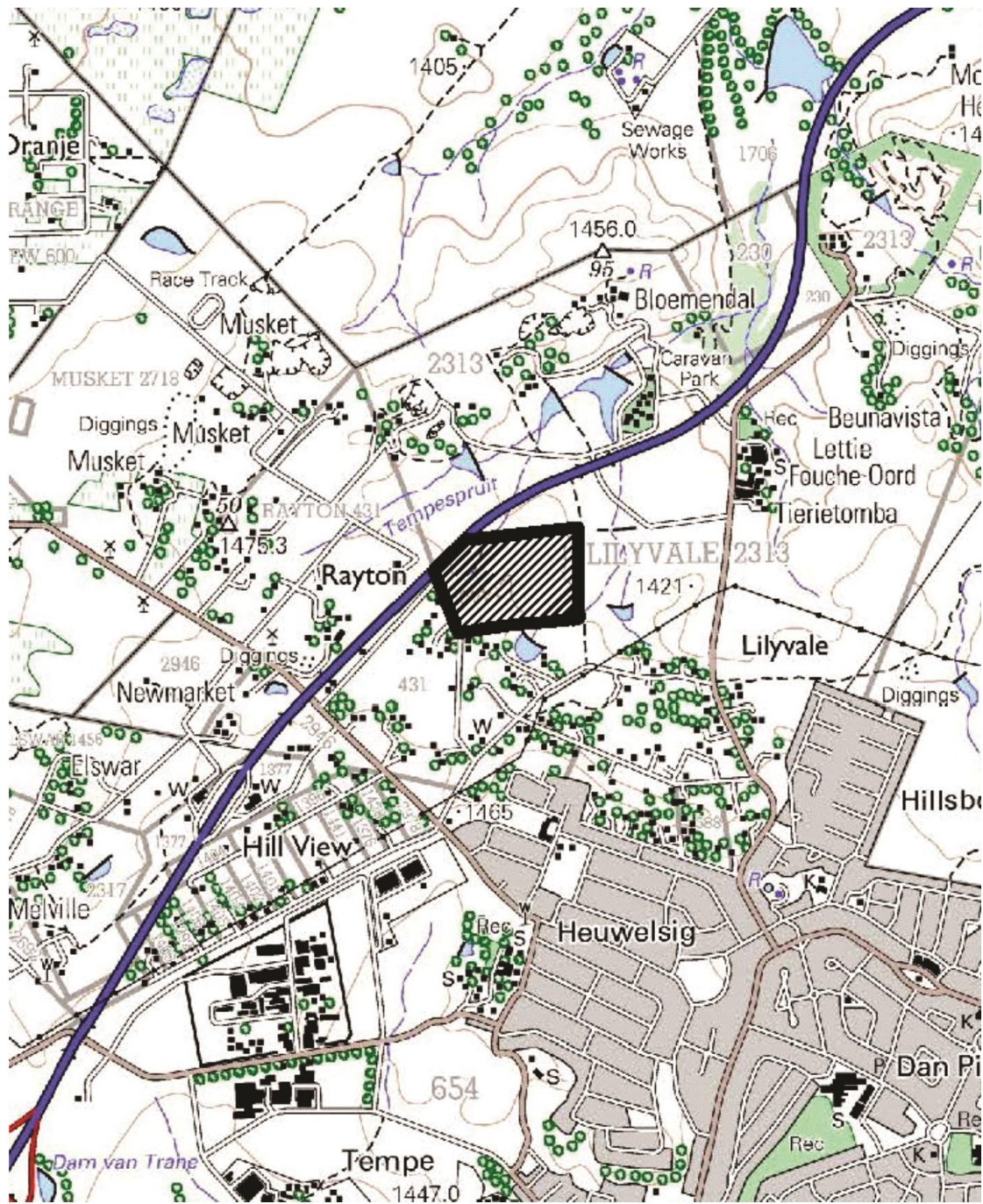


Figure 1. Map of the proposed study area (portion of 1:50 000 scale topographic map 2926 AA Bloemfontein).

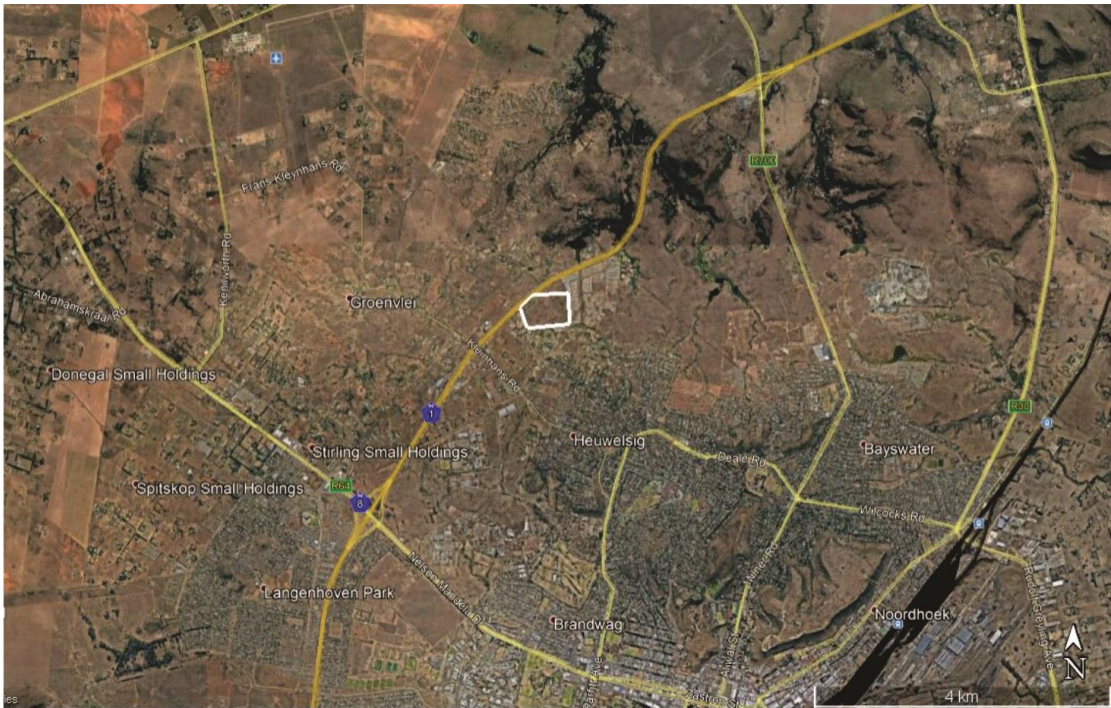


Figure 2. Aerial view and layout of the proposed development footprint.



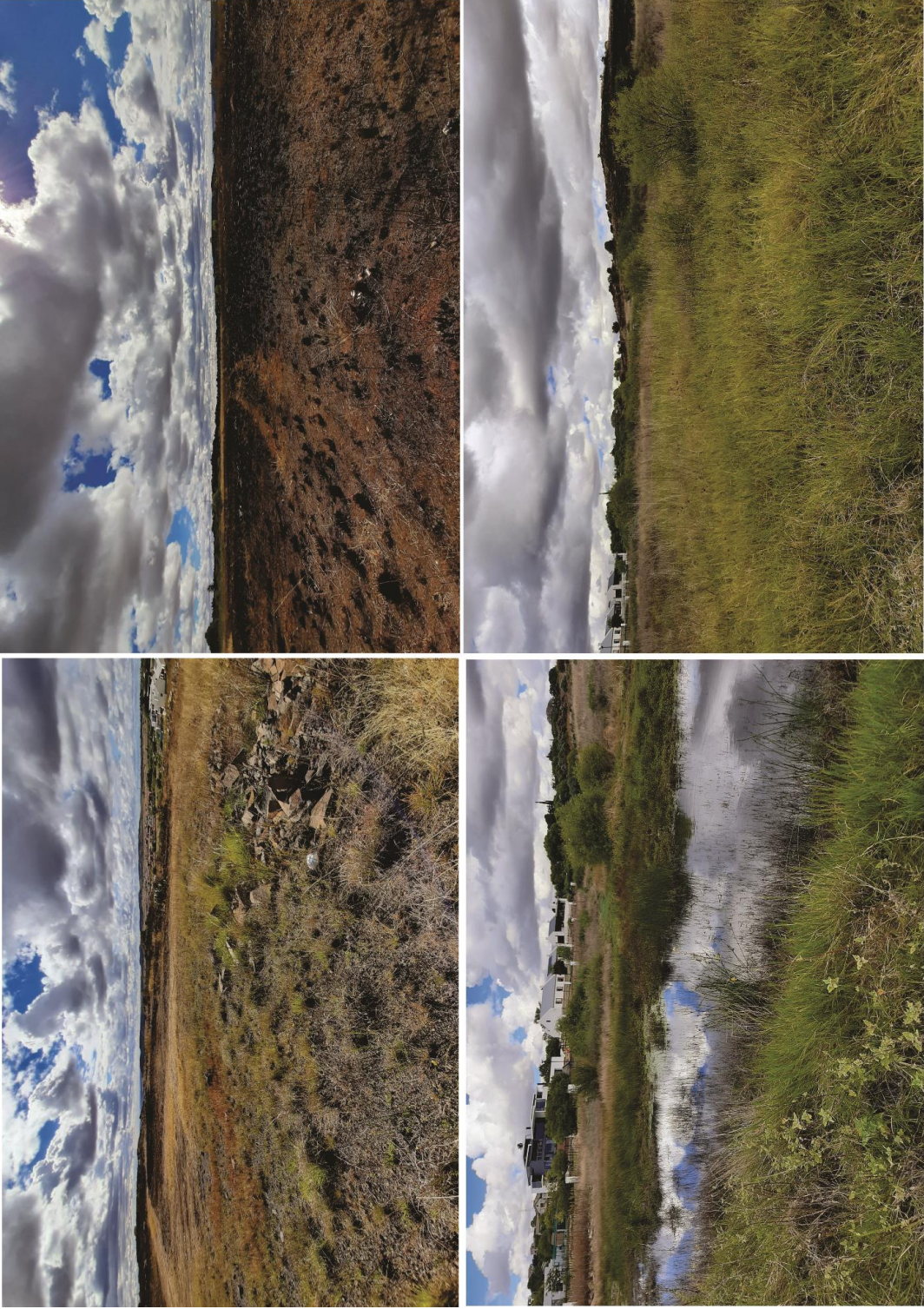


Figure 3. General view of the site, looking north (above left), west (above right), south (below left) and southwest (below right).

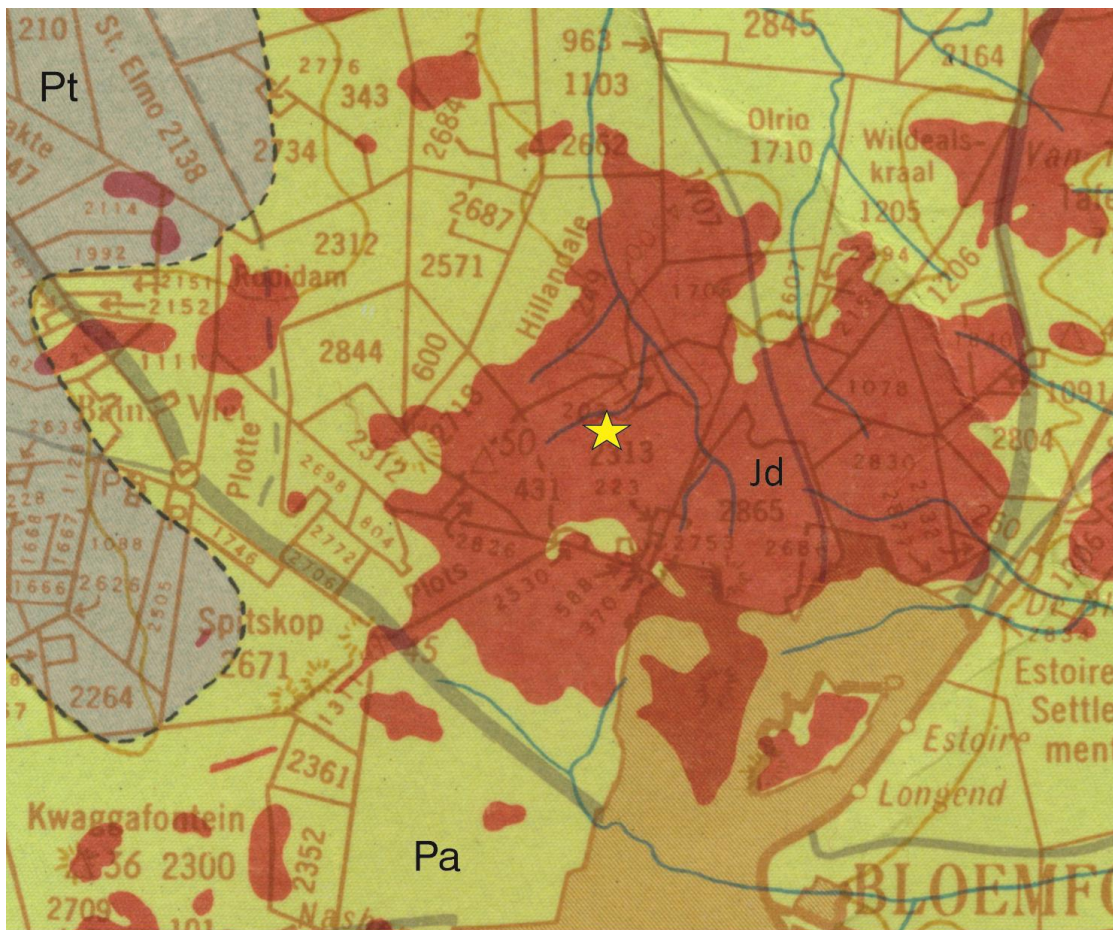


Figure 3. According to the 1:250 000 geological map 2926 Bloemfontein, the site lies within an outcrop area of Permian Adelaide Subgroup sedimentary strata (*Pa*, Beaufort Group, Karoo Supergroup), intruded by weather-resistant, Jurassic dolerites (*Jd*).

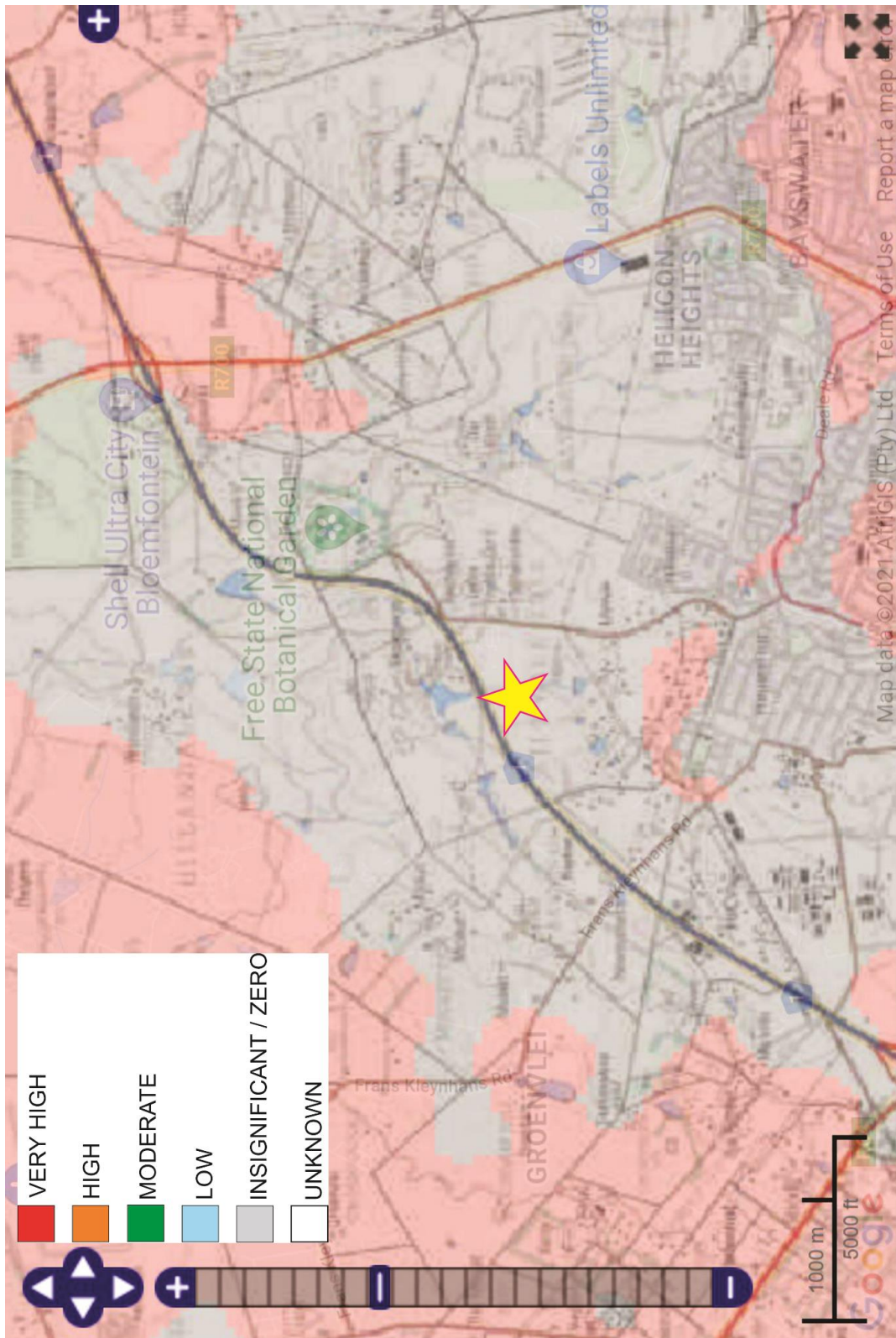


Figure 5. SAHRIS palaeosensitivity map of the study area (yellow star).

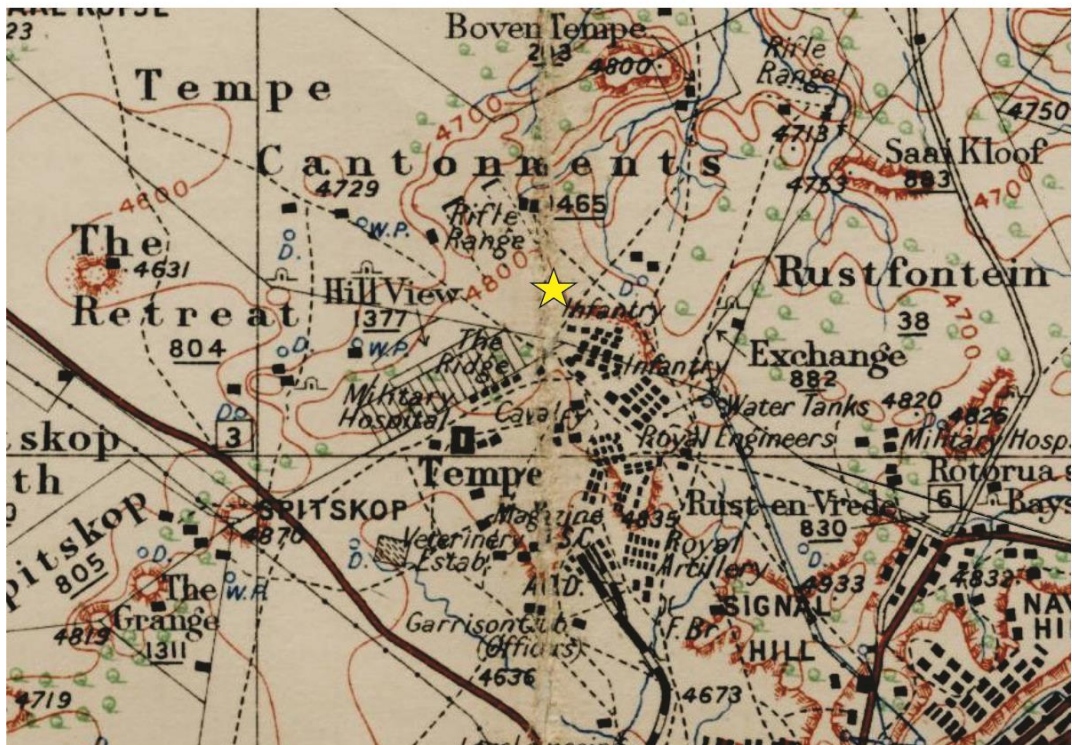
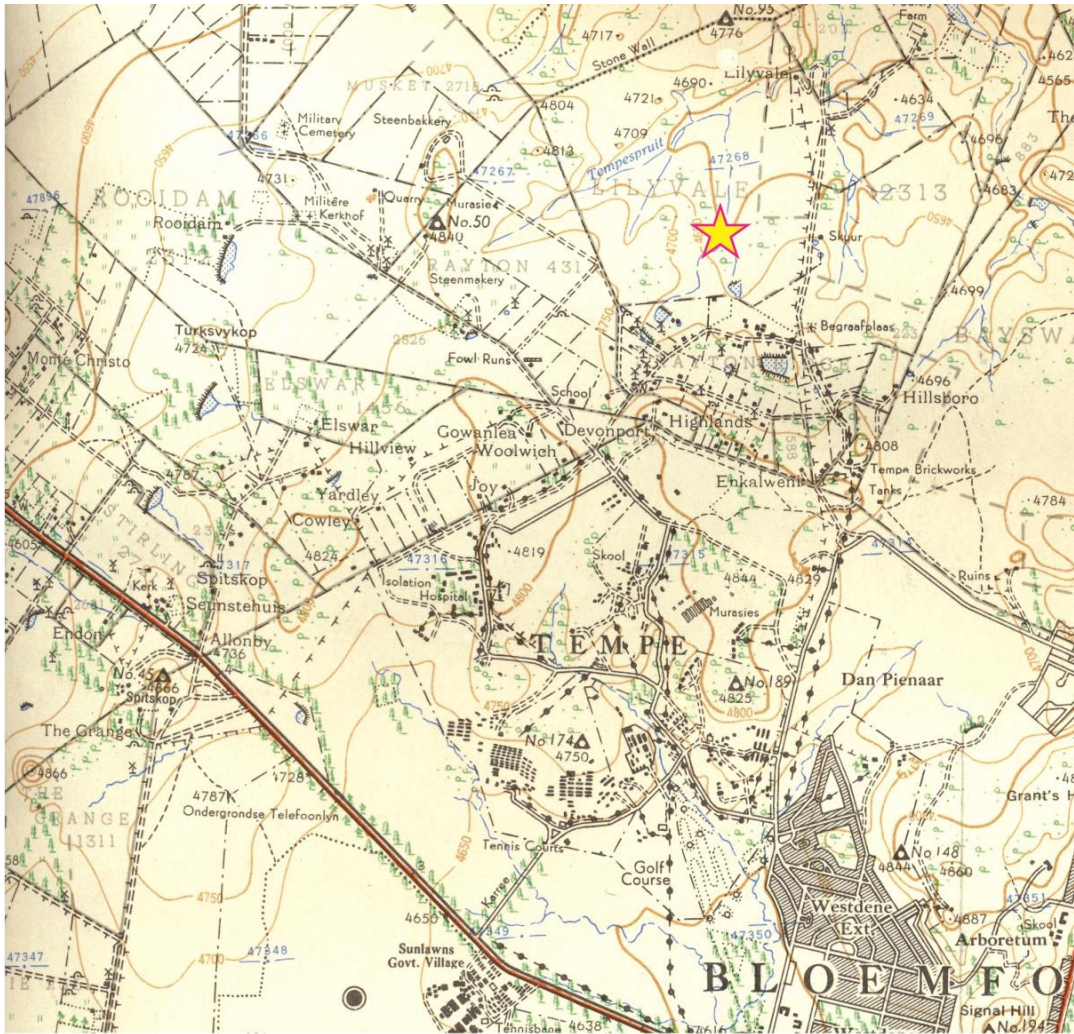


Figure 6. Site marked by yellow star on portions of 1:50 000 scale topographic map 2926 AA Bloemfontein dated 1951 (above) and British military map circa 1913, showing military garrison and camps in the surrounding area (below).



Figure 7. Military rubbish dump and its remains (top & center left), graves, (bottom left) and stone wall recorded east of the study area.



Figure 8. Weather-resistant erosional remnant of lava outcrop (dolerite sill)  
Scale 1 = 10 cm.



Figure 9. Historically recent disturbances at the site, eg. multiple dolerite heaps (above left), excavation rubble from a small dam (below left) and concrete foundations (right).  
Scale 1 = 10 cm.

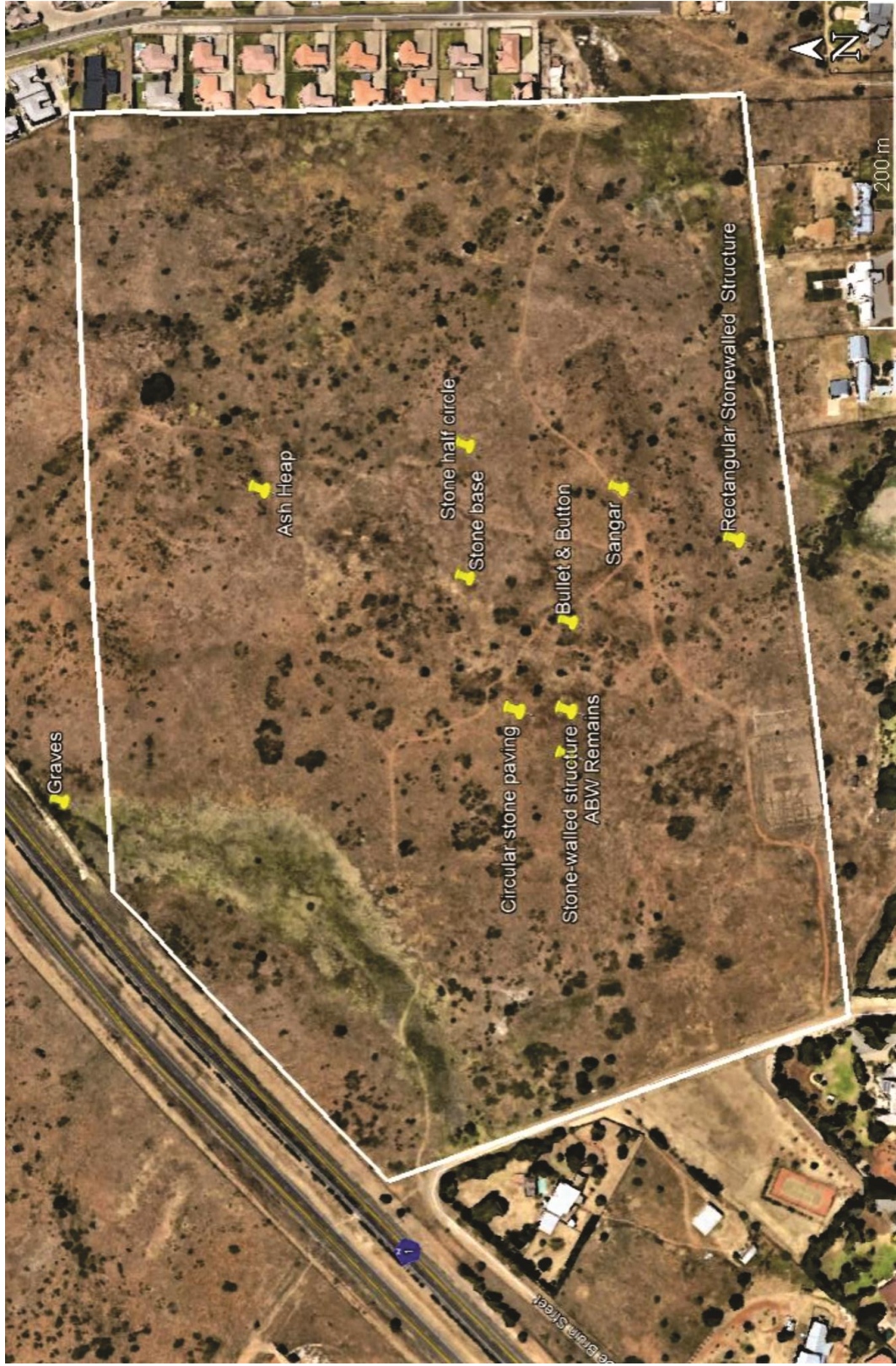


Figure 10. Aerial view and position of previously recorded historical structures recorded 18 years ago (Dreyer 2004d).





Figure 11. Historically significant remains recorded during current field assessment.

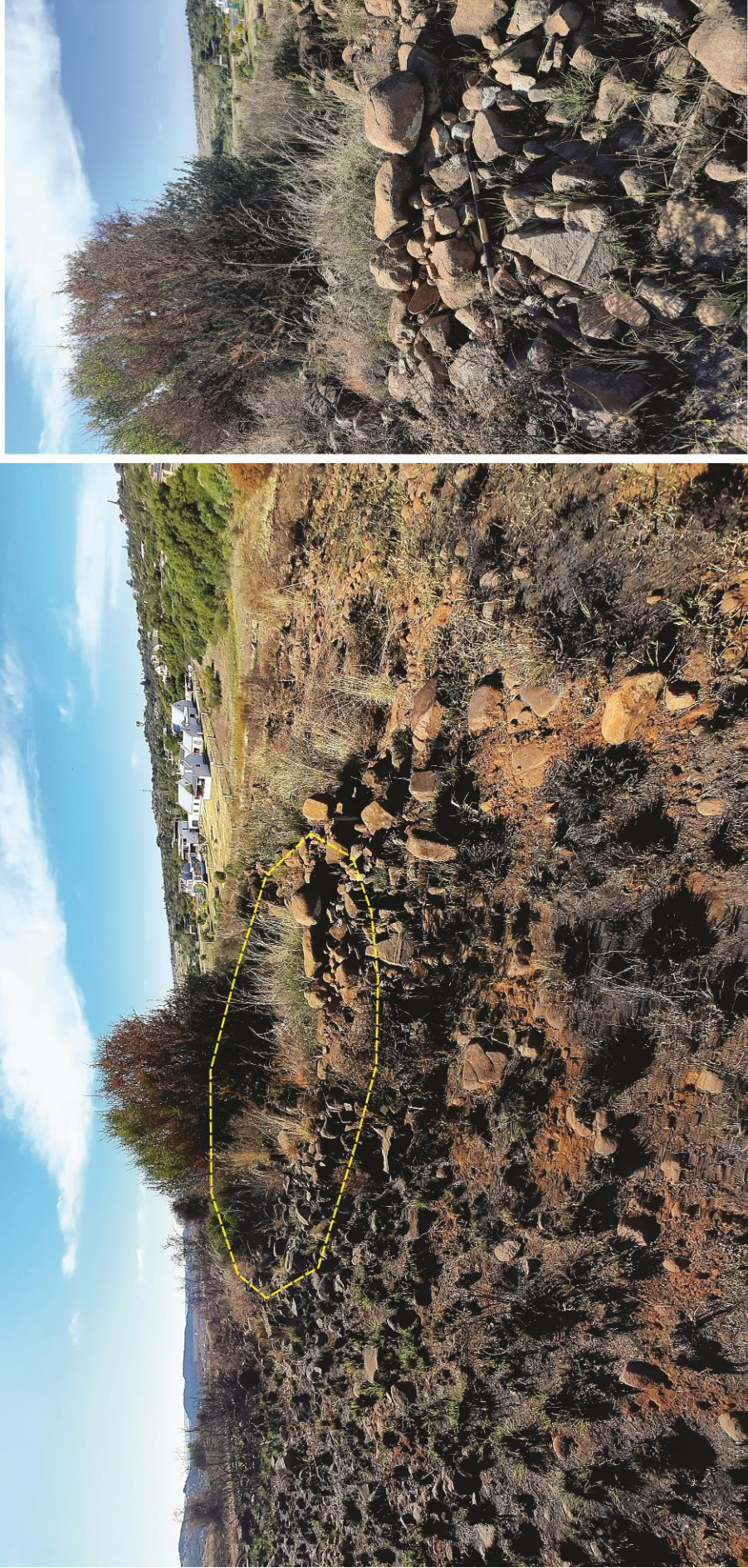


Figure 12. Remnants of a circular-shaped sangar, about 3 m in diameter and up to 50 cm in height



Figure 13. Remnants of a rectangular, stonewalled building located on a dolerite outcrop.  
Scale 1 = 10 cm.

