

Phase 1 Palaeontological Impact Assessment of Erf 1/22011 and Remainder of Erf 22011, Farm 654, Bloemfontein, FS Province.

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25 October 2017

Introduction

The report follows a field assessment of 15 geotechnical test pits excavated as recommended as prerequisite for planned residential and commercial development on Erf 1/22011 and Remainder of Erf 22011, situated at the junction of the R64 provincial road and N1 national road in Bloemfontein, Free State Province (Rossouw 2017) (**Fig. 1 & 2; Table 1**).

Methodology

The assessment was carried out in accordance with National Heritage Resources Act 25 of 1999 with the aim to assess the potential impact on palaeontological heritage resources that may result from the proposed development. The palaeontological significance of the affected areas were evaluated through a desktop study followed by an on-site inspection.

Background

According to the 1:250 000 scale geological map of the area the site is situated within the Beaufort Group, Adelaide Subgroup (Karoo Supergroup), primarily represented by late Permian, Balfour Formation sedimentary rocks, which are made up of alternating and potentially fossil-bearing sandstone and mudstone layers (**Fig. 3**). Outcrops of intrusive Jurassic dolerites (Karoo Dolerite Suite) and associated contact metamorphic metasediments are prevalent around the margins of the study area. As a result of the topography, overlying Quaternary overburden (superficial, residual deposits) largely represent surface lag deposits made up of well-developed, residual soils of varying depth.

Field Results

The site is located on flat, open grassland terrain that is mantled by a reddish brown to dark brown sandy to clayey soil (**Fig. 4**). The test pits were excavated by mechanical means while monitoring took place (**Fig. 5**). The size of each test pit was about 1 m wide x 4 m long x 2-3

m deep, extending into sedimentary bedrock, and were filled up immediately after each inspection. No fossil remains or fossil exposures were observed within the freshly exposed outcrop at each of the 15 test pits.

Impact Statement and Recommendations


The field assessment indicates that the proposed study area is underlain by sedimentary strata of the Late Permian Adelaide considered to be of low palaeontological sensitivity. The impact area is not situated within or near pan alluvial or spring deposits (considered to be potentially fossiliferous in the region). As far as palaeontological heritage is concerned, proposed development can proceed without further palaeontological assessment.

References

Rossouw, L. 2017. Palaeontological Desktop Assessment of Erf 1/22011 and Remainder of Erf 22011, Farm 654, Bloemfontein, FS Province. National Museum PO Box 266 Bloemfontein.

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 as a result of the authorization of this project and have no conflicting interests in the undertaking of the activity.



25 / 20 / 2017

Tables & Figures

Table 1. Testpit site coordinates

Site #	Coordinates
140	S29 05 28.1 E26 10 48.5
141	S29 05 24.0 E26 10 44.1
142	S29 05 21.4 E26 10 39.8
143	S29 05 23.5 E26 10 40.3
144	S29 05 26.3 E26 10 42.1
145	S29 05 29.2 E26 10 43.1
146	S29 05 31.4 E26 10 44.4
147	S29 05 33.2 E26 10 39.4
148	S29 05 31.0 E26 10 38.2
149	S29 05 27.9 E26 10 37.3
150	S29 05 25.3 E26 10 36.1
151	S29 05 22.6 E26 10 35.5
152	S29 05 34.4 E26 10 35.1
153	S29 05 29.6 E26 10 31.9
154	S29 05 23.4 E26 10 30.1

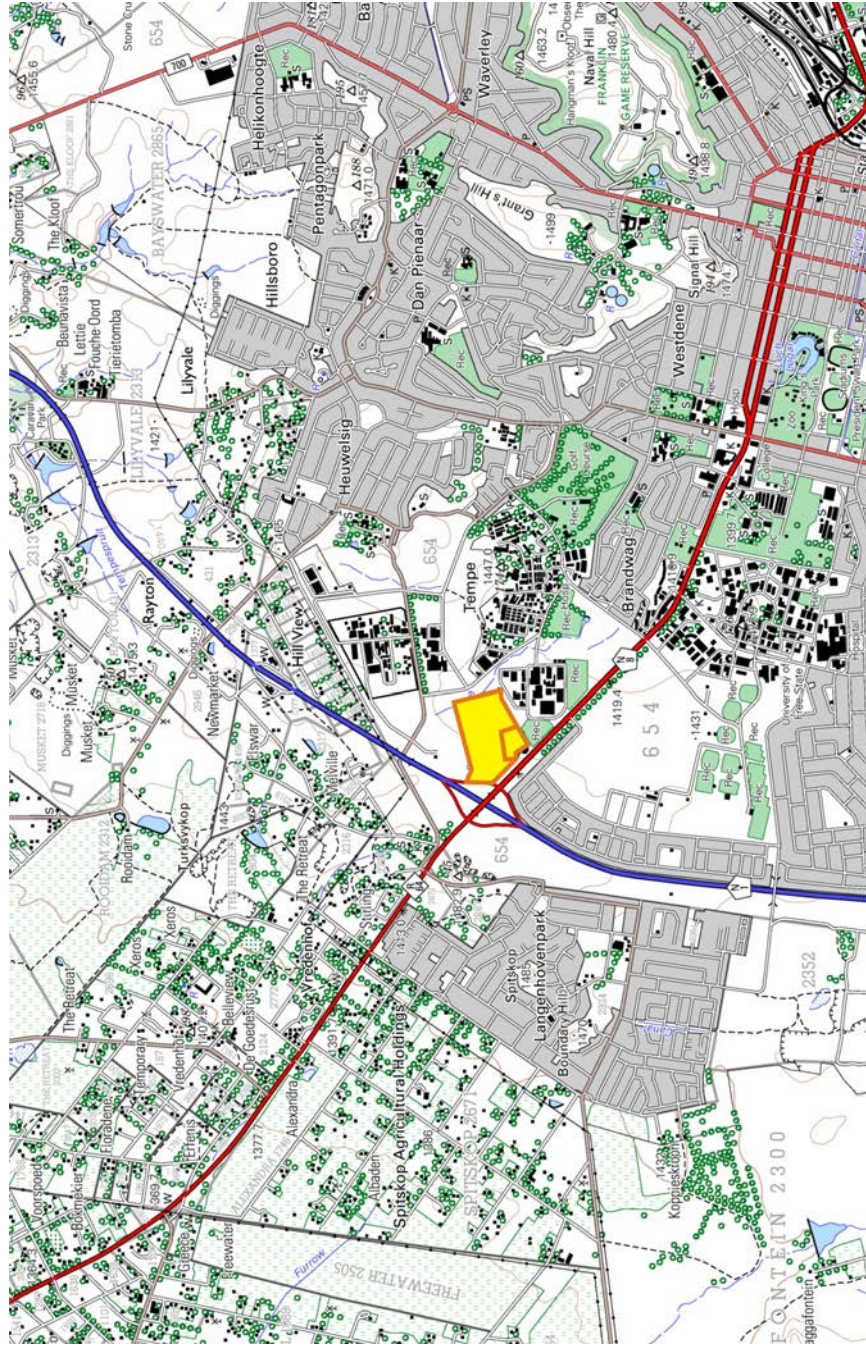


Figure 1. Map of the proposed development footprint (portion of 1:50 000 scale topographic 2926 AA Bloemfontein).

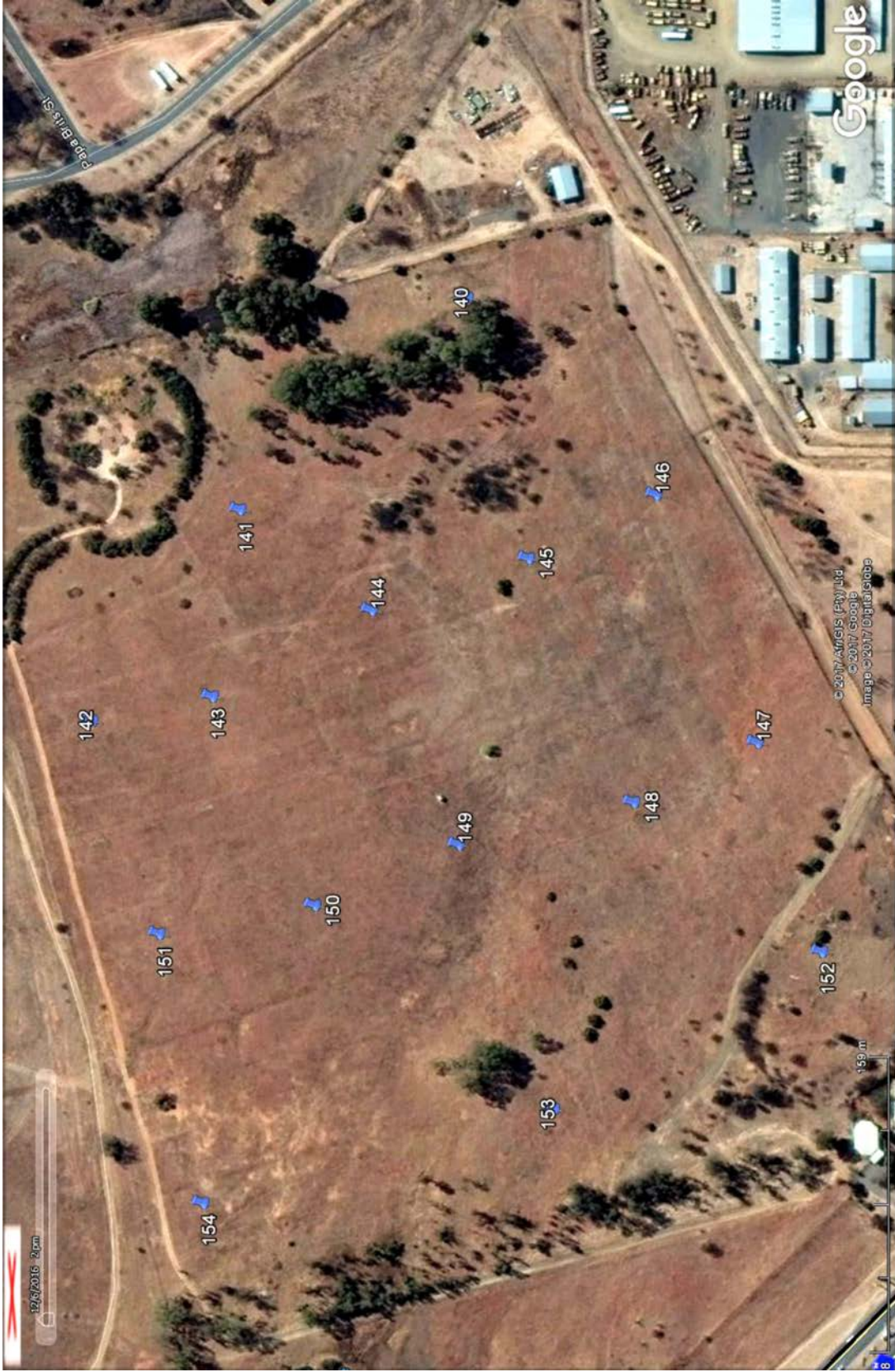


Figure 2. Aerial view of the test pit locations.

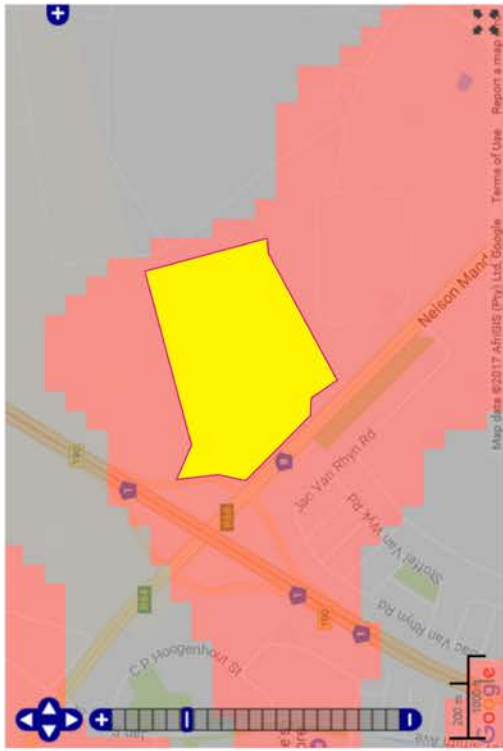


Figure 3. According to the online SAHRIS palaeo-sensitivity map, the site is located within an area considered to be of high palaeontological sensitivity (pink areas, see portion of 1:250 000 scale geological map 2926 Bloemfontein, bottom left, green areas), with sedimentary strata assigned to the Diccynodon Assemblage Zone (map bottom center). Distribution of vertebrate biozones of the Beaufort Group around Bloemfontein after Rubidge 1995.

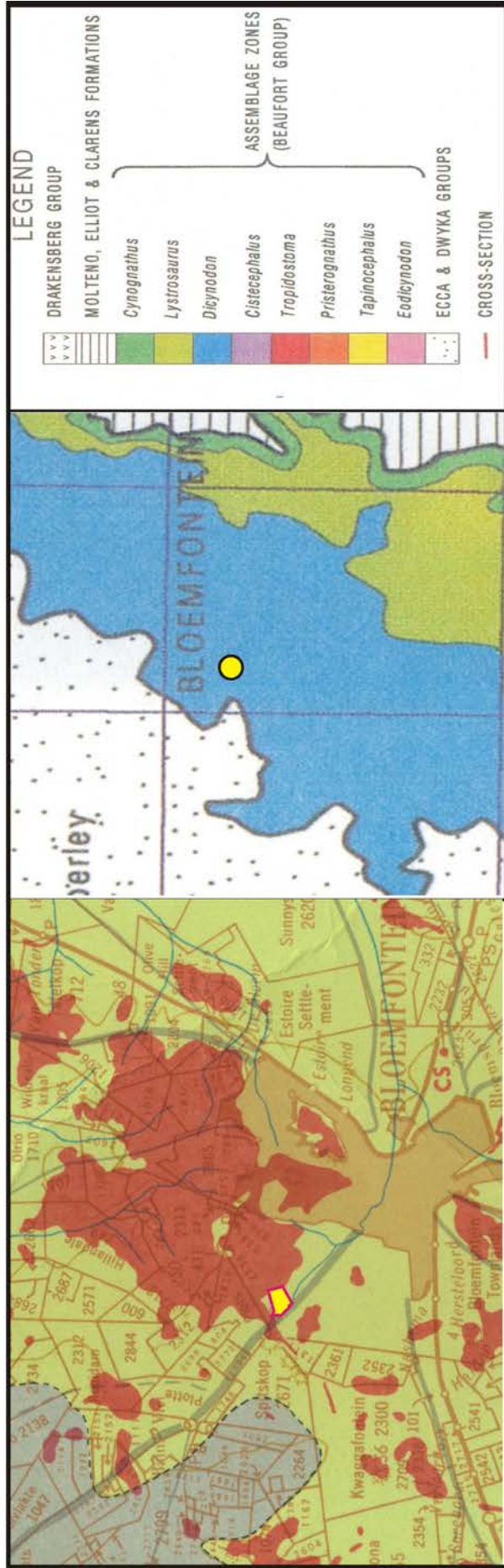




Figure 4. General view of the study area, looking north and northeast (top) and south (below).



Figure 5. The size of each test pit was about 1 m wide x 4 m long x 2-3 m deep and were filled up immediately after each inspection. Scale 1 = 30 cm.