

Palaeontological Impact Assessment for the Proposed development of the Hammanskraal Business Process Outsourcing and Technology Park, Gauteng

Desktop Study

For

Strategic Environmental Focus (Pty) Ltd

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Background

SAHRA (Case ID: 5117) requested that a palaeontological assessment be undertaken to assess whether or not the development will impact upon significant palaeontological resources. The client has proposed a development of the Hammanskraal Business Process Outsourcing and Technology Park which will utilise existing infrastructure on site and construct new additional infrastructure. The development is situated on the old University of Pretoria Hammanskraal Campus on Harry Gwala road, Hammanskraal. Below is the phase 1 or desktop palaeontological impact assessment .

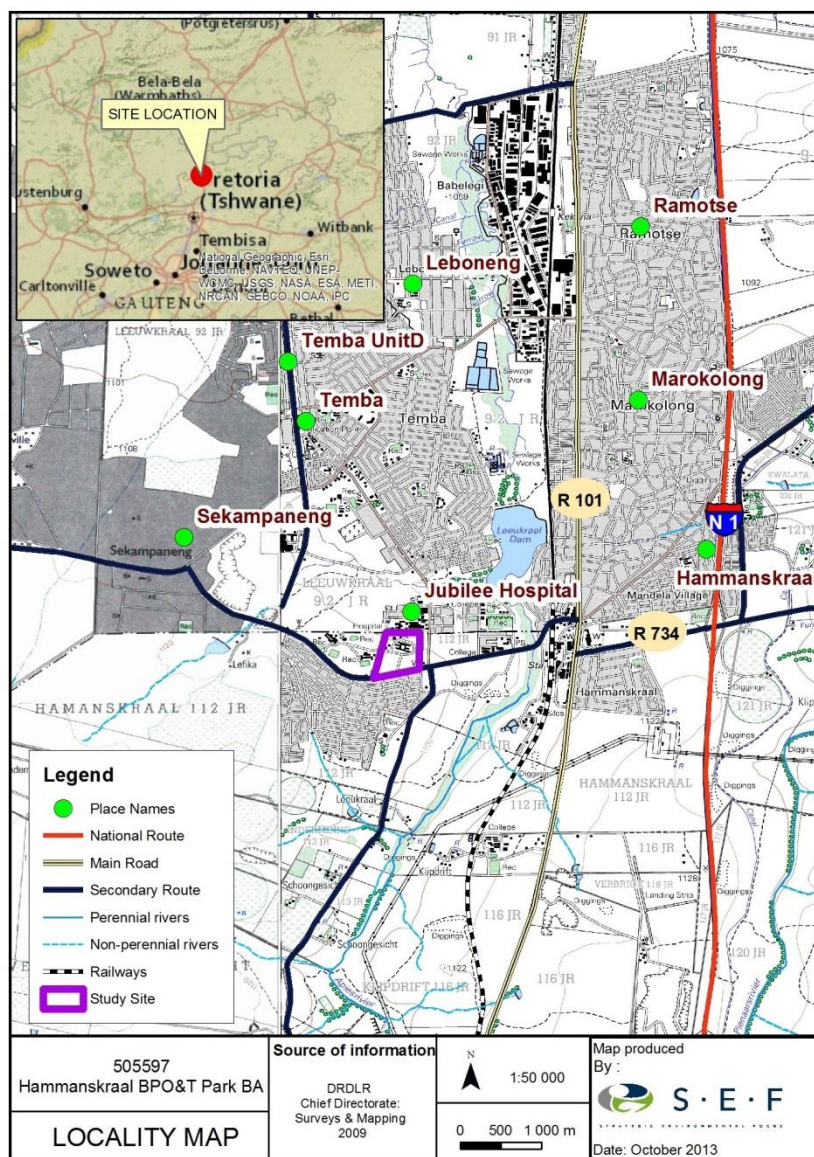


Figure 1. Location of proposed development outlined in purple. Map supplied by SEFSA

Methods

The published geological and palaeontological literature, unpublished records and databases were consulted to determine if there are any records of fossils from the sites and the likelihood of any fossils occurring there.

Geology and Palaeontology

Hammanskraal lies on ancient Proterozoic rocks of the Vaalian and Mokolian eras to the south with Permian rocks of the Ecca Group to the north (Fig 2). The ancient rocks are too old and metamorphosed to contain fossils. There are no records of fossil plants or animals from the Ecca shales except for an outlying kaolinitic deposit that appears to be unrelated to the main Karoo basin.

The Hammanskraal Formation occurs in the Springbok Flats Basin and although it has coal deposits the outcrop is very poor (Johnson et al., 2006) and there are no outcrops in the vicinity of the town of Hammanskraal. The kaolinite and clay quarries of Cullinan Refractories Ltd are more than 5 km to the south east of Hammanskraal and the proposed development. They are Early Permian (Artinskian) in age or Middle Ecca Vryheid Formation. The isolated basin that has been quarried contained fossil plants of the *Glossopteris flora* (Smithies, 1978; Anderson and Anderson, 1985; Kovacs –Endrody, 1978, 1991). There is no evidence of similar deposits on the proposed site.

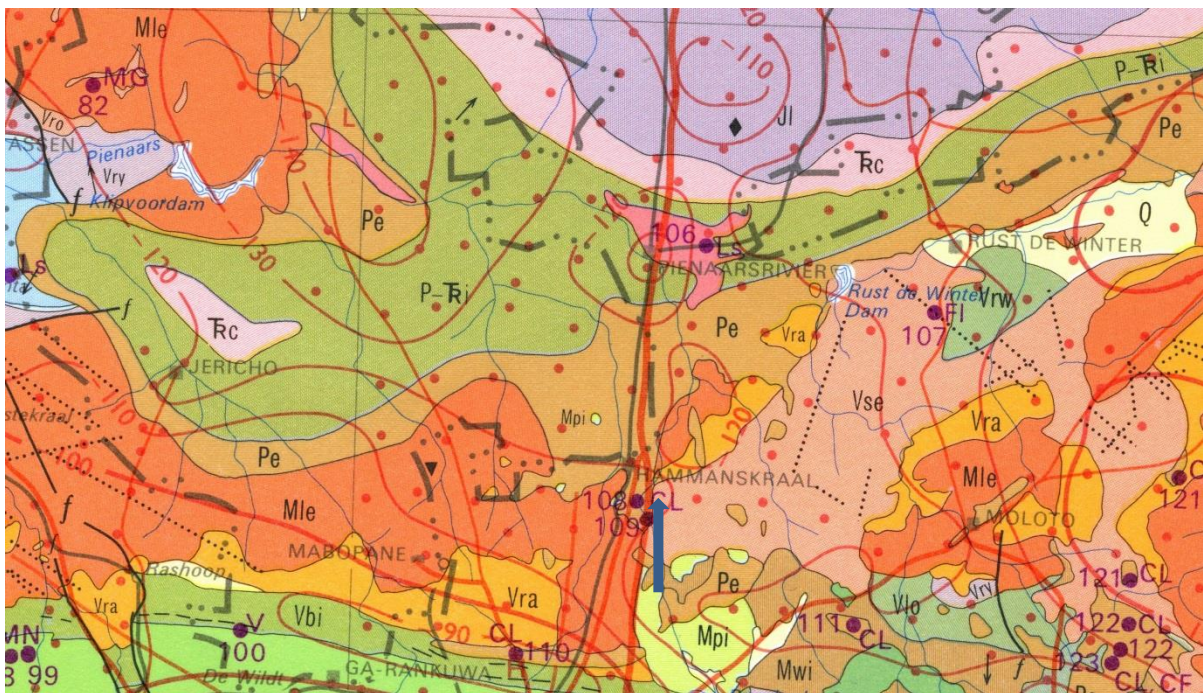


Figure 2. Geological map of the surrounding area of Hammanskraal (arrow). Abbreviations of the rock types are explained in Table 1. Map enlarged from the Geological Survey 1: 1 000 000 map 1984.

Symbol	Group/Formation	Lithology	Approximate Age
Q	Quaternary	Alluvium, sand, calcrete	Recent
P-Tr	undifferentiated	Shales, sandstones, mudstones, coal	Permian and Triassic, Karoo; 280-200 Ma
Pe	Ecca	Shales	Early Permian, Artinskian
Mpi	Pienaars Rivier Complex	Syenite, foyaite, trachyandesite, tuff, carbonatite	Intrusive, 2100-1200 Ma
Mle	Lebowa Granite Suite	granite	2050 Ma
Vse	Selons River Formation, Rooiberg Group	Red porphyritic rhyolite	Rooiberg Group age 2050 Ma
Vra	Rashoop granophyre Suite	granophyre	Rooiberg Group age 2050 Ma

Table 1: Explanation of symbols for the geological map and approximate ages taken from Cawthorn et al. (2006), Eriksson et al., (2006), Vervoed (2006); Verwoed and du Toit (2006).

Recommendation

Since the rocks in this region are either mostly much too old (Proterozoic in age) to contain fossils or are metamorphic or igneous, or no fossils have been recorded, it is extremely unlikely that any fossils will be found in the proposed construction area. If, however, any fossils are discovered during the construction then it is strongly recommended that a palaeontologist be called to assess their importance and rescue them if necessary.

As far as the palaeontology is concerned the proposed development can go ahead. A phase 2 study is not necessary.

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