



## BPI for Palaeontological Research

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Dear Mr Khupe,

**Palaeontological Report – Proposed Ramphele PV Solar Energy Facility, on farms Klipdrift and Kookfontein, Richie**

As requested, herewith a desk top study with regard to the palaeontological aspect of environmental management relevant to the proposed Ramphele PV Solar Energy Facility, on the farms Klipdrift and Kookfontein, Richie, Northern Cape Province.

As will be evident from my report the proposed development will not have negative effect on palaeontological heritage. From a palaeontological perspective the development may proceed, but I have included a mitigation clause if fossils are unearthed in the development process

Yours sincerely

**Bruce Rubidge** PhD, FGSSA, Pr Sci Nat

## **PALAEONTOLOGICAL ASSESSMENT –**

### **1. PROPOSED RAMPHELE PV SOLAR ENERGY FACILITY, RICHIE, NORTHERN CAPE PROVINCE**

#### **1.1 Applicant:**

Solar Capital (Pty) Ltd

#### **1.2 Proposed activity:**

Establishment of a photovoltaic solar energy facility and associated infrastructure.

#### **1.3 Location**

Farm Klipdrift and Kookfontein 109/10 near Richie, Siyancuma Local Municipality, Northern Cape Province.

## **2.REPORT**

### **2.1 Methodology**

For this desk top study the 2924 Koffiefontein 1:250 000 Geological Map was consulted to determine the rock formations present in the area where the proposed development will occur. Combining literature review with personal experience the likelihood of damage to fossil heritage was determined.

### **2.2 Geology of the area affected by the proposed development**

The area to be developed (Figure 1) is deeply underlain by rocks of the Precambrian Allanridge Formation of the Ventersdorp Supergroup which are exposed in small area in the northernmost part of the property, and the Permian Tierberg Formation of the Ecca Group of the Karoo Supergroup which is not exposed at all. These basement rocks are in turn overlain by Quaternary alluvial deposits which cover most of the property.

### **2.3 Potential of finding fossils**

There is no possibility of fossils in the Precambrian Ventersdorp Supergroup which are exposed in a small area in the northern part of the property. As almost the entire area is covered by sediments there is the potential that fossils could be present in the area. The Tierberg Formation is not known to be very rich in fossils having yielded only odd plant fragments and isolated fish scales and bones. These rocks were deposited in a prodelta environment. The potential of fossils being present in the Quaternary alluvial deposits is also very limited.

### **2.4 Recommendation**

In my opinion the chances of fossils being damaged in the process of development of the proposed photovoltaic solar energy facility and associated infrastructure are extremely limited. However because all sedimentary deposits have the potential to preserve fossils it is essential that if fossilized remains of plants or animals are encountered in the process of development a professional palaeontologist must be consulted so that the necessary rescue operations are implemented. Depending on the nature of the fossil discovered, this could entail excavation and removal to a registered palaeontological museum collection. A list of professional palaeontologists is available from South African Heritage Resources Agency (SAHRA)

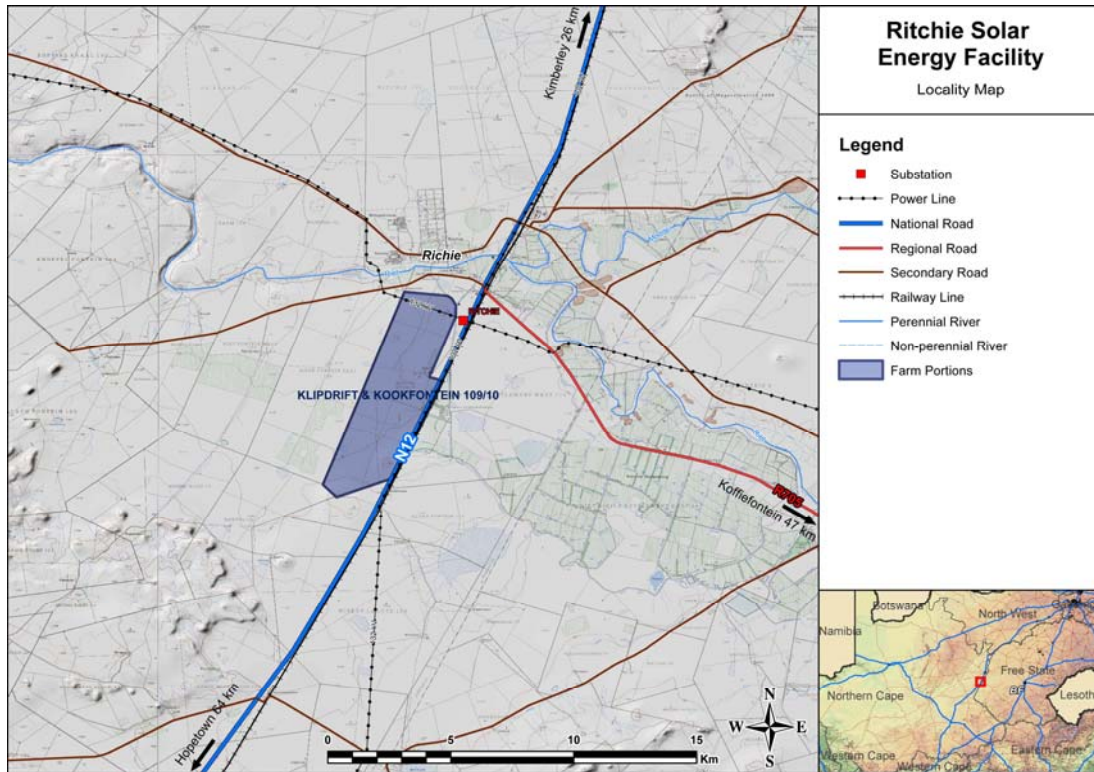


Figure 1: Locality of the proposed development on the farms Klipdrift Kookfontein near Ritchie, Siyancuma Local Municipality, Northern Cape Province.

## BIBLIOGRAPHY

Almond J.E., de Klerk B, and Gess R.W. (in prep). Palaeontological heritage of the Eastern Cape. SAHRA technical report.

Johnson M.R., van Vuuren C.J., Visser J.N.J., Cole, D.I., Wickens H.deV., Christie A.M., Roberts D.L. & Brandl G. 2006. Sedimentary rocks of the Karoo Supergroup. *In: Johnson MR, Anhaeusser and Thomas RJ (Eds). The Geology of South Africa.* Geological Society of South Africa, Johannesburg/Council for Geoscience, Pretoria. 361-500.

Mac Rae C. 1999. *Life etched in stone: fossils of South Africa.* The Geological Society of South Africa, Johannesburg, pp 305.

McCarthy, T.S. and Rubidge, B.S. 2005. *The story of Earth and Life – a southern African perspective on the 4.6 billion year journey.* Struik Publishers, Cape Town. pp 333.

Partridge TC, Botha GA, and Haddon IG. 2006. Cenozoic deposits of the interior. *In: Johnson MR, Anhaeusser and Thomas RJ (Eds). The Geology of South Africa.* Geological Society of South Africa, Johannesburg/Council for Geoscience, Pretoria. pp. 585-604.

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