RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES:

PROPOSED DEVELOPMENT OF THE KISON SOLAR ENERGY FACILITY NEAR POLOKWANE, POLOKWANE LOCAL MUNICIPALITY, LIMPOPO PROVINCE

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1. OUTLINE OF PROPOSED DEVELOPMENT

The company Networx Renewables (Pty) Ltd is proposing to develop a commercial photovoltaic (PV) solar energy facility, known as the Kison Solar Energy Facility with a generating capacity of up to 75 MW, as well as associated infrastructure, on portion 19 of the farm Snymansdrift 738, situated approximately 15 km southwest of Polokwane, Polokwane Local Municipality, Limpopo Province (Fig. 1). The solar facility will be located within a study area of 125 hectares.

The main infrastructural components of the proposed solar energy facility include:

- Mounting structures for the solar panels to support the PV panels;
- An on-site inverter to step up the power and a substation to facilitate the connection between the solar energy facility and the Eskom electricity grid;
- An overhead power line to loop-in and loop out of the existing SAR Geyser – Witkop 132kV power line which traverses the site along the south-western boundary;
- Cabling between the projects components, to be laid underground where practical;
- Workshop area for maintenance and storage;
- Internal access roads and fencing.

This palaeontological heritage assessment comment was commissioned as a component of a comprehensive EIA for the proposed solar energy facility by Heritage Contracts and Archaeological Consulting CC (HCAC) (Contact details: Mnr Jaco van der Walt. Postnet Suite No. 426, Private Bag X4, Wierda Park, 0149. E-mail: contracts.heritage@gmail.com. Fax: 086 691 6461).

2. GEOLOGICAL BACKGROUND

The Kison solar energy facility study area *c*. 15 km southwest of Polokwane lies between the R101 tar road to Mokapane and the N1 and railway line, just east of Sandrivier Station. It comprises very flat-lying terrain at *c*. 1330-1360 m amsl, currently largely agricultural land, and satellite images show that bedrock exposure is negligible.

The geology of the study area is shown on 1: 250 000 geology map (metallogenic series) 2428 Nylstroom / Modimolle (Ehlers & Du Toit 2002) (Fig. 2). The area is entirely underlain by ancient Precambrian (Arcahean) granite-gneisses of the **Goudplaats – Hout River Gneiss Suite** that has been dated to approximately 3.3 Ga (billion years) (Robb *et al.* 2006). SW-NE trending mafic rocks of the Pietersburg Group (Pietersburg Greenstone Belt, Brandl *et al.* 2006) crop out to the south of the R101. The SW-NE trending Ysterberg Fault runs close to the southern edge of the study area. The Archaean granitoid bedrocks are mantled by **Caenozoic superficial deposits** such as downwasted gravels, alluvium and soils.

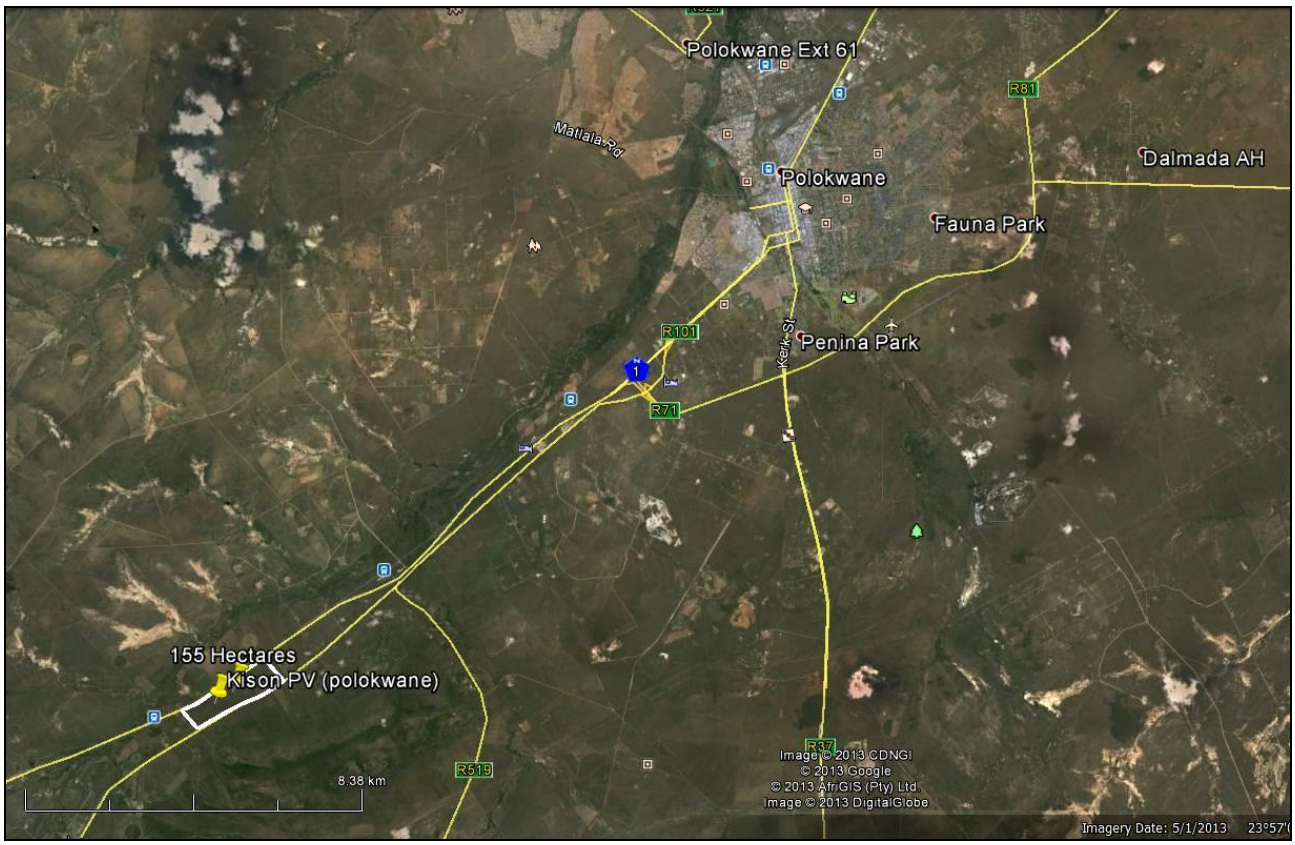

Figure 1: Google earth© satellite image showing the boundaries of the study area for the proposed Kison solar energy facility situated *c.* 15 km southwest of Polokwane, Limpopo (white polygon).

3. PALAEONTOLOGICAL HERITAGE

Intrusive igneous and high grade metamorphic rocks such as the granitoid gneisses underlying the study area are entirely unfossiliferous, as well as being far too old to contain macroscopic fossil remains. The overlying Caenozoic superficial sediments are likewise of low to very low palaeontological sensitivity.

4. CONCLUSIONS & RECOMMENDATIONS

The proposed Kison solar energy facility near Polokwane, Limpopo, is underlain by unfossiliferous Precambrian gneisses as well as superficial sediments (gravels, soils *etc*) of low palaeontological sensitivity. The impact significance of the development on local fossil heritage resources is considered to be LOW.

It is therefore recommended that exemption from further specialist palaeontological studies is granted for the proposed Kison solar energy facility near Polokwane.

Any substantial fossil remains (*e.g.* fossil shells, petrified wood or plant remains, vertebrate bones, teeth) encountered during excavation should be reported to SAHRA (Contact details: Ms. Colette Scheermeyer, South African Heritage Resources Agency, 111 Harrington Street. P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502. Email: cscheermeyer@sahra.org.za. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) for possible mitigation by a professional palaeontologist.

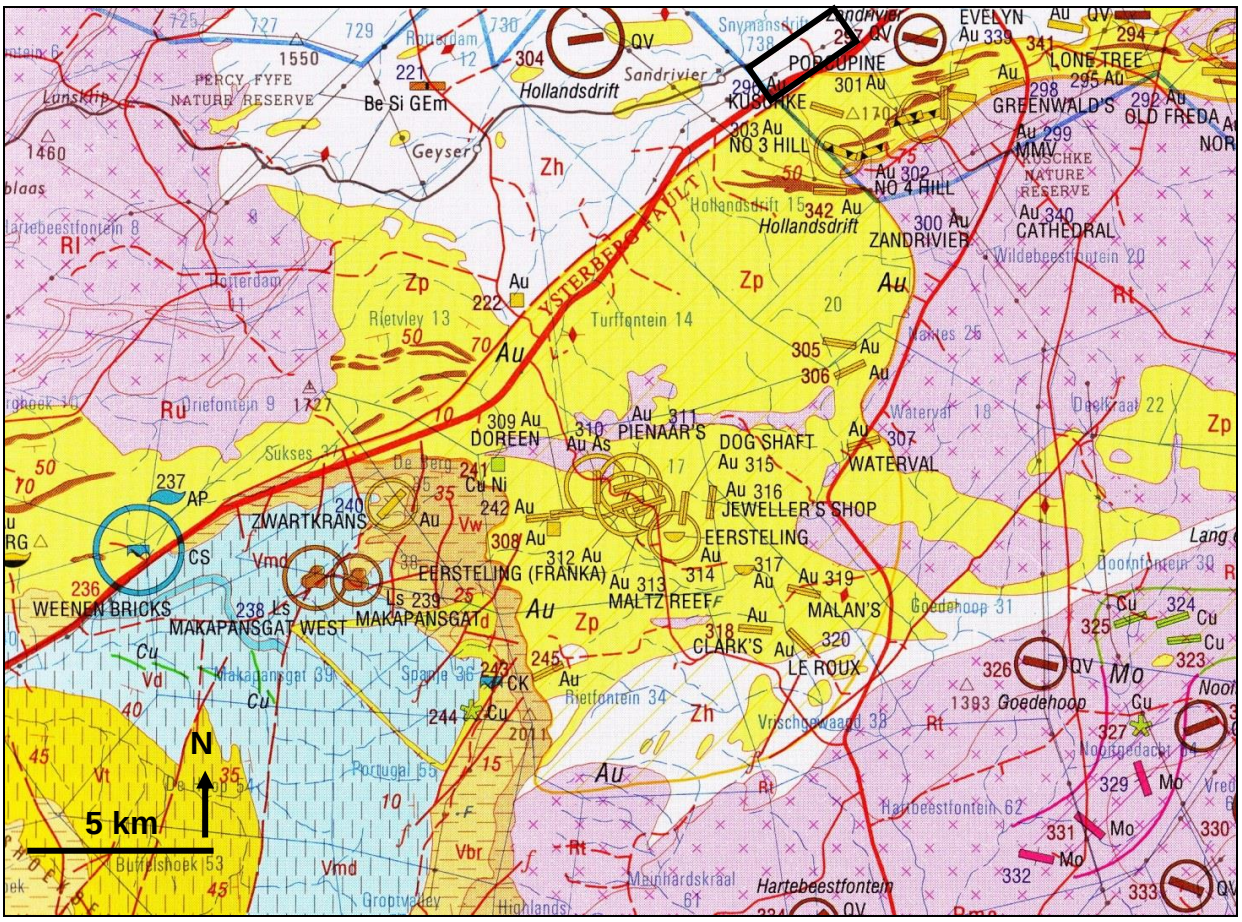

Fig. 2. Extract from 1: 250 000 geological map (metallogenic series) 2428 Nylstroom / Modimolle (Council for Geoscience, Pretoria) showing the approximate location of the proposed Kison solar energy facility study area (black polygon) to the southwest of Polokwane (previously Pietersburg). The area is entirely underlain by Archaean high grade metamorphic rocks mapped here as the Houtrivier Gneiss (white, Zh). The Goudplaats Gneiss (yellow, Zp) of comparable age is interleaved to the south of the study area by Archaean greenstones of the Petersburg Greenstone Belt (dark brown strips).

5. REFERENCES

BRANDL, G., CLOETE, M. & ANHAEUSSER, C.R. 2006. Archaean greenstone belts. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (Eds.) The geology of South Africa, pp. 9-56. Geological Society of South Africa, Marshalltown.

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ROBB, L.J., BRANDL, G., ANHAEUSSER, C.R. & POUJOL, M. 2006. Archaean granitoid intrusions. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (Eds.) The geology of South Africa, pp. 57-94. Geological Society of South Africa, Marshalltown.

8. QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Dr John Almond has an Honours Degree in Natural Sciences (Zoology) as well as a PhD in Palaeontology from the University of Cambridge, UK. He has been awarded post-doctoral research fellowships at Cambridge University and in Germany, and has carried out palaeontological research in Europe, North America, the Middle East as well as North and South Africa. For eight years he was a scientific officer (palaeontologist) for the Geological Survey / Council for Geoscience in the RSA. His current palaeontological research focuses on fossil record of the Precambrian - Cambrian boundary and the Cape Supergroup of South Africa. He has recently written palaeontological reviews for several 1: 250 000 geological maps published by the Council for Geoscience and has contributed educational material on fossils and evolution for new school textbooks in the RSA.

Since 2002 Dr Almond has also carried out palaeontological impact assessments for developments and conservation areas in the Western, Eastern and Northern Cape under the aegis of his Cape Town-based company *Natura Viva* cc. He is a long-standing member of the Archaeology, Palaeontology and Meteorites Committee for Heritage Western Cape (HWC) and an advisor on palaeontological conservation and management issues for the Palaeontological Society of South Africa (PSSA), HWC and SAHRA. He is currently compiling technical reports on the provincial palaeontological heritage of Western, Northern and Eastern Cape for SAHRA and HWC. Dr Almond is an accredited member of PSSA and APHAP (Association of Professional Heritage Assessment Practitioners – Western Cape).

Declaration of Independence

I, John E. Almond, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.

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