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Ms Natasha Higgett
Heritage Officer Archaeology, Palaeontology & Meteorites Unit
South African Heritage Resources Agency
111 Harrington Street
Cape Town 8001

Dear Ms Higgett

RE: Request for Exemption for further Palaeontological Impact Assessment for the proposed Vhuvhili Solar Voltaic (PV) Energy Facility, Secunda.

With respect to the interim comment (18822) my reply is to the palaeontology aspect of the SAHRA as explained below

Overview: The Project Applicant, Vhuvhili Solar RF (Pty) Ltd is proposing to design, construct and operate the Vhuvhili Solar Photovoltaic (PV) Energy Facility, and associated infrastructure approximately 7 km south-east of the town of Secunda in the Govan Mbeki Local Municipality and the Gert Sibande District Municipality in the Mpumalanga Province.

CSIR have been appointed by ENERTRAG South Africa (Pty) Ltd to conduct an Environmental Authorisation (EA) Application for the proposed Vhuvhili Solar Photovoltaic Facility near Secunda, Mpumalanga Province.

In the **Interim Comment** you have requested that a site visit be done: "SAHRA requests that a field-based PIA of the proposed development be conducted. The survey of the adjacent property is not accepted." I am asking you to reconsider this request for the following reasons:

1. In essence a site survey has already been done on this site by the archaeologist, Dr Jayson Oroton, and he could find no rocky outcrops that could potentially have fossils.
2. The adjacent site observations confirm this observation of no surface fossils for the Vhuvhili site.

3. As can be seen from the satellite imagery (attached), the site has been farmed and the land is disturbed.
4. The geological maps (and so the palaeosensitivity) are based on drill core results and not surface exposures. See **bold** below from the report that is in progress.
5. It is highly unlikely that the PVs and infrastructure will penetrate below 12m from the land surface to where the uppermost fossils might occur (in case they do a fossil chance find protocol will be added to the report).

b. The southern sections are on non-fossiliferous dolerite of Jurassic age.
c. Mostly the moderately sensitive Quaternary alluvium and sands along the rivers and streams are likely to be avoided based on the ecological criteria. Any fossils occurring here would be transported and fragmented so of limited scientific value.
d. The central parts are on shales and sandstones of the Vryheid Formation (Early Permian Ecca Group, Karoo Supergroup) that are potentially fossiliferous and so very highly sensitive according to the SAHRIS palaeosensitivity map. Potential fossils would be associated with the coal seams and would be impressions of the *Glossopteris* flora (*Glossopteris* leaves, lycopods, sphenophytes, ferns and early gymnosperms; Plumstead, 1969). In this Witbank coalfield of Mpumalanga, coal seams 1-5 (from base to top) are present at various levels below the ground surface. **Seams 2 and 4 are the thickest seams (Snyman, 1998, based on core material) and the uppermost seam, No 5, is between 12 and 45m below the surface. In all areas, the uppermost seam is overlain by soils, shales and sandstones of varying thicknesses**.

The **Vryheid Formation** lies on the uneven topography of pre-Karoo or Dwyka Group rocks in the northern and northwestern margins, but lies directly on the Pietermaritzburg Formation in the central and eastern part. The lithofacies show a number of upward-coarsening cycles, some very thick, and they are essentially deltaic in origin. There are also delta-front deposits, evidence of delta switching, and fluvial deposits with associated meandering rivers, braided streams, back swamps or interfluves and abandoned channels (Cadle et al., 1993; Cairncross, 1990; 2001; Johnson et al., 2006). Coal seams originated where peat swamps developed on broad abandoned alluvial plains, and less commonly in the backswamps or interfluves. Most of the economically important coal seams occur in the fluvial successions (ibid). In the east (Mpumalanga and northern KwaZulu Natal), the Vryheid Formation can be subdivided into a lower fluvial-dominated deltaic interval, a middle fluvial interval, and an upper fluvial-dominated deltaic interval again (Taverner-Smith et al., 1988).

Summary and request

Specialists are not obliged to, nor are allowed to, dig or excavate the project areas to see below the sands and soil, and **since we have already verified that there are no surface fossils**, we have to wait until the excavations commence to know what id below the surface. Therefore, I request that you do not insist on a site visit before the excavations have commenced (and then, only when fossils are found).

Yours faithfully

Prof Marion Bamford
Palaeobotanist; PhD (Wits 1990)

Key References cited:

Johnson, M.R., van Vuuren, C.J., Visser, J.N.J., Cole, D.I., Wickens, H.deV., Christie, A.D.M., Roberts, D.L., Brandl, G., 2006. Sedimentary rocks of the Karoo Supergroup. In: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J., (Eds). The Geology of South Africa. Geological Society of South Africa, Johannesburg / Council for Geoscience, Pretoria. Pp 461 – 499.

Snyman, C.P., 1998. Coal. In: Wilson, M.G.C., and Anhaeusser, C.P., (Eds). The Mineral Resources of South Africa: Handbook, Council for Geosciences 16, 136-205.

Palaeosensitivity map:
https://sahris.sahra.org.za/map/palaeo

Declaration of Independence

This letter has been compiled by Professor Marion Bamford, of the University of the Witwatersrand, sub-contracted by ASHA Consulting, South Africa. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision making process for the Project.

Specialist: Prof Marion Bamford

Signature: