

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Palaeosciences Centre, East Campus, 1 Jan Smuts Avenue, Braamfontein, Johannesburg
Private Bag 3, WITS 2050, Johannesburg, SOUTH AFRICA Tel: 011 717 6682

Marion.bamford@wits.ac.za

20 April 2024

Dr Ragna Redelstorff
Heritage Officer Archaeology, Palaeontology & Meteorites Unit
South African Heritage Resources Agency
111 Harrington Street
Cape Town 8001

Dear Dr Redelstorff

RE: Request for Exemption of any Palaeontological Impact Assessment for the proposed WTP for the Nkomati Nickel Mine in the Mpumalanga Province



Figure 1: Google Earth site map for the Nkomati Nickel Mine and the Water Treatment works on old infrastructure (pink and red).

In my capacity as a professional palaeontologist, I am requesting exemption for palaeontological impact assessment in terms of the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998) which requires that the proposed development must be preceded by the relevant impact assessment, in this case for palaeontology.

Project Description

Nkomati Nickel mine is proposing to develop a water treatment plant (WTP) for the mine that is located in Mpumalanga (Figure 1). The WTP will be on old mine dumps and infrastructure so the land has been transformed already.

Geology and Palaeontology

The existing mine is on non-fossiliferous rocks of the Rustenburg Layered Suite of the Bushveld Igneous Complex (Cawthorn et al., 2006) and the infrastructure is to the south on potentially very highly sensitive rocks of the Malmani Subgroup (Chuniespoort Group, Transvaal Supergroup) that might preserve trace fossils such as stromatolites (Figure 2; Table 1; Eriksson et al., 2006). The proposed WTP footprint is on an already highly disturbed site, therefore it is very unlikely that any fossils remain.

The very high palaeosensitivity (red in Figure 3), therefore, is no longer the case because of previous mining activities and infrastructure.

Since there is no chance of fossils occurring in the project footprint, we request exemption from any further palaeontological impact assessment.

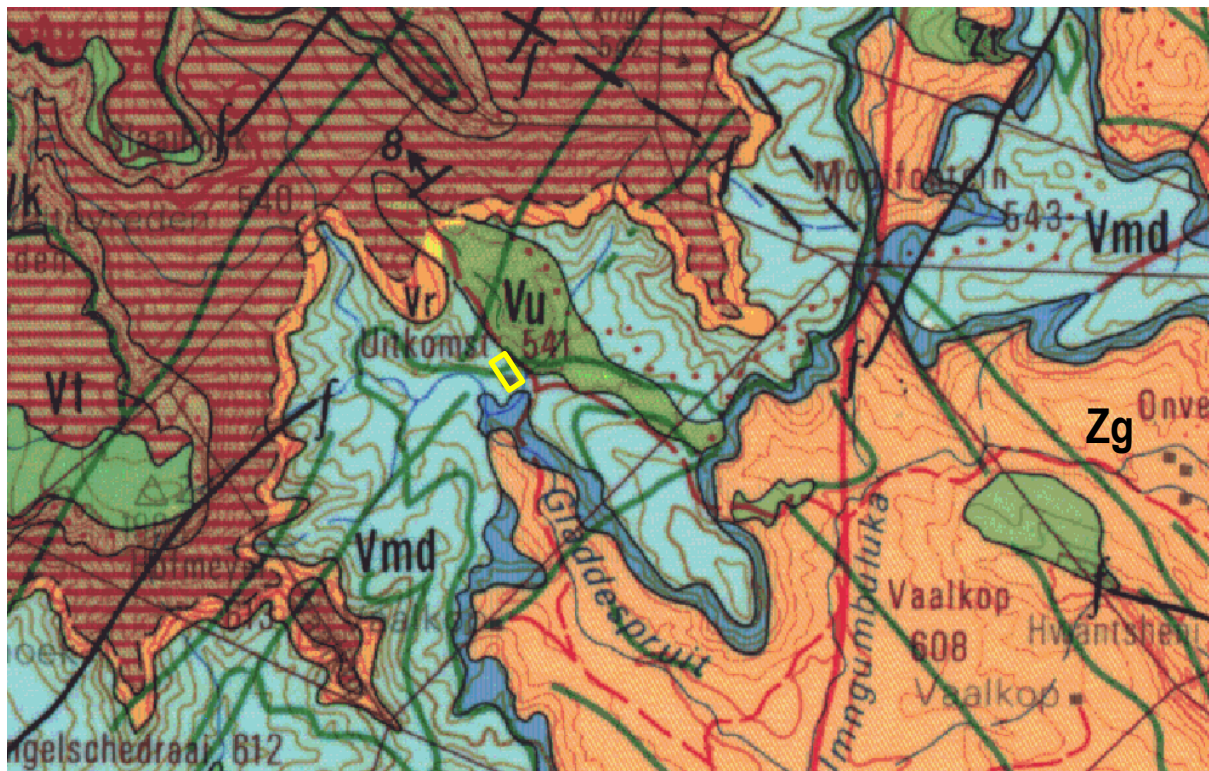


Figure 2: Geological map of the area around the Nkomati Nickel Mine and proposed WTP site indicated within the yellow rectangle. Abbreviations of the rock types are in Table 1 below Map enlarged from the Geological Survey 1: 250 000 map 2530 Barberton.

Table 1: List of abbreviations of the formations and rock types in Figure 2.

Symbol	Group/Formation	Lithology	Approximate Age
Vu	Uitkomst Suite, Rustenburg Latered Suite, Bushveld Igneous Complex	Pyroxenite, chromitite, peridotite, gabbro	Palaeoproterozoic Ca 2056-2055 Ma
Vt	Timeball hill Fm, Pretoria Group, Transvaal SG	Shale, siltstone, conglomerate in places; dotted = Quartzite	Palaeoproterozoic Ca 2316 – 2266 Ma
Vmd	Malmani Subgroup, Chuniespoort Group, Transvaal SG	Dolomite, chert	Palaeoproterozoic Ca 2585 – 2480 Ma
Vbr	Black Reef Fm, Transvaal SG	Quartzite, conglomerate, shale	Palaeoproterozoic <2618 Ma
Zg	Basement granites	Granites, gneiss	Archaean >3500 Ma

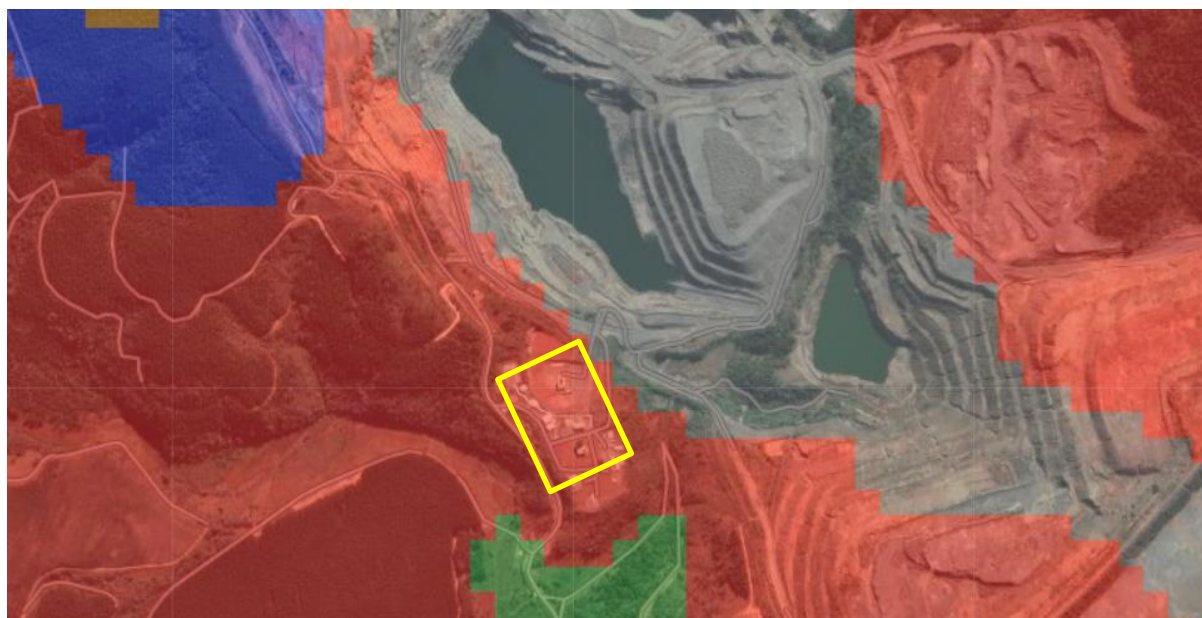


Figure 3: SAHRIS palaeosensitivity map for the site for the proposed WTP for Nkomati Nickel Mine within the yellow rectangle. Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

Yours faithfully

Prof Marion Bamford
Palaeobotanist; PhD (Wits 1990)

Reference cited:

Cawthorn, R.G., Eales, H.V., Walraven, F., Uken, R., Watkeys, M.K., 2006. The Bushveld Complex. 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 261-281.

Eriksson, P.G., Altermann, W., Hartzer, F.J., 2006. The Transvaal Supergroup and its precursors. 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 237-260..

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 WSP Group Africa (Pty) Ltd, 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:

