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28 February 2023

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

Dear Ms Higgitt

RE: Request for Exemption of any Palaeontological Impact Assessment for the proposed development of a filling station and associated infrastructure along the R25 in Bronkhorstspruit, within the City of Tshwane Metropolitan Municipality in the Gauteng Province.
SAHRA Case ID: 20509

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.

The proposed filling station on Portion 28 of Farm Roodepoort 504 (Fig. 1-2) will be on sandstones and arenites of the Wilge River Formation (basal Waterberg Group) in the Middelburg Basin (Fig. 3).

The Wilge River Formation is the only member of the Waterberg group in the Middelberg Basin and can be correlated with the Swaershoek Formation in the Waterberg Basin. The Wilge River formation is composed of coarse-grained red bed sandstones with conglomerate inter-beds defining the base of each upward fining sequence. In the upper part of the formation, there are more mudstone layers. Based on the generally immature and poorly sorted sand grains, the Wilge River Formation is interpreted as representing an alternating fan-fan-delta-lacustrine-basin setting (Barker et al., 2006) and such an active site is not conducive to preserving trace fossils. With a depositional age of 2060 to 1700 Ma, the Waterberg Group predates the evolution of any fossils larger than microbes. It is unlikely, therefore, that there would be any fossils in the Wilge River Formation.

Figure 1: Google Earth Map to show the proposed for the Bronkhorstpruit Filling Station on Portion 28 of Farm Roodepoort 504.

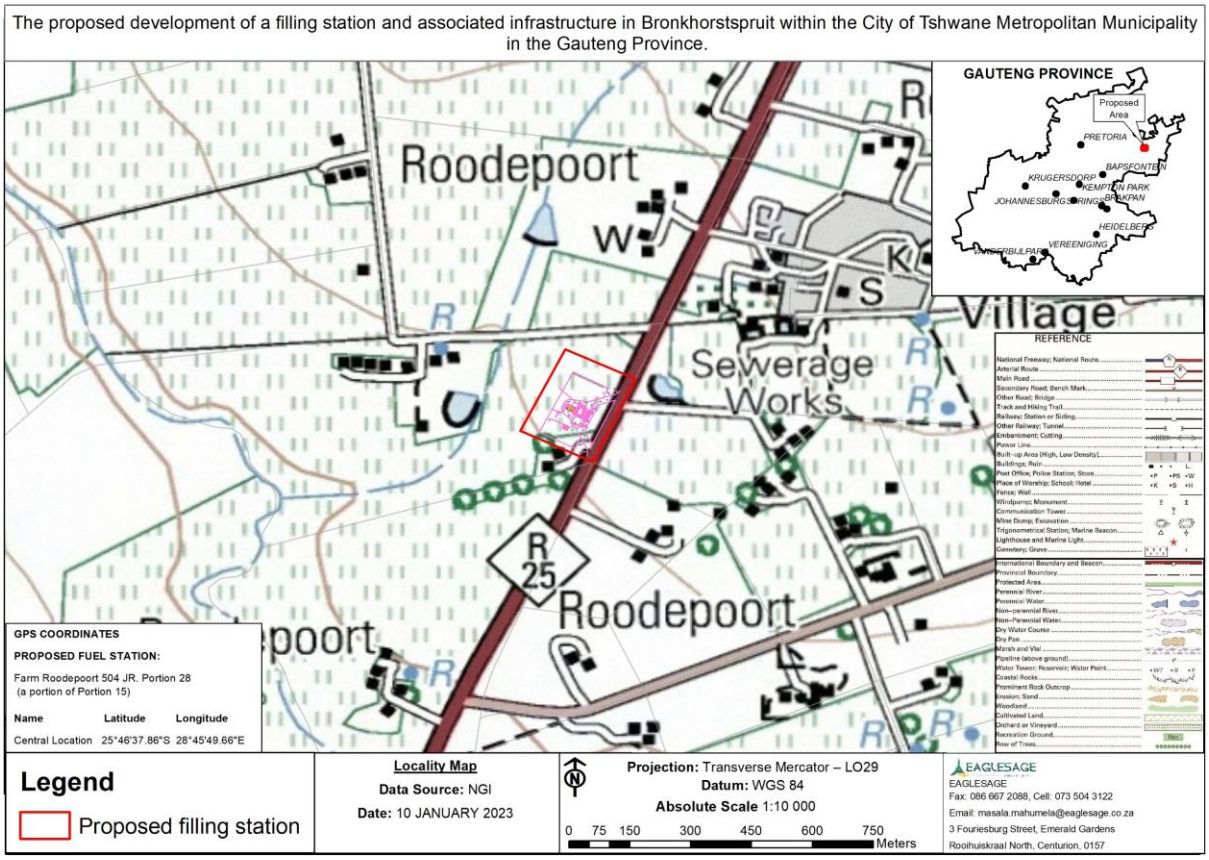

Figure 2: topographic of the proposed Filling Station.

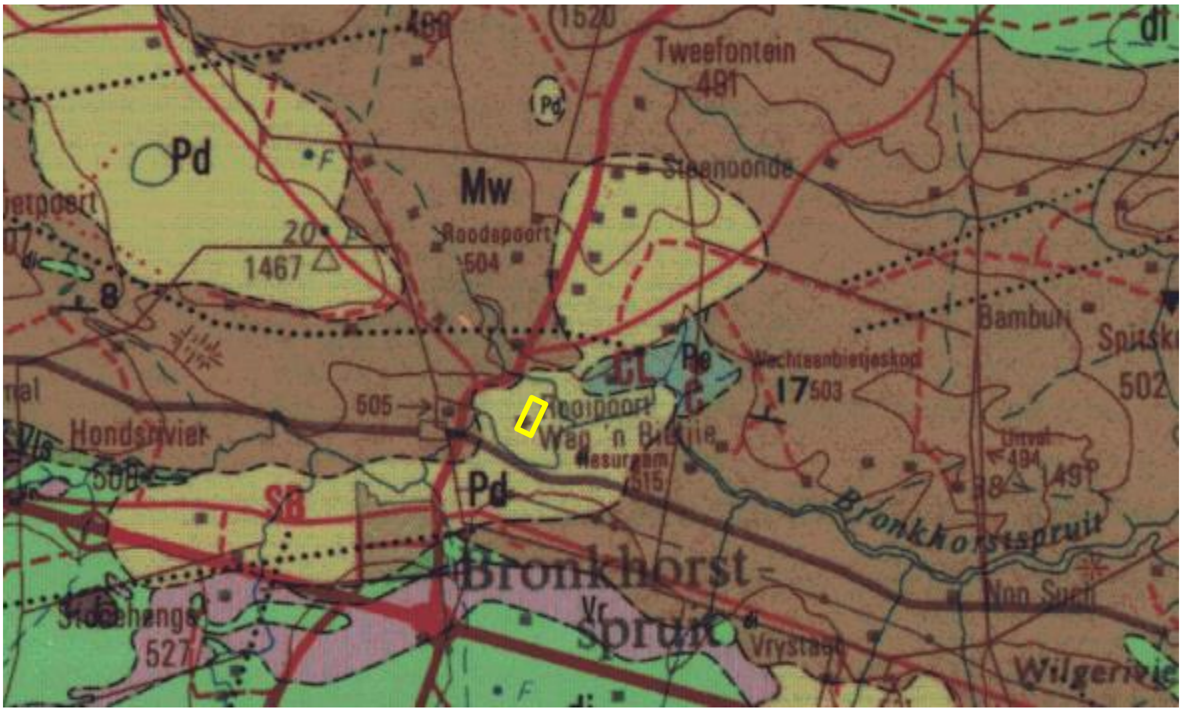

Figure 3: Geological map of the area around the Farm Roodepoort 504 with the proposed project is indicated within the yellow rectangle. Abbreviations of the rock types are: Mw = Wilge River Fm; Pd = Dwyka Group; Pe = Vryheid Fm. Map enlarged from the Geological Survey 1: 250 000 map 2528 Pretoria.

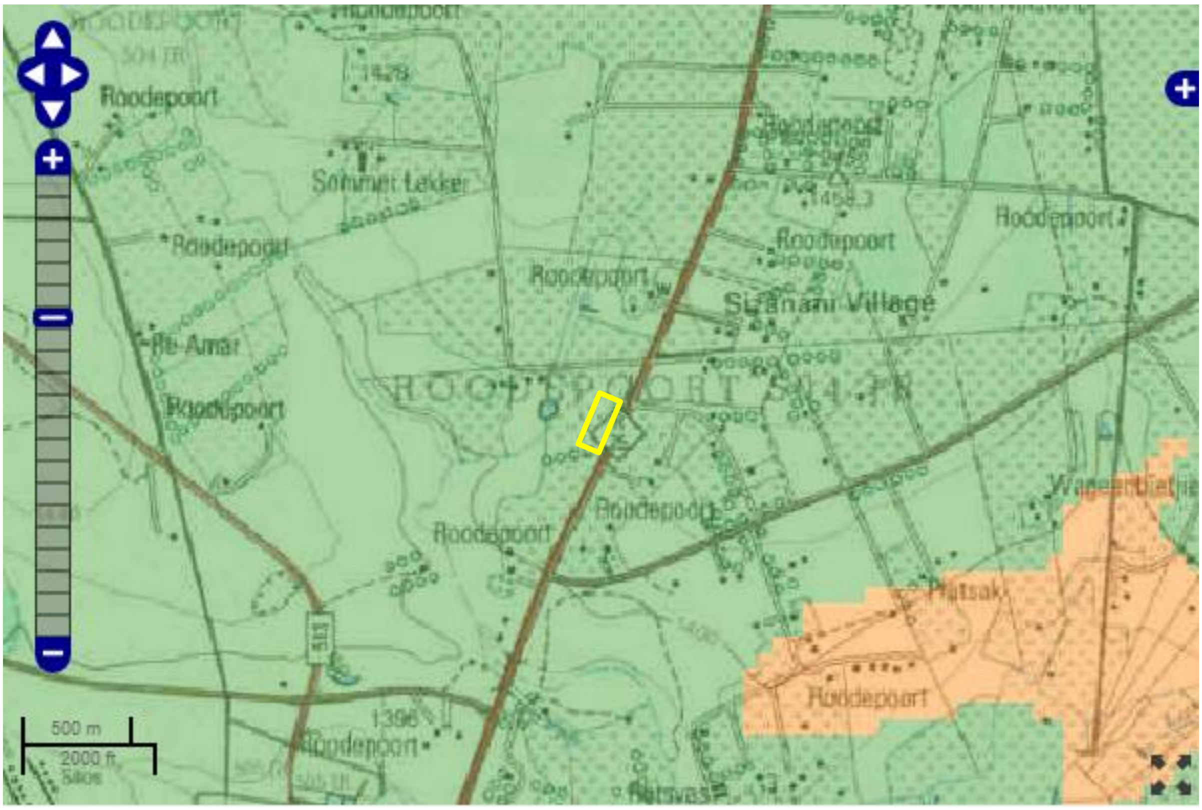

Figure 4: SAHRIS palaeosensitivity map for the site for the proposed Bronkhorstpruit Filling Station shown within the yellow rectangle. Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

From Figure 4, the Vryheid Formation is indicated as orange and the Wilge River Formation and the Dwyka Group are indicated as green. Since there is only a low probability of finding fossils in the project footprint (Wilge River Formation sandstones) once excavations go below the soil cover, a fossil chance find protocol is included here.

We are requesting exemption from any further palaeontological impact assessment because the only potential fossils would be **microscopi**c, such as microbial mats, curl-ups, burrows and rip-up clasts that have been found in older sandstones and are generally described as Microbially Induced Sedimentary Structures (MISS, of Noffke et al., 2001).

Yours faithfully

Prof Marion Bamford
Palaeobotanist; PhD (Wits 1990)

Chance Find Protocol

Monitoring Programme for Palaeontology – to commence once the excavations / drilling activities begin.

1. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence.
2. When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, microbial mats, rip up clasts, curl ups, etc) should be put aside in a suitably protected place. This way the project activities will not be interrupted.
3. Lists of possible fossils can be provided to the developer to assist in recognizing them.
4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
5. If there is any possible fossil material found by the contractor or developer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible.
6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
7. If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.

8. If no fossils are found and the excavations have finished then no further monitoring is required.

Reference cited:

Barker, O B., Brandl, G., Callaghan, C.C., Erikssen, P.G., van der Neut, M., 2006. The Soutpansberg and Waterberg Groups and the Blouberg Formation. 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 301-318.

Noffke, N., Gerdes, G., Klenke, T., Krumbein, W., 2001. Microbially induced sedimentary structures – a new category within the classification of primary sedimentary structures. Journal of Sedimentary Research, 71, 649–656.

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 Eaglesage, Centurion, 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: