

## Exemption Letter – Lefakong Smart City

Heidi Fourie – Palaeontological Impact Assessment  
2023/02/17

**Makhuduthamaga Local Municipality, Sekhukhune District Municipality, Province.**  
Farm: Uitkyk 851-KS.

Protocol for a Chance Fossil Find is included.

The applicant, Lefakong Property Development intends to develop a smart city at Lefakong.

The township of Phatametsane is to the north and Mohlarekoma township is to the east and the site can be reached via the R579 Road. The approximate size of the site is 3 hectares.

Zoning will be ERF1, Business, Shopping Mall, ERF2, and Open Space.



**Figure 1:** Lay-out planned for Smart City (Envirolution).

Landowner: Not yet known.

### Summary

This letter serves as a Letter of Exemption. It is in compliance with The Minimum Standards for Palaeontological Components of Heritage Impact Assessment Reports, SAHRA APMHOB, Guidelines 2012. The development is underlain by the rocks of the Bushveld Complex, Vaalian in age, with a **VERY LOW** Palaeontological Sensitivity (Groenewald and Groenewald 2014\*). This development will take place on igneous rocks, therefore, the impact will be **VERY LOW**.

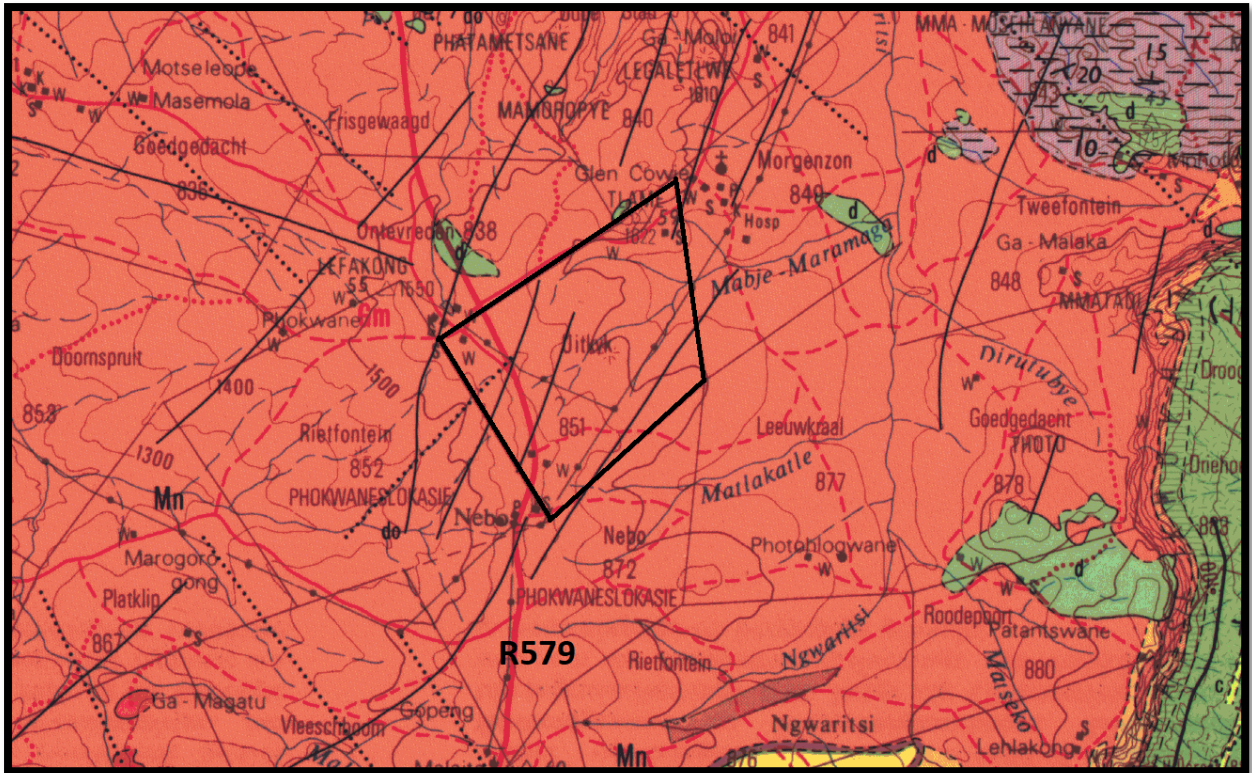


Figure 2: Geology of area (1:250 000 2428 Nylstroom).

Legend to Figure:

d – Diabase (green).



----- Concealed geological boundary.

----f---- Fault

⊥ 20° - Strike and dip

□ – Approximate position of development.

Gm – Gemstone.

The Bushveld Complex is a massive body of igneous origin and it is intrusive in the Transvaal Supergroup (Kent, 1980). The Bushveld Complex extends over 440 km east-west, from Burgersfort to Nietverdiend; and for nearly 350 km north-south from Villa Nora to Bethal. It covers an area of 65 000 km<sup>2</sup> and is chrome and platinum rich (Visser, 1989). The age is Vaalian (2,100 – 1,920 Ma). The layered rocks of the Bushveld Complex are generally believed to be the result of crystals settling out of magma during slow cooling. The magmatic events petrogenetically related to and generally considered part of the whole magmatic evolution of the Complex are, the diabase sills and the Rooiberg Group. The Complex consists of three main units or suites of which the Rustenburg Layered Suite is one (Kent, 1980), the other two are the Rашoop Granophyre Suite and Lebowa Granite Suite (Visser, 1989). The region will be covered by 'Bushveld' vegetation. The weathering product is known as 'black turf' (Kent, 1980; Visser, 1989). There is a presence of mining past and present with iron ore and the Merensky Reef. Magnesite mines provide magnesium carbonate for making heat-resistant bricks (Norman and Whitfield 2006). The Layered Suite is the source of an immense wealth of platinum, chrome and vanadium, and comprises six quite distinct zones.



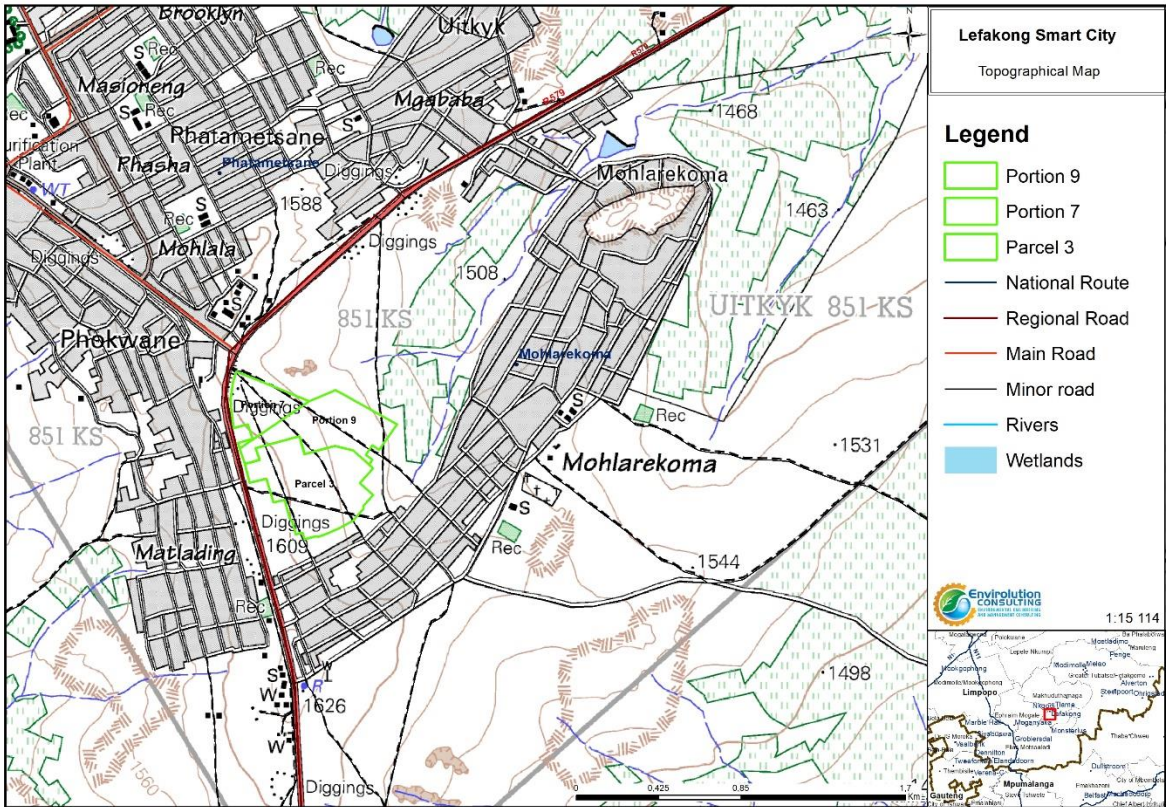


Figure 3: Location map (Envirolution).

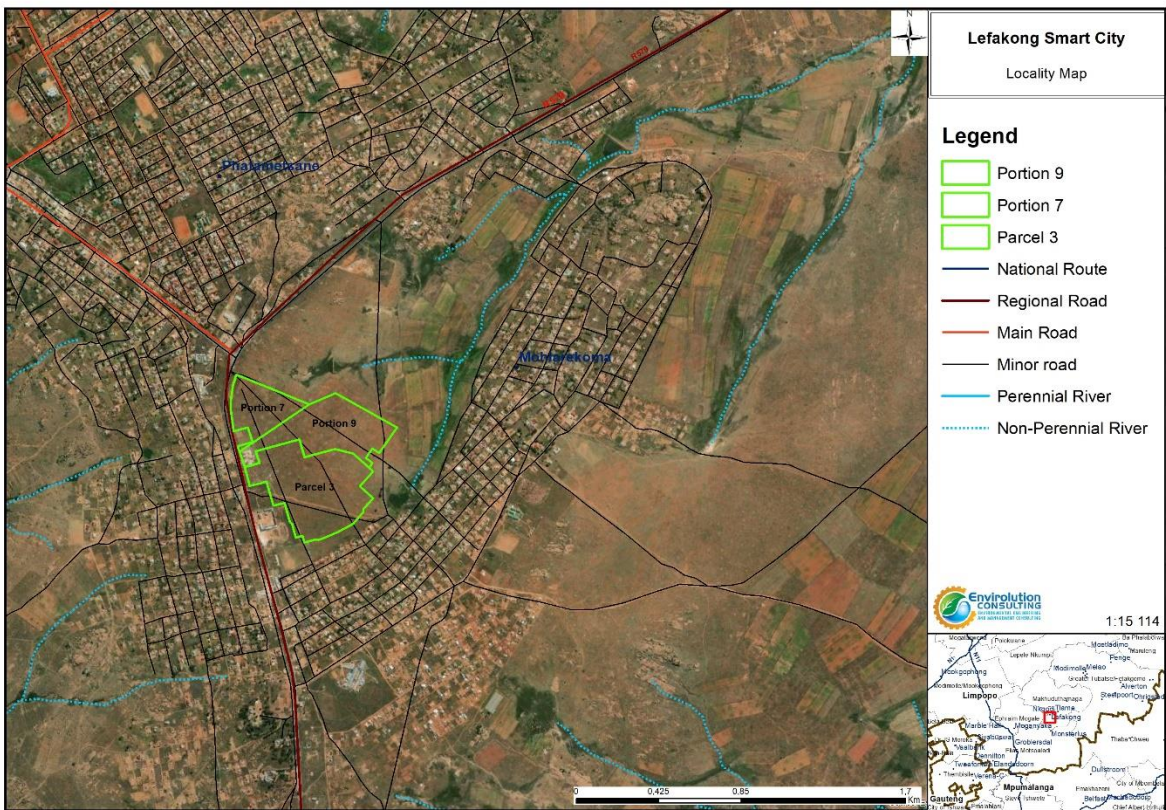


Figure 4: Google Earth image with development (Envirolution).

Related infrastructure:

- Bulk sewerage infrastructure
- Bulk water infrastructure
- Electrical infrastructure
- Stormwater management

### Palaeontological Sensitivity

BUSHVELD MAGMATIC PROVINCE / BUSHVELD COMPLEX  diabase (VdI) unnamed granophyre (VC) Roshoop Granophyre Suite (Vra) Croydon Subsuite (Vc) Dwaars River Subsuite (Vdr) Delate Subsuite (Vds) Roosenhals Subsuite (Vrs) Lebowa Granite Suite (Vlg) Shelter Norite (Vsn)	VdI; VC; Vra; Vc; Vdr; Vds; Vrs; Vlg; Vsn; VstI; Vms; Vms; Vms; Z; Z2s; Z2s; Vc; VdI; Vds; VmI;					Intrusive igneous rocks Late Vaalian / Early Proterozoic 2.06 Ga  Mafic intrusives of Rustenberg Layered Suite  Intrusive granites granophyres	No fossils recorded	Bushveld Complex has been described as "One of the great geological wonders of the world" -- the largest layered igneous complex in the world with the richest reserves of platinum group metals known anywhere.  Intruded between Magaliesberg Fm quartzites (Pretoria Group) and the Rooiberg Group volcanics.
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\*Groenewald, G. and Groenewald, D., 2014. SAHRA Palaeotechnical Report: Palaeontological Heritage of the North West Province (Pp 22), South African Heritage Resources Agency.

No fossils recorded due to the igneous nature.

### Recommendation

That Exemption from a Desktop Study for the proposed **Lefakong City Project** be granted to the applicant taking into consideration all the above stated information.

### Declaration (disclaimer)

I, Heidi Fourie, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project for which I was appointed to do a palaeontological assessment. There are no circumstances that compromise the objectivity of me performing such work.

I accept no liability, and the client, by receiving this document, indemnifies me against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the use of the information contained in this document.

It may be possible that the Exemption Letter may have missed palaeontological resources in the project area as outcrops are not always present or visible on geological maps while others may lie below the overburden of earth and may only be present once development commences.

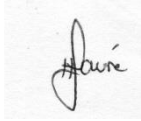
This report may not be altered in any way and any parts drawn from this report must make reference to this letter.

### POPI Act 2013 Statement

It provides that everyone has the right to privacy and includes a right to protection against the unlawful collection, retention dissemination and use of personal information contained in this document and pertains to the phone and contact details, signature and contents.

As per the Declaration Section none of the information may be shared without the permission of the author.





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Heidi Fourie  
2023/02/17

### **Protocol for Chance Finds and Management plan**

This section covers the recommended protocol for a Phase 2 Mitigation process as well as for reports where the Palaeontological Sensitivity is **LOW**; this process guides the palaeontologist / palaeobotanist / ECO on site and should not be attempted by the layman / developer.

- As part of the Environmental Authorisation conditions, an Environmental Control Officer (ECO) will be appointed to oversee the construction/prospecting/mining activities in line with the legally binding Environmental Management Programme (EMPr) so that when a fossil is unearthed they can notify the relevant department and specialist to further investigate.
- All fossil finds must be placed in a safe place for further investigation.
- The ECO should familiarise him- or herself with the applicable formations and its fossils.
- Most Universities and Museums have good examples of fossils.
- The EMPr already covers the conservation of heritage and palaeontological material that may be exposed during construction/prospecting/mining activities. For a chance fossil find, the protocol is to cease all construction activities, construct a 30 m no-go barrier, and contact SAHRA for further investigation.
- It is recommended that the EMPr be updated to include the involvement of a palaeontologist when necessary, either for pre-construction training of ECO or for pre-determined site visits. The ECO must visit the site after clearing, drilling, excavations and blasting and keep a photographic record.
- The developer may be asked to survey the areas affected by the development and indicate on plan where the construction / development / mining will take place. Trenches may have to be dug to ascertain how deep the sediments are above the bedrock (can be a few hundred metres). This will give an indication of the depth of the topsoil, subsoil, and overburden, if need be trenches should be dug deeper to expose the interburden.

The palaeontological impact assessment process presents an opportunity for identification, access and possibly salvage of fossils and add to the few good localities. Mitigation can provide valuable onsite research that can benefit both the community and the palaeontological fraternity. A Phase 2 study is very often the last opportunity we will ever have to record the fossil heritage within the development area. Fossils excavated will be stored at a National Repository.