

UNIVERSITY OF THE
WITWATERSRAND,
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DESKTOP PALAEOONTOLOGICAL IMPACT ASSESSMENT

Rulaganyang Extension 2 Township development in Maquassi Hills Local Municipality

Specialist report by:

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EXECUTIVE SUMMARY

Bruce Rubidge was appointed by Maxim Planning Solutions on behalf of Maquassi Hills Local Municipality to undertake a desktop Palaeontological Impact Assessment for the township development at Rulaganyang Extension 2, Maquassi Hills Local Municipality on a portion of the Remaining Extent of Portion 11 (a portion of Portion 1) of the farm Leeuwfontein No. 29-HP at the small town of Witpoort between Wolmaransstad and Leeudoringstad in Northwest Province

Most of the area is underlain by Precambrian rocks of the Ventersdorp Supergroup comprising the Makwassie, Bothaville and Allanridge formations which in turn are overlain by unconsolidated Quaternary alluvial deposits along the Wolwespruit River.

As the Precambrian Ventersdorp Group is of mostly of igneous origin and is not known to host fossils it is highly unlikely that palaeontological heritage will be affected by the proposed mining development. The Quaternary alluvial sediments which are covered by vegetation in the study area are the only sedimentary deposits in the area which could host fossils of Quaternary-aged animals and plants. As these deposits are not consolidated it is very unlikely that any fossils will be present.

If in the unlikely event that fossils are exposed in Quaternary sediments in the course of the proposed development, a qualified palaeontologist must be contacted to assess the exposure for fossils so that the necessary rescue operations are implemented.

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Introduction and Brief

A Palaeontological Impact Assessment was requested by Koot Raubenheimer of Maxim Planning Solutions on behalf of the Maquassi Hills Local Municipality. The development is the proposed township Rulaganyang Extension 2 on a portion of the Remaining Extent of Portion 11 (a portion of Portion 1) of the farm Leeuwfontein No. 29-HP on behalf of the Maquassi Hills Local Municipality. The township area is located at the small town of Witpoort between Wolmaransstad and Leeudoringstad in Northwest Province (Figure 1) . The proposed development comprises a total area of 18,8479 hectares.

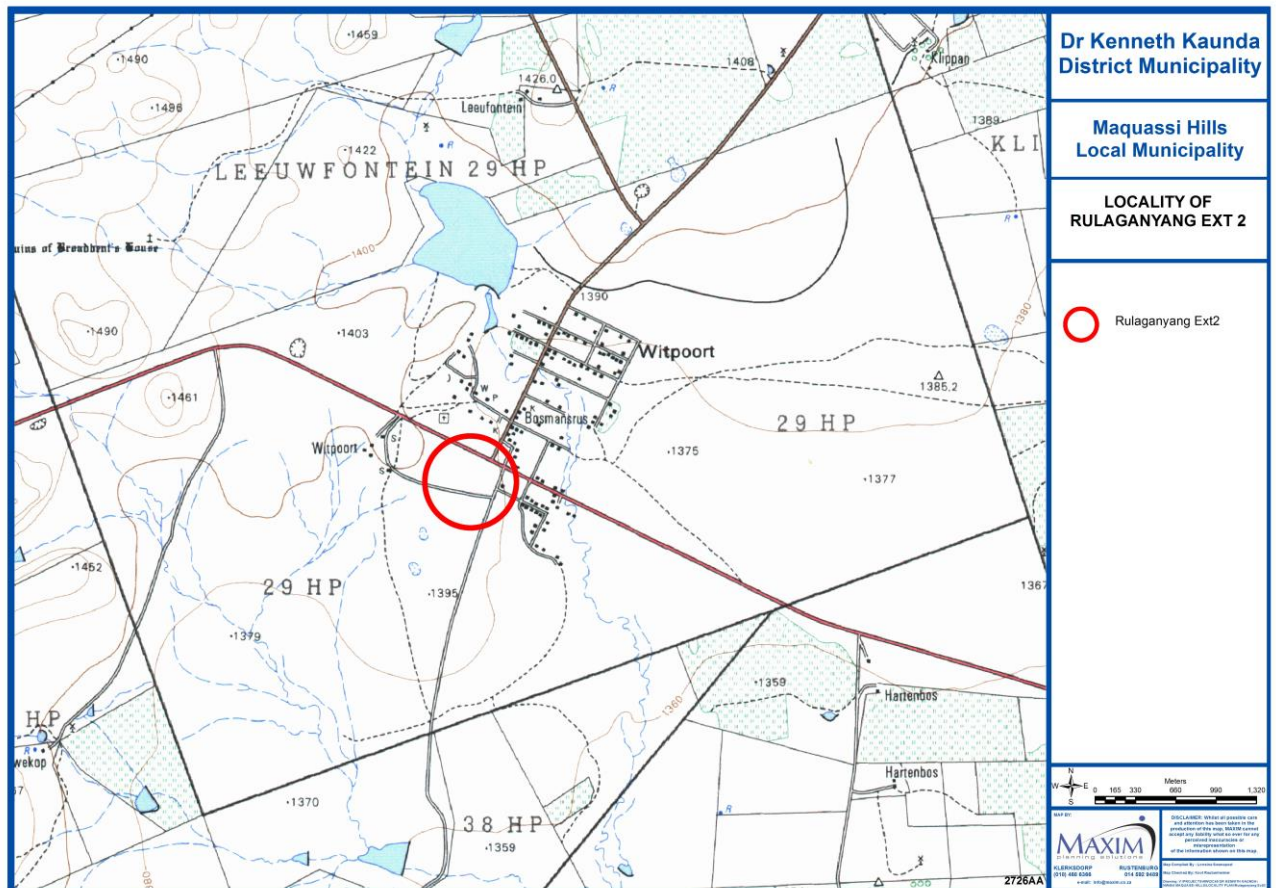


Figure 1: Topographic map (Sheet 2726 AA). The proposed township Rulaganyang Extension 2 is encircled in red

Legislative framework

The Department of Environmental Affairs (DEA) through the National Environmental Management Act (NEMA Act 107 of 1998) requires that developers apply to the

competent authority for approval of the proposed development as more than 1 hectare of indigenous vegetation is to be removed (Listing Notice 1 of the EIA regulations).

National Heritage is protected by the South African Heritage Resources Act (Act No 25) of 1999. Developers are required to submit development plans to SAHRA for approval. These plans must include documentation detailing the expected impact that the development will have on national heritage.

Categories of heritage resources recognised as part of the National Estate in Section 3 of the Heritage Resources Act include:

- Geological sites of scientific or cultural significance
- Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, material, meteorites and rare geological specimens.
- Objects with the potential to contribute to understanding South Africa's natural or cultural heritage.

Accordingly a Heritage Impact Assessment (HIA) is required to assess the possible impacts of a proposed development on archaeological and palaeontological heritage. This report addresses the palaeontological aspects of the HIA as part of the Environmental Management Plan (EMP).

Details of the study area

The study area of the Rulaganyang Extension 2 township development is located in Northwest Province on a portion of the Remaining Extent of Portion 11 (a portion of Portion 1) of the farm Leeuwfontein No. 29-HP at the town of Witpoort between Wolmaransstad and Leeudoringstad. The study area is covered by the 1:50 000 topographical map Sheet 2726AA (Figure 1). The proposed development area covers 18,8479 hectares

The main infrastructure expansion is associated with the layout of a new township which will be developed and will include 289 "Residential 1" erven, 4 "Business 1" erven, 3 "Institutional" erven, 2 "Public Open Space" erven as well as streets. With regard to services infrastructure, the proposed township area will be supplied with potable water from the bulk water supply line from Sedibeng Water. A ring feeder system with a 90mm diameter uPVC pipe will supply each stand with water. All sewerage generated in Rulaganyang is from a full waterborne system. The sewer generated gravitates towards the existing 1.2 MI WWTw located south-west of Rulaganyang. Sewer generated from the proposed development will gravitate towards the north-eastern corner of the proposed township where a sewer pumpstation will be needed to pump sewerage along the northern and western border of the proposed

development to a manhole on the eastern corner of the existing Rulaganyang Extension 1 from where sewage will gravitate via an existing 160mm diameter outfall line towards the treatment works.

Geological Setting

Most of the area is underlain by Precambrian rocks of the Ventersdorp Group and includes the Makwassie, Allanridge and Bothaville formations. The igneous Makwassie Formation comprises mainly quartz-feldspar porphyries and tuffaceous beds. The Bothaville Formation which has only minor exposure in the study area consists of quartzites and conglomerates. The overlying igneous Allanridge Formation comprises mainly amygdaloidal lava, porphyritic lava and pyroclastic rocks. The geological map indicates that unconsolidated Quaternary alluvial deposits occur along the course of the Wolwespruit River (Figure 2).

Palaeontological Heritage

As the Precambrian Ventersdorp Supergroup is of largely igneous origin and is not known to host fossils it is highly unlikely that palaeontological heritage will be affected by the proposed township development. The Quaternary alluvial sediments along the Wolwespruit River are the only sedimentary deposits in the area which could possibly host fossils of Quaternary-aged animals and plants. As these deposits are not consolidated it is very unlikely that any fossils will be present.

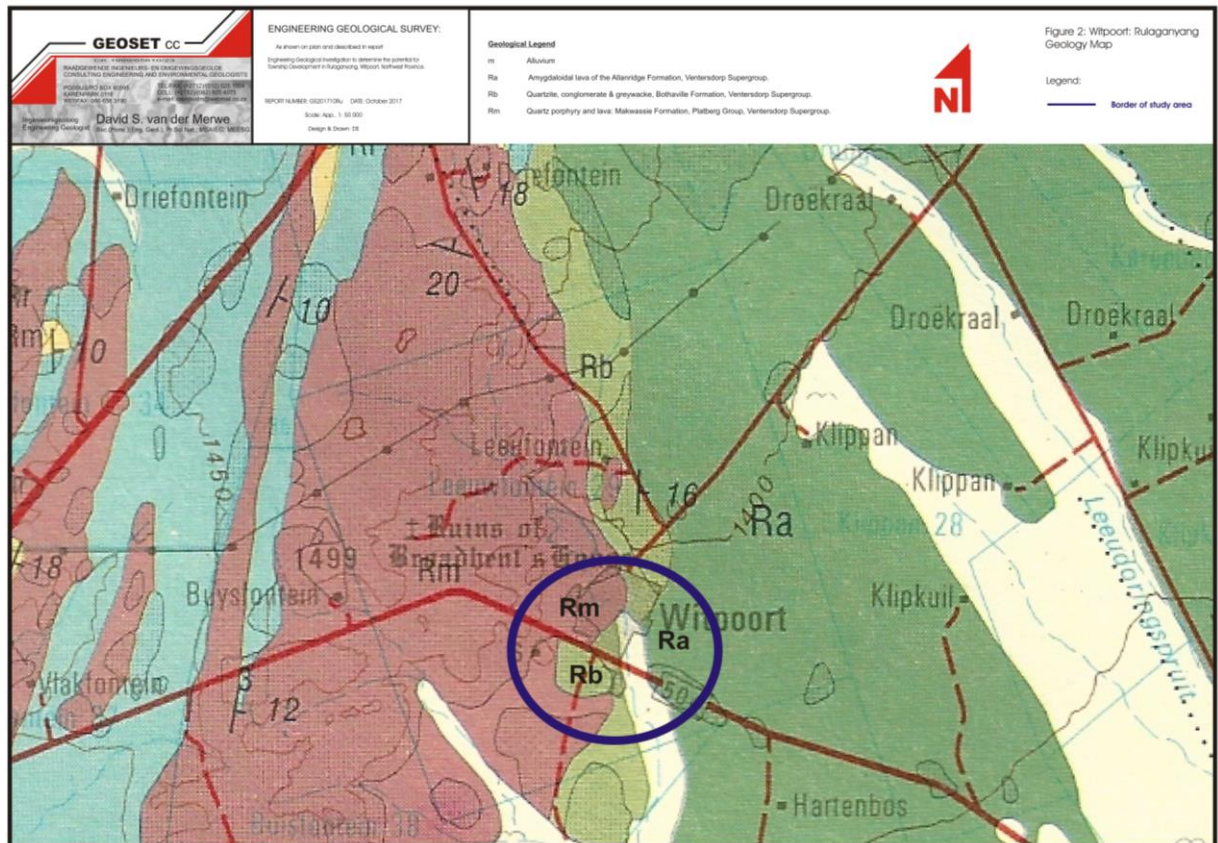


Figure 2: Geological map (2726 Kroonstad) showing the position of the study locality in relation to the regional geology. Ventersdorp Supergroup includes Rb- Bothaville Formation, Ra – Allanridge Formation, Rm Makwassie Formations; Qs – Quaternary alluvial deposits

Methodology

Because the study area is underlain by Precambrian rocks of low palaeontological sensitivity a desktop Palaeontological Impact Assessment was undertaken to identify possible sensitive fossil occurrences, assess the significance of possible fossil occurrences, comment on the impact of the proposed development, and to make mitigating recommendations.

Recommendations

From the documentation supplied regarding the development it is extremely unlikely that the proposed development will have any affect on palaeontological heritage. However if fossils are exposed in the Quaternary alluvial deposits it will create a unique opportunity to explore the area for fossils. It is thus recommended that, in the unlikely event that fossils are exposed as a result of construction activities, a qualified palaeontologist must be contacted to assess the exposure for fossils before further development takes place so that the necessary rescue operations are implemented.

Depending on the nature of the fossils discovered this could entail excavation and removal to a registered palaeontological museum collection. A list of professional palaeontologists is available from South African Heritage Resources Agency (SAHRA).

Conclusion

The proposed Rulaganyang Extension 2 township development area is underlain by Precambrian aged rocks of the predominantly Ventersdorp Group which in turn is overlain by unconsolidated Quaternary aged alluvial deposits. It is extremely unlikely that fossils will be exposed as a result of the development. From a palaeontological perspective, the proposed township development should proceed but, if fossils are uncovered in the course of construction activities, the developer immediately calls in a qualified palaeontologist to assess the situation and, if necessary, undertake excavation of the fossils.

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