

# Exemption Letter for Phase 1 Palaeontological Impact Assessment

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**Applicant:** Glencore Operations South Africa (Pty) Ltd (GOSA), iMpunzi Mine Complex

**Project:** Environmental Authorisation Application for the Proposed iMpunzi South Pit Coarse Discard Dump and Venture Co-disposal Facility Project

**Location:** eMalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province.

**Farm:** Portion 1, 14 Klipplaat 14-IS, Portion 2, 3, 12, 14, 20, 22, 23, 28 Kromfontein 30-IS, Portion 2 Blesbokfontein 31-IS, Portion 0 Klipplaat 462-IS

**DMRE Reference No.** MP 30/5/1/1/3/2/1 (375) EM

## 1. INTRODUCTION AND BACKGROUND

The applicant, Glencore Operations South Africa (Pty) Ltd (GOSA), iMpunzi Mine Complex appointed Golder Associates Africa (Pty) Ltd (Golder) as an independent environmental assessment practitioner (EAP) to undertake the regulatory application process for the proposed development of a discard facility at the South Pit, develop a Co-disposal Facility at the existing Venture coarse discard dump, and the widening of the existing haul road from the ATCOM discard dumps to the ATC Coal Processing Plant, all located at their iMpunzi Mine Complex (Figure 2). A new return water dam (RWD) will be constructed as part of the development of the Venture Co-disposal facility.

## 2. 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 rocks of the Vryheid Formation (Permian age), with a **VERY HIGH** Palaeontological Sensitivity (Groenewald and Groenewald 2014\*) (Figure 1).

The iMpunzi Complex consists of four collieries or sub-sections, namely: ATC, Phoenix Colliery, ATCOM, and ATCOM East. Coal mining within the complex was initiated at the Phoenix Colliery in 1936. The mining operations are situated on the Vryheid Formation (Figure 1).

As this development will take place on the already mined out, disturbed and partially rehabilitated pit/opencast mining areas and will be surface infrastructure, and excavation of the proposed RWD footprint, the impact significance will be **LOW**.

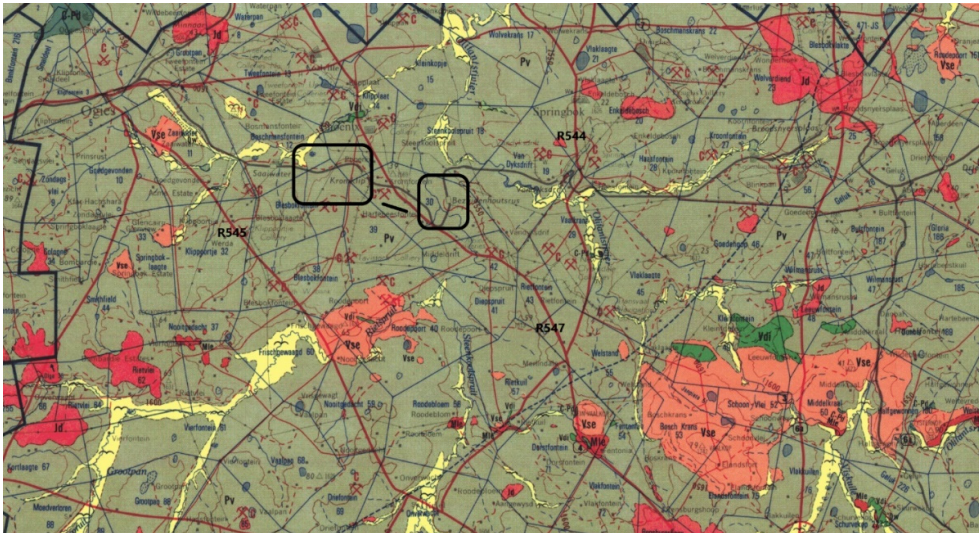


Figure 1: Geology of area (1:250 000 East Rand 2628, Keyser et al. 1986)

Legend to Map and short Explanation:

- PV** Shale, sandstone, coal beds (light brown). Vryheid Formation, Ecca Group, Karoo Supergroup. Permian
- Concealed geological boundary
- f--- Fault
- ⊥ 60° Strike and dip
- Approximate position of development

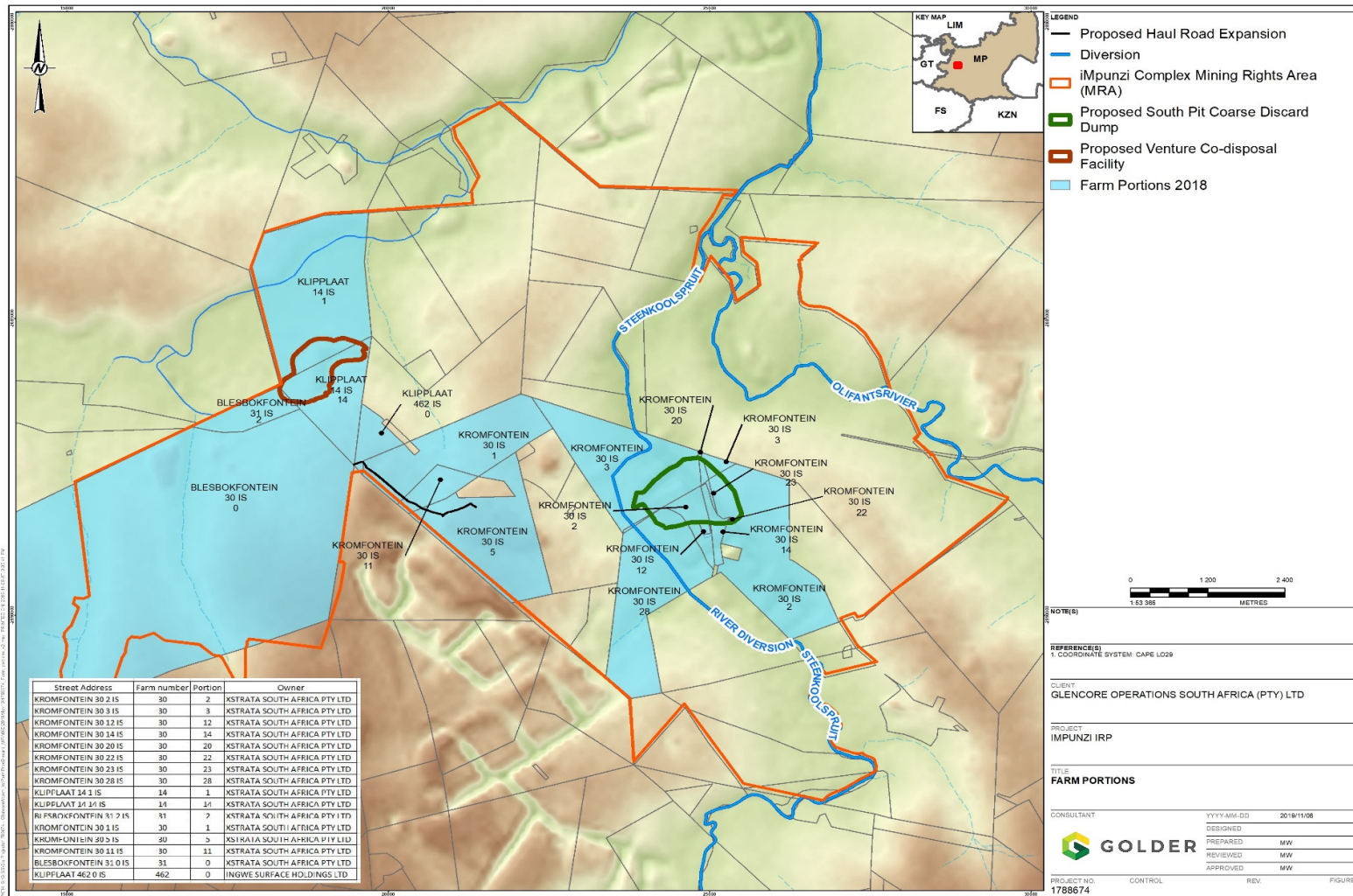


Figure 2: Location of the proposed activities and details of landowners (Golder)

The Vryheid Formation is named after the type area of Vryheid-Volksrust. In the north-eastern part of the basin the Vryheid Formation thins and eventually wedges out towards the south, southwest and west with increasing distance from its source area to the east and northeast (Johnson 2009). The Vryheid Formation consists essentially of sandstone, shale, and subordinate coal beds, and has a maximum total thickness of 500 m. It forms part of the Middle Ecca (Kent 1980). This formation has the largest coal reserves in South Africa. The pro-delta sediments are characterised by trace and plants fossils (Snyman 1996).

The *Glossopteris* flora is thought to have been the major contributor to the coal beds of the Ecca. These are found in Karoo-age rocks across Africa, South America, Antarctica, Australia and India. This was one of the early clues to the theory of a former unified Gondwana landmass (Norman and Whitfield 2006). Rocks of Permian age in South Africa are particularly rich in fossil plants (Rayner and Coventry 1985). The fossils are present in the grey shale interlayered with the coal seams. The fossils are not very rare and occur also in other parts of the Karoo stratigraphy. It is often difficult to spot the greyish fossils as they are the same colour as the grey shale in which they are present as these coalified compressions have been weathered to leave surface replicas on the enclosing shale matrix. The pollen of the Greenside Colliery near Witbank also on the Vryheid Formation was the focus of a Ph.D study. A locality close to Ermelo, also Vryheid Formation, has yielded *Scutum*, *Glossopteris* leaves, *Neoggerathiopsis* leaves, the lycopod *Cyclodendron leslii*, and various seeds and scale leaves (Prevec 2011).



Figure 3: Proposed activity footprint (google earth)

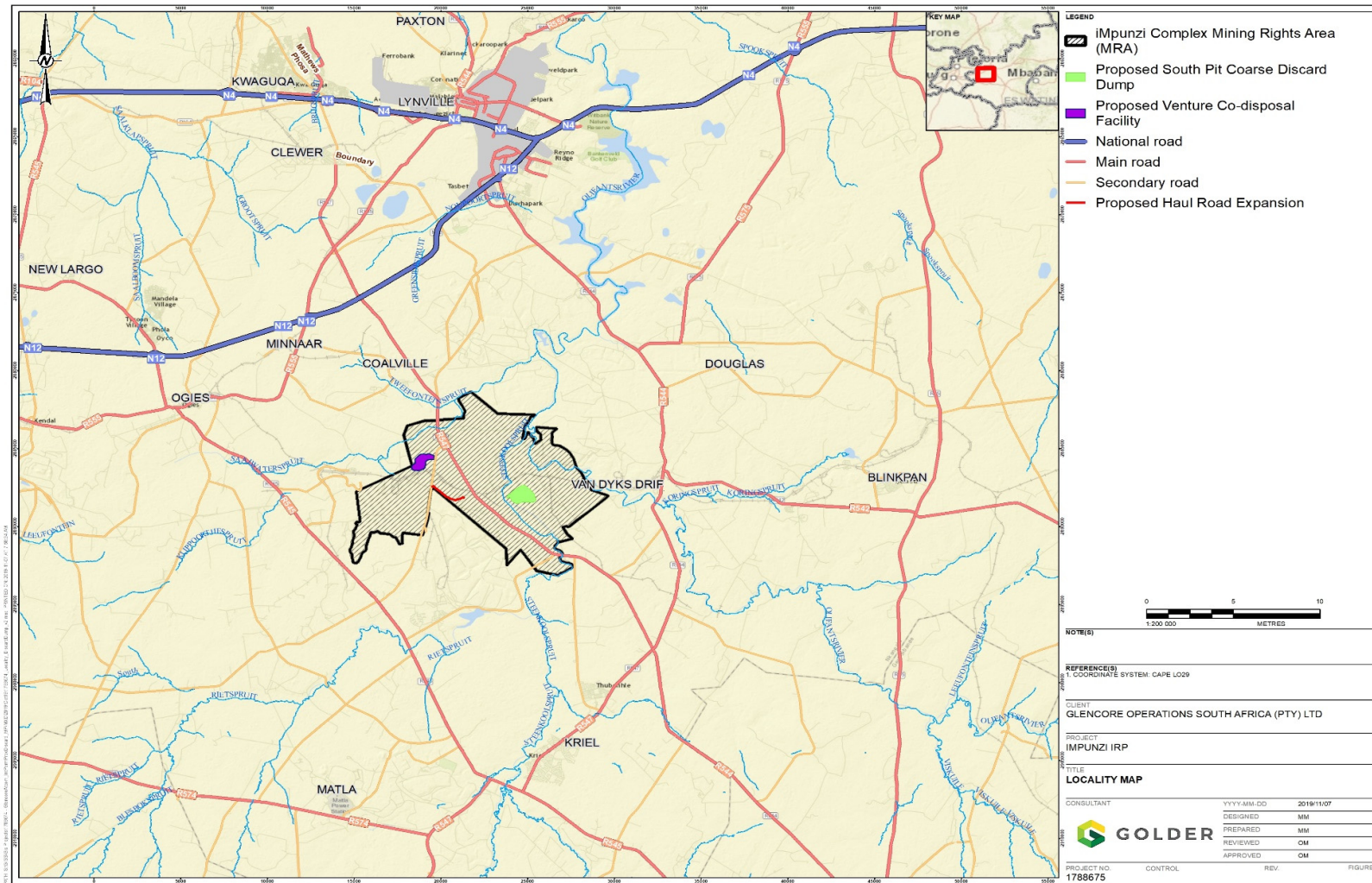


Figure 4: iMpunzi Complex MRA (Golder)

### 3. PALAEOLOGICAL SENSITIVITY

Deltaic mudrocks and sandstones, locally coastal and fluvial deposits, with occasional coal seams (Ecce "Coal Measures")	Rich fossil plant assemblages of the <i>Permian Glossopteris</i> Flora ( <i>lycopods</i> , rare ferns and horsetails, abundant <i>glossopterids</i> , <i>cordaitaleans</i> , conifers, <i>ginkgoaleans</i> ), rare fossil wood, diverse <i>palynomorphs</i> . Abundant, low diversity trace fossils, rare insects, possible <i>conchostracans</i> , non-marine bivalves, fish scales.	Globally important fossil floras from Middle Permian Gondwana. Seriously under-collected in recent years, despite ongoing mining for coal
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\*Groenewald, G. and Groenewald, D., 2014. SAHRA Palaeotechnical Report: Palaeontological Heritage of the Mpumalanga Province (Pp 23), South African Heritage Resources Agency.

### 4. PROFESSIONAL RECOMMENDATION

It is recommended that the applicant is granted Exemption from conducting a Phase 1: Field Study for the proposed iMpunzi Discard Dump Expansion Project, and that exemption be granted to the applicants taking into consideration all the above stated information.

However, should any palaeontological resources be found during the construction of the proposed activities, the protocol for a Chance Fossil Find should be implemented immediately (see Appendix A).

### 5. SPECIALIST DECLARATION

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.

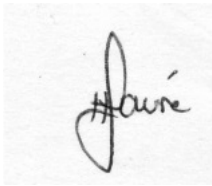
I accept no liability, and the client, by receiving this document, indemnifies me against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the use of the information contained in this document.

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.

## 6. BIBLIOGRAPHY

- GRODNER, M. and CAIRNCROSS, B. 2003. A regional scale 3-D model of the Witbank Coalfield, Northern Karoo Basin, South Africa. *South African Journal of Geology*, **106(4)**: 249-264.
- PLUMSTEAD, E.P. 1963. The influence of plants and environment on the developing animal life of Karoo times. *South African Journal of Science*, **59(5)**: 147-152.
- PREVEC, R. 2011. A structural re-interpretation and revision of the type material of the glossopterid ovuliferous fructification *Scutum* from South Africa. *Palaeontologia africana*, **46**: 1-19.
- RAYNER, R.J. and COVENTRY, M.K. 1985. A *Glossopteris* flora from the Permian of South Africa. *South African Journal of Science*, **81**: 21-32.

A handwritten signature in black ink, appearing to read 'Heidi Fourie', is centered on a white rectangular background.

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Dr. Heidi Fourie  
2020/12/09

## Appendix A

### 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 Construction 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 possible 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. In the event that fossils are excavated, they will be stored at a National Repository.





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CaseID: 14566

Date: Tuesday November 17, 2020

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## Interim Comment

**In terms of Section 38(8), 38(3) of the National Heritage Resources Act (Act 25 of 1999)**

Attention: Glencore Operations South Africa (Pty) Ltd

**GOSA has appointed Golder Associates Africa (Pty) Ltd (Golder) as an independent environmental assessment practitioner (EAP) to undertake the regulatory application process for the proposed the expansion of the South Pit and Venture Dump discard facilities at their iMpunzi Mining Complex. The proposed South Pit Discard Dump will receive coarse discard from the Phoenix Plant. The South Pit is a previously mined-out area and has been partially rehabilitated. The existing Venture Discard Dump footprint will be expanded and the facility will be modified into a co-disposal facility to accommodate both coarse and fine (slurry) discard. A new return water dam (RWD) will be constructed as part of the development of the Venture Co-disposal Facility. The co-disposal facility will receive coarse discard and slurry from the ATC Plant, which sources coal from opencast workings and from discard dump reprocessing. As part of the proposed discard expansion project, an existing haul road from the ATCOM Discard Dumps to the ATC Coal Processing Plant will be widened**

Glencore Operations South Africa (Pty) Ltd appointed Golder Associates Africa (Pty) Ltd to undertake the Environmental Authorisation application for the proposed expansion of the South Pit and Venture Dump discard facilities at their iMpunzi Mining Complex in the Klipplaats 14 IS Portions 1 and 14, Kromfontein 30 IS Portions 2, 3, 12, 14, 20, 22, 23, and 28 and Blesbokfontein 31 IS Portion 2 in the Magisterial District of eMalahleni, Mpumalanga Province.

The SAHRA issued an interim comment dated 17/12/2019 which requested that heritage studies inclusive of the Archaeological and Palaeontological Impact Assessments be submitted to the case on SAHRIS.

On the 11/02/2020, the Final Scoping Report was submitted to SAHRA via email. A response was given to the email on the 17/02/2020 which noted the final Scoping Report and requested that the report be attached to the SAHRIS case. It was also requested of the EAP to submit the EIA document along with its appendices and the heritage specialist reports to the case on SAHRIS for further comments once the FSR has been accepted by the competent authority.

The applicant has failed to comply with the interim comment issued on the 17/12/2019 for the application and submitted only the dEIA with no assessment of the impacts to the archaeological and palaeontological



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heritage resources. However, these statements were not provided by a qualified heritage specialist as per the requirements of section 38 of the NHRA. The draft Environmental Impact Assessment (dEIA) documents were then submitted to the case on the 01/09/2020, which states that an Archaeological and Cultural Heritage Impact Assessment was not undertaken as the footprints of the above mentioned activities will largely be situated on previously mined-out areas. It also states that a Palaeontology Impact Assessment was not undertaken as the footprints of the above mentioned activities will largely be situated on already mined-out areas.

On the 01/10/2020, the SAHRA issued a Final Comment which noted that the assessment of impacts on archaeological and palaeontological heritage resources were not undertaken as required by 38(3) of the National Heritage Resources Act, Act 25 of 1999 (NHRA) and as part of the EA process as required by section 24(4)b(iii) of the NEMA. SAHRA advised the Department of Mineral Resources and Energy (DMRE) to reject the application for the expansion of the of the South Pit and Venture Dump discard facilities.

On the 23/10/2020, a Heritage Compliance Statement was submitted to the case on SAHRIS in response to the SAHRA's Final Comment.

APelser Archaeological Consulting cc (APAC cc) was appointed by Golder Associates Africa (Pty) Ltd (Golder) to provide a motivation for exemption from a full Phase 1 Heritage Impact Assessment (HIA) and Palaeontological Impact Assessment (PIA).

The area would have been used in the past (pre-mining) mainly for agricultural purposes as is visible on aerial images (Google Earth) of the study area. Extensive mining activities over the last 20 years have had a major impact on the area, with little of the original natural landscape still intact. As a result of previous farming activities and the recent mining operations if any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance did exist within the area, it would be have been extensively disturbed or destroyed.

It is deemed unlikely that any significant sites, features or material of cultural heritage (archaeological and/or historical) origin might exist in the study and proposed development area. Archaeological and historical sites features and material have been identified in the larger geographical area and this needs to be taken into consideration during any future actions related to the proposed development.

In 2014 and 2017, a Phase 1 PIA for the Extension of the Glencore Colliery on Steenkoolspruit 18IS and an

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HIA for the Opencast Pits at IMpunzi mine were undertaken, which stated the area underlain by Permian aged sandstone and interbedded shale as well as very well developed coal beds of the Vryheid Formation (Ecca Group, Karoo Supergroup). The potential for finding well-defined plant fossils remains high and the sections of the study area that still need to be uncovered have thus been allocated a Moderate sensitivity for palaeontology. It is also recommended that for the current proposed development actions that a Phase 1 PIA is not required but that the recommendations made in earlier assessments by the various Palaeontology Specialists be adhered to.

### Interim Comment

The SAHRA notes the Heritage Compliance Statement submitted to the case. It must be noted that a letter of exemption from undertaking palaeontological studies must be provided by a qualified palaeontologist.

A qualified palaeontologist must therefore be appointed to provide the Heritage Compliance Statement before further comments can be issued on the case. The Letter must comply with section 38(3) of the NHRA and the 2012 Minimum Standards: Palaeontological Component of Heritage Impact Assessments.

Please attach the PIA reports referred to in the Heritage Compliance Statement to the case as well for review.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

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Nokukhanya Khumalo  
Heritage Officer  
South African Heritage Resources Agency

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CaseID: 14566

Date: Tuesday November 17, 2020

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Phillip Hine

Manager: Archaeology, Palaeontology and Meteorites Unit  
South African Heritage Resources Agency

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**ADMIN:**

Direct URL to case: <http://www.sahra.org.za/node/530984>

(, Ref: )

**Terms & Conditions:**

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.