PALAEONTOLOGICAL HERITAGE REPORT: LETTER OF EXEMPTION

PROPOSED SEDIBA PROTEA SOLAR POWER PLANT ON THE REMAINING EXTENT OF THE FARM KLIPRUG NO. 344 NEAR PARYS, NGWATHE LOCAL MUNICIPALITY, FREE STATE PROVINCE

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EXECUTIVE SUMMARY

Sediba Solar Power Plant (RF) (Pty) Ltd is proposing to develop a photovoltaic solar facility and associated infrastructure, including a battery storage facility on the Remaining Extent of the Farm Kliprug No. 344 just south of Parys, Ngwathe Local Municipality, Free State Province. The proposed facility will have an installed capacity of up to 150 MW and a total footprint of approximately 270 hectares (including supporting infrastructure on site) Two short (< 500 m) grid connections to existing 132 kV power lines are under consideration.

The solar plant and grid connection project areas are underlain by early Precambrian (Archaean) basement rocks of the internationally famous Vredefort Dome impact structure, dated to some 2 billion years ago. They comprise various high grade metamorphic rock units of early Precambrian (Archaean) age referred to the highly deformed Outer Granite Gneiss as well as metamorphic rocks of the Stynskraal Formation and metamorphosed dolerite intrusions. Late Caenozoic alluvial deposits visible in satellite images are likely to be sparsely fossiliferous, with possible non-marine molluscs (*e.g.* unionid bivalves) and mammalian remains. However, these riverine deposits are largely excluded from the project area or will be protected inside ecological riverine buffer zones. Other overlying Late Caenozoic superficial sediments such as sandy soils and downwasted gravels are likely to be, at most, very sparsely fossiliferous. The palaeosensitivity of the combined solar power plant and grid connection project areas is assessed as LOW to VERY LOW. No or, at most, very limited significant impacts on local palaeontological heritage resources are anticipated. There are no known geosites associated with the Vredefort Dome impact structure within the project area. There are no fatal flaws in the proposed solar power plant and grid connection project from a palaeontological heritage viewpoint and there are no objections to authorization of the development.

The ECO responsible for the construction phase of the project should be aware of the potential for important new fossil finds and the necessity to conserve them for possible professional mitigation. The ECO should monitor all site clearance and substantial excavations for fossil remains on an on-going basis during the construction phase (See Chance Fossil Finds Procedure outlined in Appendix 2). Recommended mitigation of chance fossil finds involves safeguarding of the fossils (preferably *in situ*) by the responsible ECO

and reporting of finds to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). Where appropriate, judicious sampling and recording of fossil material and associated geological data by a qualified palaeontologist, appointed by the developer, may be necessary, under a Fossil Collection Permit issued by the relevant heritage resources authority (SAHRA). Any fossil material collected should be curated within an approved repository (museum / university fossil collection) by a qualified palaeontologist.

Pending the potential discovery of scientifically-valuable fossils within the development footprint before or during the construction phase, no further specialist palaeontological studies or mitigation are recommended for the proposed development. A Chance Fossil Finds Protocol is appended to this report and should be included within the EMPr for this project.

1. PROJECT DESCRIPTION & BRIEF

The company Sediba Solar Power Plant (RF) (Pty) Ltd is proposing to develop a photovoltaic solar facility and associated infrastructure, including a battery storage facility, on the Remaining Extent of the Farm Kliprug No. 344, situated between the R59 and N1 trunk road approximately 2 km south of the town of Parys in the Ngwathe Local Municipality, Free State Province (Figs. 1 & 2). The proposed solar facility will have an installed capacity of up to 150 MW and a total footprint of approximately 270 hectares (including supporting infrastructure on site). Two short grid connection options are under consideration. The first option is to connect the on-site switching station to the Parys Town – Scaffell 132kV or Parys Rural – Parys Town 132kV overhead lines with a Loop-in Loop-out connection line. The Alternative connection will be from the on-site substation to the Parys Rural 132/11 kV Substation. Details of the key infrastructural components of the proposed solar facility are provided in Table 1, abstracted from the Project Description Document prepared by Environamics Environmental Consultants (30 March 2021).

According to the Environmental Screening Report prepared for the proposed solar facility by Environamics the project area is of Medium Palaeosensitivity (Fig. 4). The present short desktop palaeontological heritage comment has accordingly been commissioned on behalf of the proponent by the responsible independent EAP, Environamics Environmental Consultants, Potchefstroom (Contact details: Christia van Dyk. Environamics Environmental Consultants, 14 Kingfisher Street, Tuscany Ridge Estate, Potchefstroom, 2531. Telephone: 086 762 8336 Cell: 083 450; 0406. Electronic Mail: christia@environamics.co.za). This report will contribute to the Enviromental Impact Assessment Process for the proposed development, including the overarching Heritage Impact Assessment as well as the Environmental Management Programme (EMPr) for the proposed solar power plant development.

Table 1: Technical details for the proposed Solar Power Plant

Component	Description / dimensions
Height of PV panels	6 meters
Area of PV Array	270 hectares (Development Footprint)
Number of inverters required	Minimum 50
Area occupied by inverter / transformer stations	Central inverters+ LV/MV trafo: 20 m^2 HV/MV substation with switching station: 15 000 m^2 BESS: 4 000 m^2
Capacity of on-site substation	Minimum 130MVA in HV/MV substation
Area occupied by both permanent and construction laydown areas	Permanent Laydown Area: 270 Hectares Construction Laydown Area: ~2000 m^2
Area occupied by buildings	Security Room: ~60 m^2 Office: ~200 m^2 Staff Locker and Changing Room: ~200 m^2
Battery storage facility	Maximum height: 8m Maximum volume: 1740 m^3
Length of internal roads	Approximately 15 km
Width of internal roads	Between 6 & 12 meters
Proximity to grid connection	Approximately 0.5 kilometers
Height of fencing	Approximately 2.5 meters

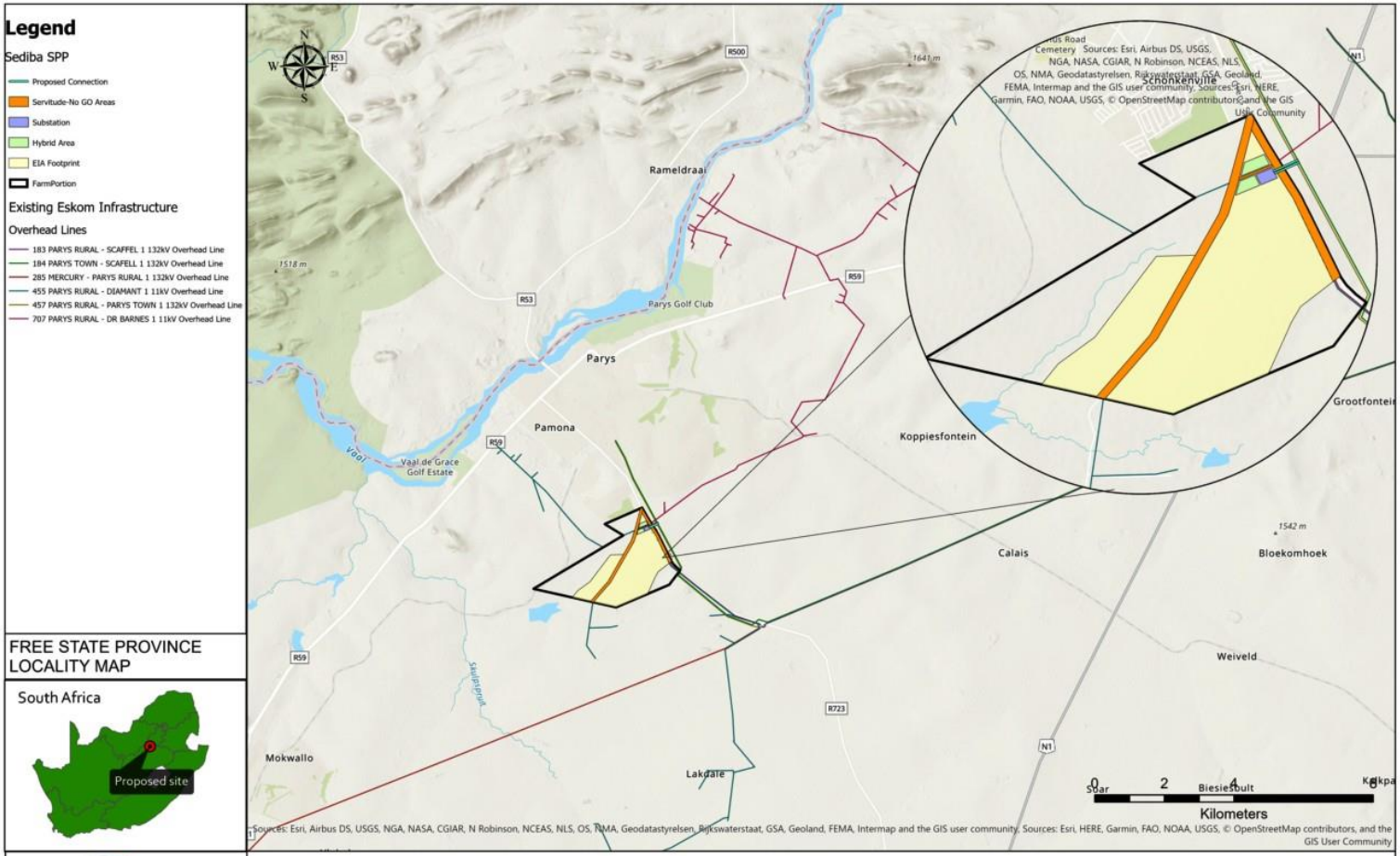

Figure 1: Locality map for the proposed Sediba Solar Power Plant situated on the Remaining Extent of the Farm Kliprug No. 344, situated between the R59 and N1 trunk road approximately 2 km south of the town of Parys, Free State Province.

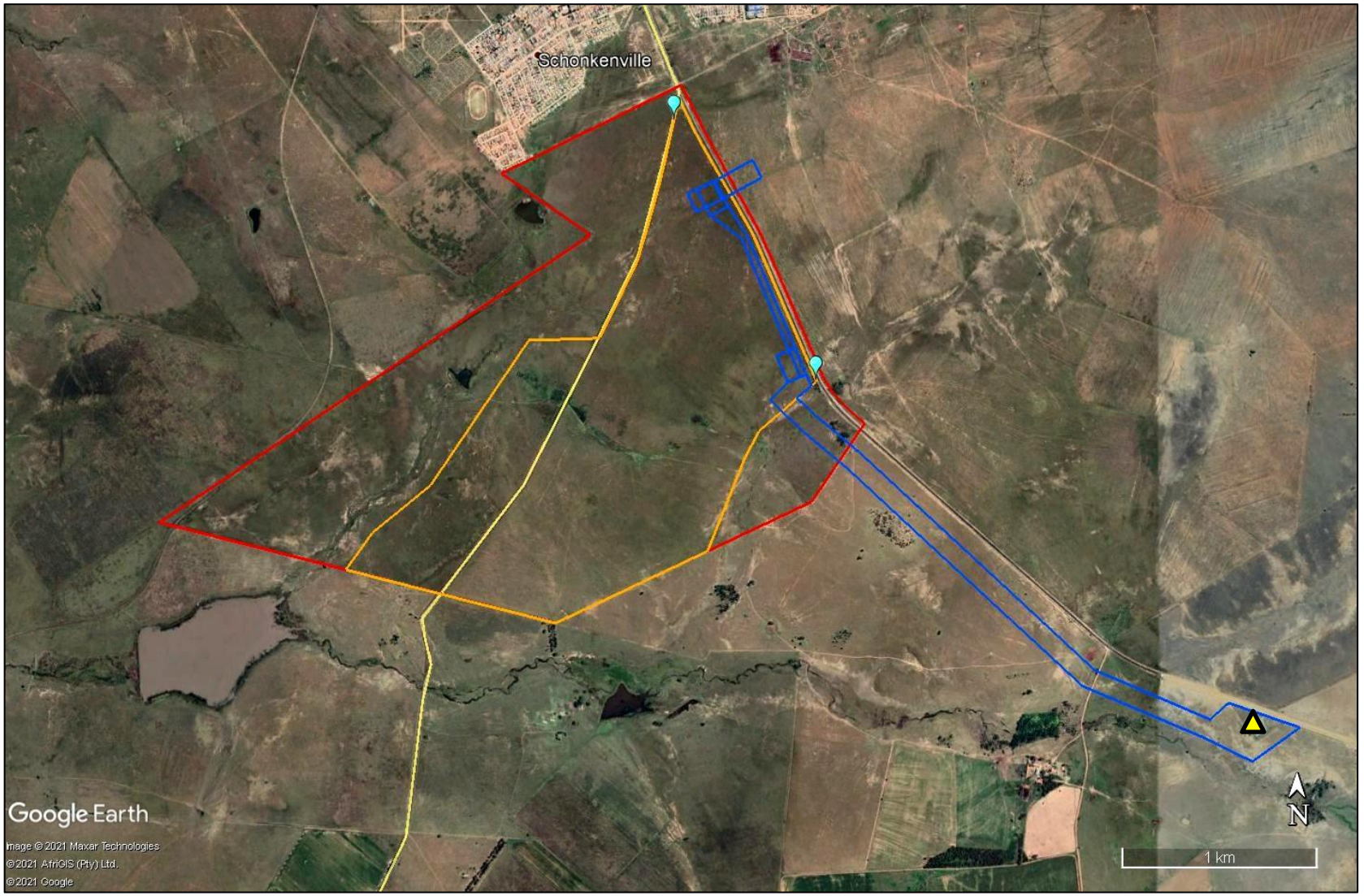

Figure 2: Google Earth© satellite image showing the Remaining Extent of the Farm Kliprug No. 344 (red polygon) south of Parys, the project area for the proposed Sediba Solar Power Plant (orange polygon), access points (pale blue symbols) and grid connection corridor options under consideration (dark blue polygons). The existing Parys Rural Substation is indicated by the yellow triangle. Pale patches within the region probably reflect exposures of sandy to gravelly superficial deposits such as soils and alluvium.

2. APPROACH TO THE PALAEONTOLOGICAL HERITAGE STUDY

The approach to this palaeontological heritage study is briefly as follows. Fossil bearing rock units occurring within the broader study area are determined from geological maps and satellite images. Known fossil heritage in each rock unit is inventoried from scientific literature, previous assessments of the broader study region, and the author's field experience and palaeontological database. Based on this data, the impact significance of the proposed development is assessed with recommendations for any further studies or mitigation.

On the basis of the desktop study, the likely impact of the proposed development on local fossil heritage and any need for specialist mitigation are determined. Adverse palaeontological impacts normally occur during the construction rather than the operational or decommissioning phase. Phase 2 mitigation by a professional palaeontologist – normally involving the recording and sampling of fossil material and associated geological information (*e.g.* sedimentological data) may be required (a) in the pre-construction phase where important fossils are already exposed at or near the land surface and / or (b) during the construction phase when fresh fossiliferous bedrock has been exposed by excavations. To carry out mitigation, the palaeontologist involved will need to apply for palaeontological collection permits from the relevant heritage management authorities, *i.e.* SAHRA for the Free State Province (Contact details: SAHRA, 111 Harrington Street, Cape Town. P.O. Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). It should be emphasized that, *providing appropriate mitigation is carried out*, the majority of developments involving bedrock excavation can make a *positive* contribution to our understanding of local palaeontological heritage.

2.1. Information sources

The information used in this palaeontological heritage study was based on the following:

1. A short project description, maps and kmz files provided by Environamics Environmental Consultants, Potchefstroom;

2. A review of the relevant satellite images, topographical maps and scientific literature, including published geological maps and accompanying sheet explanations (*N.B.* No relevant palaeontological heritage assessment reports for comparable solar facility developments in the region are available on the SAHRIS database).

3. The author's previous field experience with the formations concerned and their palaeontological heritage.

2.2. Assumptions & limitations

The accuracy and reliability of palaeontological specialist studies as components of heritage impact assessments are generally limited by the following constraints:

1. Inadequate database for fossil heritage for much of the RSA, given the large size of the country and the small number of professional palaeontologists carrying out fieldwork here. Most development study areas have never been surveyed by a palaeontologist.

2. Variable accuracy of geological maps which underpin these desktop studies. For large areas of terrain these maps are largely based on aerial photographs alone, without ground-truthing. The maps generally depict only significant ("mappable") bedrock units as well as major areas of superficial "drift" deposits (alluvium, colluvium) but for most regions give little or no idea of the level of bedrock outcrop, depth of superficial cover (soil *etc*), degree of bedrock weathering or levels of small-scale tectonic deformation, such as cleavage. All of these factors may have a major influence on the impact significance of a given development on fossil heritage and can only be reliably assessed in the field.

3. Inadequate sheet explanations for geological maps, with little or no attention paid to palaeontological issues in many cases, including poor locality information.

4. The extensive relevant palaeontological "grey literature" - in the form of unpublished university theses, impact studies and other reports (*e.g*. of commercial mining companies) - that is not readily available for desktop studies.

5. Absence of a comprehensive computerized database of fossil collections in major RSA institutions which can be consulted for impact studies. A Karoo fossil vertebrate database is now accessible for impact study work.

In the case of palaeontological desktop studies without supporting Phase 1 field assessments these limitations may variously lead to either:

(a) *underestimation* of the palaeontological significance of a given study area due to ignorance of significant recorded or unrecorded fossils preserved there, or
(b) *overestimation* of the palaeontological sensitivity of a study area, for example when originally rich fossil assemblages inferred from geological maps have in fact been destroyed by tectonism or weathering, or are buried beneath a thick mantle of unfossiliferous "drift" (soil, alluvium *etc*).

Since most areas of the RSA have not been studied palaeontologically, a palaeontological desktop study usually entails *inferring* the presence of buried fossil heritage within the study area from relevant fossil data collected from similar or the same rock units elsewhere, sometimes at localities far away. Where substantial exposures of bedrocks or potentially fossiliferous superficial sediments are present in the study area, the reliability of a palaeontological impact assessment may be significantly enhanced through field assessment by a professional palaeontologist.

In the case of the present study area in Free State Province near Parys, the author is not aware of any field-based academic or other palaeontological studies (*N.B.* No relevant palaeontological heritage assessment reports for comparable solar facility developments in the region are available on the SAHRIS database).

2.3. Legislative context for palaeontological assessment studies

The proposed alternative energy project is located in an area that is underlain by potentially fossiliferous sedimentary rocks of Precambrian and younger, Late Tertiary or Quaternary, age (Sections 3 and 4). The construction phase of the proposed development will entail substantial excavations into the superficial sediment cover and into the underlying bedrock as well. These may include, for example, surface clearance and excavations for the PV panel footings, internal and access roads, underground cables, powerline pylon footings, on-site electrical substation and BESS, auxiliary buildings and construction site camp. All these developments may adversely affect potential, legally-protected fossil heritage within the study area by destroying, disturbing or permanently sealing-in fossils at or beneath the surface of the ground that are then no longer available for scientific research or other public good. The operational and decommissioning phases of the renewable energy facility are unlikely to involve further adverse impacts on local palaeontological heritage, however.

The various categories of heritage Resources recognised as part of the National Estate in Section 3 of the National Heritage Resources Act include, among others:

- geological sites of scientific or cultural importance;
- palaeontological sites;
- palaeontological objects and material, meteorites and rare geological specimens.

According to Section 35 of the National Heritage Resources Act, dealing with archaeology, palaeontology and meteorites:
(1) The protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage Resources authority.
(2) All archaeological objects, palaeontological material and meteorites are the property of the State.
(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage Resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage Resources authority.
(4) No person may, without a permit issued by the responsible heritage Resources authority—
(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
(5) When the responsible heritage Resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage Resources management procedure in terms of section 38 has been followed, it may—

(a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
(b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
(c) if mitigation is deemed by the heritage Resources authority to be necessary, assist the person on whom the order has been served under paragraph *(a)* to apply for a permit as required in subsection (4); and
(d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.

Minimum standards for the palaeontological component of heritage impact assessment reports (PIAs) have been published by SAHRA (2013).

3. GEOLOGICAL CONTEXT

The project areas for the proposed solar facility on the Remaining Extent of the Farm Kliprug No. 344 *plus* the grid connection corridor options comprise semi-arid terrain of low topographic relief between *c*. 1410 and 1450 m amsl. situated on the southern outskirts of Parys on the west side of the R723 (Fig. 2).

The geology of the solar power plant and grid connection project area is shown on the 1: 250 000 geology map 2626 West Rand (Council for Geoscience, Pretoria; Fig. 3 herein) for which a sheet explanation has not yet been published. The project area lies within the geologically famous circular (*c*. 90 km wide) impact structure known as the **Vredefort Dome**, whose centre lies due south of Parys and which is dated to around 2 billion years ago (Robb *et al.* 2006, Reimold & Gibson 2005, Reimold 2006). Basement bedrock units mapped on Farm Kliprug No. 344 comprise various high grade metamorphic rock units of early Precambrian (Archaean) age referred to the highly deformed Outer Granite Gneiss (Robb *et al.* 2006) (Zi, pink, Zg orange in Fig. 3) as well as metamorphic rocks of the Stynskraal Formation (Zs, dark blue) and metamorphosed dolerites (Vdi).

Based on satellite imagery, bedrock exposure within the project footprint is low to very low; pale areas seen here suggest gullied and / or deflated superficial deposits (probably sands, gravels and sandy soils). Possibly thick Late Caenozoic alluvial deposits are associated with various shallow drainage lines – tributaries of the Skulpspruit which itself feeds into the Vaal River – but these largely lie outside the project area itself and will be largely protected within riverine ecological buffer zones.

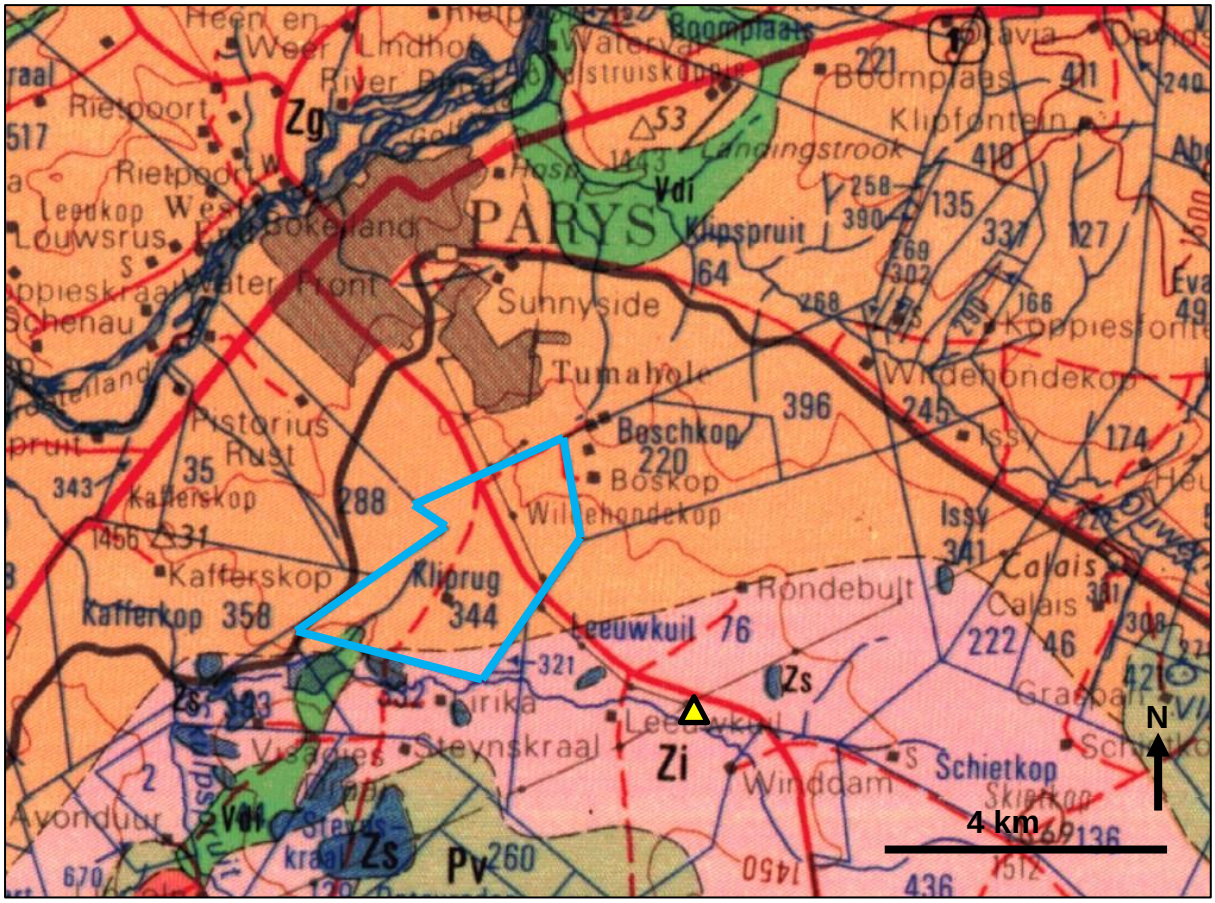

Figure 3: Extract from the 1: 250 000 geological map 2626 West Rand (Council for Geoscience, Pretoria) showing the Farm Kliprug No. 344 south of Parys, Free State (pale blue polygon) and the location of the existing Parys Rural Substation (yellow triangle). The main Precambrian basement rock units mapped here include: Archaean granite-gneisses (Zi, pink, Zg orange), Archaean metamorphic rocks of the Stynskraal Formation (Zs, dark blue) and Precambrian metamorphosed dolerites (Vdi). Late Caenosoic superficial sediments such as alluvium, surface gravels and soils are not mapped at this scale.

4. PALAEONTOLOGICAL HERITAGE

The **Archaean (early Precambrian) basement rocks** of the Vredefort Dome are high-grade, highly deformed metamorphic rocks and consequently entirely unfossiliferous. Some exposures of these ancient rocks are of considerable research and geotourism interest in terms of what they reveal about one of the oldest and largest impact structures on planet Earth (*e.g.* McCarthy & Rubidge 2005, Reimold & Gibson 2005, Reimold 2006). However, no major dome-related geosites lie within the present project area (*cf* Reimold & Gibson 2005, their map figure 152).

Neogene to Recent superficial deposits within the broader project area - viz. sandy soils, downwasted surface gravels, alluvium, possible shallow pan sediments - are likely to be of Low to Very Low palaeosensitivity for the most part. However, these younger sediments might very occasionally contain important fossil biotas, notably the bones, teeth and horn cores of mammals (*e.g.* Cooke 1974, Skead 1980, Klein 1984, MacRae 1999, Partridge & Scott 2000, Churchill *et al*. 2000, Boshoff & Kerley 2013). Other potential late Caenozoic fossil biotas from these superficial deposits include non-marine molluscs (bivalves,

gastropods), ostrich egg shells, trace fossils (*e.g.* calcretised termitaria and other insect burrows or nests, coprolites, rhizoliths), and plant remains such as peats or palynomorphs (pollens) in fine-grained, organic-rich alluvial horizons. Quaternary alluvial sediments may contain reworked Stone Age artifacts that are useful for constraining their maximum age. The Skulpspruit stream running just west of the project area is perhaps named after once-abundant freshwater unionid mussels, the subfossil remains of which might be encountered within alluvial deposits on Farm Kliprug 344 (unconfirmed).

Given that potentially fossiliferous older alluvial sediments are largely excluded from the solar power plant and grid connection project areas, it is concluded that the palaeosensitivity of these project areas is likely to be Low to Very Low.

4.1. Site sensitivity verification

A general MEDIUM palaeosensitivity has been provisionally assigned to the project area for the proposed Sediba Solar Power Plant on the Remaining Extent of the Farm Kliprug No. 344 near Parys, Free State Province by the DFFE screening tool (Fig. 4, abstracted from the Screening Report for Environmental Authorisation prepared by Environamics Environmental Consultants, March 2021).

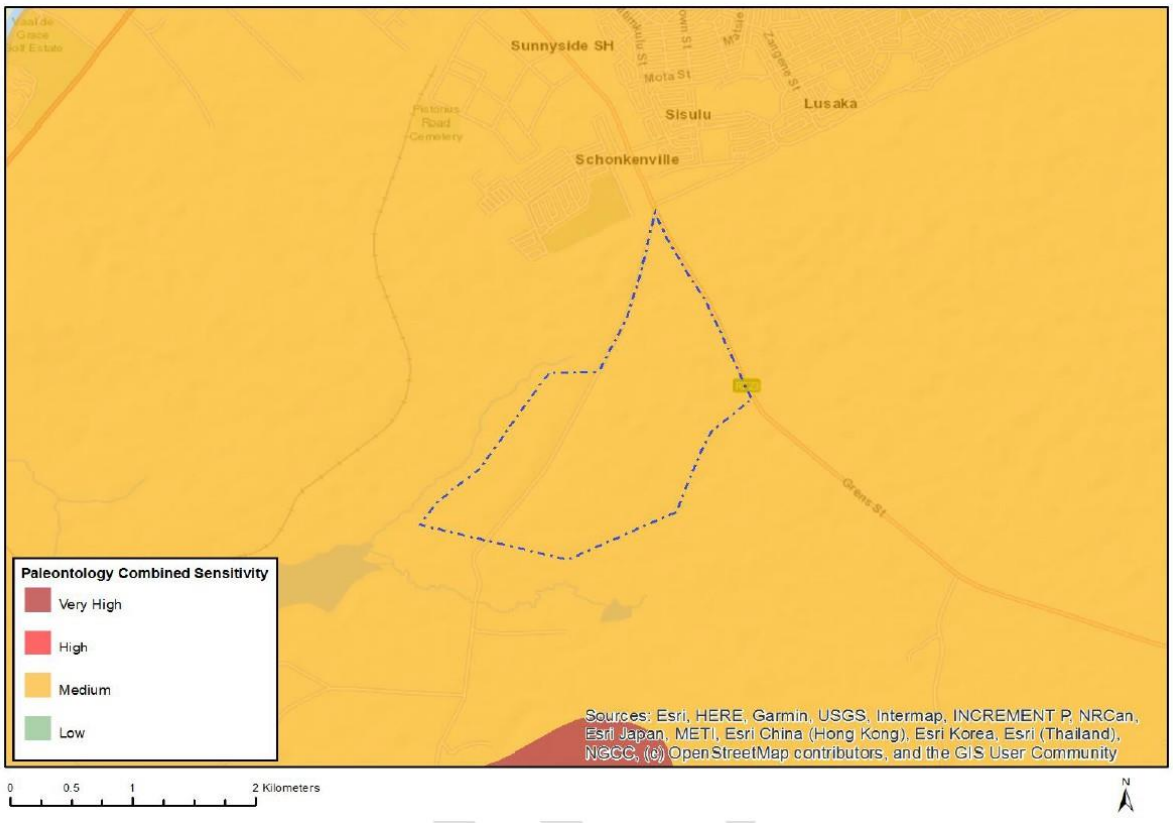

Figure 4: Palaeosensitivity map for the proposed Sediba Solar Power Plant (blue dotted polygon) (Figure abstracted from the Screening Report for Environmental Authorisation prepared by Environamics Environmental Consultants). The project area (including the associated grid connection) is provisionally mapped here as of Medium Palaeosensitivity. A Low to Very Low Palaeosensitivity is inferred here, based on desktop data, however.

The originally proposed Medium palaeosensitivity of the Sediba Solar Power Plant and grid connection project areas is *contested* here. Rather, a generally LOW to VERY LOW palaeosensitivity is assigned to the combined solar power plant and grid connection project area in the present PIA report. This is largely based on satellite imagery and published geological mapping.

5. RECOMMENDATIONS FOR MONITORING AND MITIGATION

No palaeontological High Sensitivity or No-Go areas or other fossil sites requiring specialist mitigation have been identified within the solar power plant and associated grid connection project areas.

The ECO responsible for the construction phase of the solar plant and power line developments should be aware of the potential for important fossil finds – notably fossil mammalian remains, land snails, freshwater mussels and trace fossils (*e.g.* termite nests) within older superficial deposits - and the necessity to conserve them for possible professional mitigation. The ECO should monitor all substantial surface clearance operations and excavations into sedimentary rocks for fossil remains on an on-going basis during the construction phase. A Chance Fossil Finds Procedure for this development is outlined in Appendix 1.

Recommended mitigation of chance fossil finds during the construction phase of the solar PV plant and associated grid connection involves safeguarding of the fossils (preferably *in situ*) by the responsible ECO and reporting of finds to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). Where appropriate, judicious sampling and recording of fossil material and associated geological data by a qualified palaeontologist, appointed by the developer, may be required by the relevant heritage regulatory authorities. Any fossil material collected should be curated within an approved repository (museum / university fossil collection) by a qualified palaeontologist. These recommendations should be included within the Environmental Management Programme for the proposed renewable energy project (Table 2).

6. ACKNOWLEDGEMENTS

Ms Christia Van Dijk and Ms Carli Steenkamp of Environamics Environmental Consultants, Potchefstroom are both thanked for commissioning this study and for providing the relevant background information. Additionally, I am grateful to Ms Lisa Opperman of Environamics for careful editorial work on the draft PIA reports.

Table 2: Proposed monitoring and mitigation measures for incorporation into the EMPr for the Sediba Solar Plant project (Construction phase)

POTENTIAL ASPECTS RESULTING IN POTENTIAL ENVIRONMENTAL IMPACT DURING CONSTRUCTION	RECOMMENDED MITIGATION MEASURES					
	Desired Outcomes	**Targets & Indicators**	**Management and mitigation measures**	**Timeframe**	**Responsibility**	**Monitoring**
Fossil Heritage Resources						
Disturbance, destruction or damage to fossils preserved at or below surface through surface clearance and excavations during construction phase.	Reporting of chance fossil finds to SAHRA for professional recording and sampling.	Superficial deposits (alluvium, soils, gravels) with fossil remains (*e,g.* mammalian bones, teeth, non-marine molluscs).	Monitoring of all major site clearance and excavation work for fossil remains. Substantial well-preserved fossils (*e.g.* vertebrate bones, teeth) to be safeguarded, preferably *in situ*, and reported to SAHRA. Fossil recording and sampling.	On-going during construction phase. Following report of chance fossil finds.	ECO Developer to appoint palaeontologist following significant new fossil finds. Professional palaeontologist.	Compliance to be verified by ECO.

Table 3: Summary of impacts and mitigation measures for the Sediba Solar Plant project (Construction Phase) **COULD OMIT THIS**

SPECIALIST STUDY	IMPACT	PRE-MITIGATION RATING	POST MITIGATION RATING	SUMMARY OF MITIGATION MEASURES
Palaeontological heritage	Disturbance, destruction or damage to fossils preserved at or below surface through surface clearance and excavations during construction phase.	Negative very low	Negative very low	• Monitoring of all major site clearance and excavation work for fossil remains by ECO. • Substantial well-preserved fossils (e.g. vertebrate bones, teeth, non-marine molluscs) to be safeguarded, preferably *in situ*, and reported by ECO to SAHRA. • Recording and sampling of significant new fossil finds by professional palaeontologist.

8. REFERENCES

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9. QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Dr John Almond has an Honours Degree in Natural Sciences (Zoology) as well as a PhD in Palaeontology from the University of Cambridge, UK. He has been awarded post-doctoral research fellowships at Cambridge University and in Germany, and has carried out palaeontological research in Europe, North America, the Middle East as well as North and South Africa. For eight years he was a scientific officer (palaeontologist) for the Geological Survey / Council for Geoscience in the RSA. His current palaeontological research focuses

on fossil record of the Precambrian - Cambrian boundary and the Cape Supergroup of South Africa. He has recently written palaeontological reviews for several 1: 250 000 geological maps published by the Council for Geoscience and has contributed educational material on fossils and evolution for new school textbooks in the RSA.

Since 2002 Dr Almond has also carried out palaeontological impact assessments for developments and conservation areas in the Western, Eastern and Northern Cape, Mpumalanga, Free State, Limpopo, Northwest and Kwazulu-Natal under the aegis of his Cape Town-based company *Natura Viva* cc. He has been a long-standing member of the Archaeology, Palaeontology and Meteorites Committee for Heritage Western Cape (HWC) and an advisor on palaeontological conservation and management issues for the Palaeontological Society of South Africa (PSSA), HWC and SAHRA. He is currently compiling technical reports on the provincial palaeontological heritage of Western, Northern and Eastern Cape for SAHRA and HWC. Dr Almond is an accredited member of PSSA and APHP (Association of Professional Heritage Practitioners – Western Cape).

Declaration of Independence

I, John E. Almond, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.

Dr John E. Almond.
Palaeontologist,
***Natura Viva* cc**

<table>
<tr><td colspan="3">APPENDIX 1: CHANCE FOSSIL FINDS PROCEDURE: Sediba Solar Power Plant on the Remaining Extent of the Farm Kliprug No. 344 near Parys</td></tr>
<tr><td>Province & region:</td><td colspan="2">Free State Province: Ngwathe Local Municipality</td></tr>
<tr><td>Responsible Heritage Resources Agency</td><td colspan="2">SAHRA, P.O. Box 4637, Cape Town 8000.
Contact: Dr Ragna Redelstorff. Tel: 021 202 8651. Email: rredelstorff@sahra.org.za
or Ms Natasha Higgitt. Tel: 021 462 4502. Email: nhiggitt@sahra.org.za</td></tr>
<tr><td>Rock unit(s)</td><td colspan="2">Neogene to Holocene alluvium, aeolian sands, downwasted surface gravels, calcrete hardpans</td></tr>
<tr><td>Potential fossils</td><td colspan="2">Vertebrate bones & teeth, vertebrate and other burrows (e.g. calcretised termitaria),non-marine mollusc shells within superficial sediments.</td></tr>
<tr><td rowspan="5">ECO protocol</td><td colspan="2">1. Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately (N.B. safety first!), safeguard site with security tape / fence / sand bags if necessary.</td></tr>
<tr><td colspan="2">2. Record key data while fossil remains are still in situ:
Accurate geographic location – describe and mark on site map / 1: 50 000 map / satellite image / aerial photo
Context – describe position of fossils within stratigraphy (rock layering), depth below surface
Photograph fossil(s) in situ with scale, from different angles, including images showing context (e.g. rock layering)</td></tr>
<tr><td>3. If feasible to leave fossils in situ:
Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation
Ensure fossil site remains safeguarded until clearance is given by the Heritage Resources Agency for work to resume</td><td>3. If not feasible to leave fossils in situ (emergency procedure only):
Carefully remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g. entire block of fossiliferous rock)
Photograph fossils against a plain, level background, with scale
Carefully wrap fossils in several layers of newspaper / tissue paper / plastic bags
Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist
Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation</td></tr>
<tr><td colspan="2">4. If required by Heritage Resources Agency, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.</td></tr>
<tr><td colspan="2">5. Implement any further mitigation measures proposed by the palaeontologist and Heritage Resources Agency</td></tr>
<tr><td>Specialist palaeontologist</td><td colspan="2">Record, describe and judiciously sample fossil remains together with relevant contextual data (stratigraphy / sedimentology / taphonomy). Ensure that fossils are curated in an approved repository (e.g. museum / university / Council for Geoscience collection) together with full collection data. Submit Palaeontological Mitigation report to Heritage Resources Agency. Adhere to best international practice for palaeontological fieldwork and Heritage Resources Agency minimum standards.</td></tr>
</table>