



**DESKTOP PALAEOLOGICAL  
HERITAGE IMPACT  
ASSESSMENT REPORT ON THE  
SITE OF A PROPOSED SOLAR  
POWER PRODUCTION FACILITY  
KNOWN AS THE BUFFELS SOLAR  
1 PHOTOVOLTAIC ENERGY  
FACILITY TO BE LOCATED  
APPROXIMATELY 20 KM NORTH  
EAST OF ORKNEY, NORTH WEST  
PROVINCE**

21 June 2015

Prepared for:  
Heritage Contracts and Archaeological  
Consulting CC

On behalf of:  
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**DESKTOP PALAEOLOGICAL HERITAGE IMPACT ASSESSEMENT REPORT ON  
THE SITE OF A PROPOSED SOLAR POWER PRODUCTION FACILITY KNOWN AS  
THE BUFFELS SOLAR 1 PHOTOVOLTAIC ENERGY FACILITY TO BE LOCATED  
APPROXIMATELY 20 KM NORTH EAST OF ORKNEY, NORTH WEST PROVINCE**

Prepared for:

Heritage Contract and Archaeological Consulting CC

On Behalf of:

Kabi Solar (Pty) Ltd

Prepared By:

Prof B.D. Millstead

## **EXECUTIVE SUMMARY**

Kabi Solar (Pty) Ltd is proposing the development a commercial photovoltaic (PV) solar energy generation facility (known as Buffels Solar 1) as well as all associated infrastructure on Portion 5 of the farm Hartebeestfontein 422 which is situated approximately 20 km north east of Orkney in the North West Province. The location of the proposed project falls within the jurisdiction of City of Matlosana Local Municipality, which forms part of the Dr Kenneth Kaunda District Municipality. The generating capacity of the PV solar energy facility will be up to 100 MW. The purpose of the proposed PV facility will be to evacuate the generated power into the Eskom electricity grid.

Kabi Solar (Pty) Ltd has appointed Savannah Environmental (Pty) Ltd as the independent environmental consultants, to undertake the required Scoping Phase and EIA to identify and assess all the potential environmental impacts associated with the proposed project, and to propose appropriate mitigation and management measures in an Environmental Management Programme (EMPr). Savannah Environmental (Pty) Ltd has appointed Heritage Contract and Archaeological Consulting CC, as independent consultants, to undertake a Heritage Impact Assessment of the project area. Heritage Contract and Archaeological Consulting CC has contracted BM Geological Services to provide a desktop Palaeontological Heritage Impact Assessment Report in respect of the proposed project that will form part of the final Heritage Impact Assessment Report.

The project area is completely underlain by early Precambrian carbonate sedimentary rocks of the Malmani Subgroup, Transvaal super group. These rocks are well known for their prolific stromatolite assemblages. Should the bedrock underlying the project area be impacted by the construction process the likelihood of these assemblages being negatively affected is moderate. However, it appears that the area lacks significant bedrock outcrop and bears an extensive cover of regolith. Accordingly, as it is considered that the majority of the impact of the construction process will be restricted to the upper-most 1-2 m of the land surface the probability of any negative impact is assessed as being low. The stromatolite assemblages do exhibit morphological variation across their extent, but the range of morphotypes is not large and each of the morphotypes is present over extensive aerial extents. Accordingly, it is considered that the significance of any negative impacts that may be associated with this project will be low.

The project has been assessed as being socially beneficial, herein, as it would provide electricity to an increasingly stressed national power grid. This positive assessment needs to be balanced against both the low probability and low significance of any potential negative impact on the palaeontological heritage of either project area. With

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

these criteria in mind the status of the project is assessed and being both positive and beneficial.

**In summary, this desktop study has not identified any palaeontological reason to prejudice the progression of the Buffels Solar 1 solar energy facility.**



## TABLE OF CONTENTS

1	INTRODUCTION.....	6
2	TERMS OF REFERENCE AND SCOPE OF THE STUDY .....	6
3	LEGISLATIVE REQUIREMENTS .....	8
3.1	The National Heritage Resources Act.....	8
3.2	Need for Impact Assessment Reports.....	8
3.3	Legislation Specifically Pertinent to Palaeontology*.....	9
3.4	The National Environmental Management Act [as amended] .....	10
4	RELEVANT EXPERIENCE .....	11
5	INDEPENDENCE.....	11
6	GEOLOGY AND FOSSIL POTENTIAL .....	11
6.1	Malmani Subgroup .....	11
6.1.1	Geology .....	11
6.1.2	Palaeontological potential.....	12
7	ENVIRONMENT OF THE PROPOSED PROJECT SITE .....	12
8	OVERVIEW OF SCOPE OF THE PROJECT .....	18
8.1	Effect of project on the geology .....	18
9	IMPACT ASSESSMENT .....	18
9.1	Nature of Impact.....	18
9.2	Extent of impact.....	19
9.3	Duration of impact .....	19
9.4	Probability of impact.....	19
9.5	Significance of the impact .....	20
9.6	Severity / Benefit scale .....	20
9.7	Status.....	21
10	DAMAGE MITIGATION, REVERSAL AND POTENTIAL IRREVERSABLE LOSS .....	21
10.1	Mitigation .....	21
10.2	Reversal of damage.....	21
10.3	Degree of irreversible loss .....	21
11	ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE .....	22

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

12	ENVIRONMENTAL IMPACT STATEMENT .....	22
13	REFERENCES .....	22

### TABLE OF FIGURES

<b>Figure 1:</b>	Location map showing the position of the Buffels Solar 1 solar energy facility and its associated infrastructure. ....	7
<b>Figure 2.</b>	Generalised geological map of the areas underlying the Buffels Solar 1 solar energy facility, its associated infrastructure and the immediate environs. ....	13
<b>Figure 3.</b>	Environment of the Buffels Solar 1 project area and it immediate environs. The topographic relief contour interval is 20 m. ....	14
<b>Figure 4:</b>	Google earth image of the site of the proposed Buffels Solar 1 solar energy facility (red polygon) and its associated infrastructure. The subdivision of the project area into the area depicted in Figures 5 and 6 is either side of the blue dashed line. ....	15
<b>Figure 5.</b>	Google earth image showing a close-up view of the northern portion of the Buffels Solar 1 project area (i.e., the area north of the blue dotted line in Figure 4). ....	16
<b>Figure 6.</b>	Google earth image showing a close-up view of the southern portion of the Buffels Solar 1 project area (i.e., the area south of the blue dotted line in Figure 4). ...	16
<b>Figure 7:</b>	Map of the distribution of the vegetation veld types located beneath the project area and within its immediate environs (after Mucina and Rutherford, 2006). ....	17

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

## **1 INTRODUCTION**

Kabi Solar (Pty) Ltd is proposing the development a commercial photovoltaic (PV) solar energy generation facility (known as Buffels Solar 1) as well as all associated infrastructure on Portion 5 of the farm Hartebeestfontein 422 which is situated approximately 20 km north east of Orkney in the North West Province. The location of the proposed project falls within the jurisdiction of City of Matlosana Local Municipality, which forms part of the Dr Kenneth Kaunda District Municipality. The generating capacity of the PV solar energy facility will be up to 100 MW. The purpose of the proposed PV facility will be to evacuate the generated power into the Eskom electricity grid.

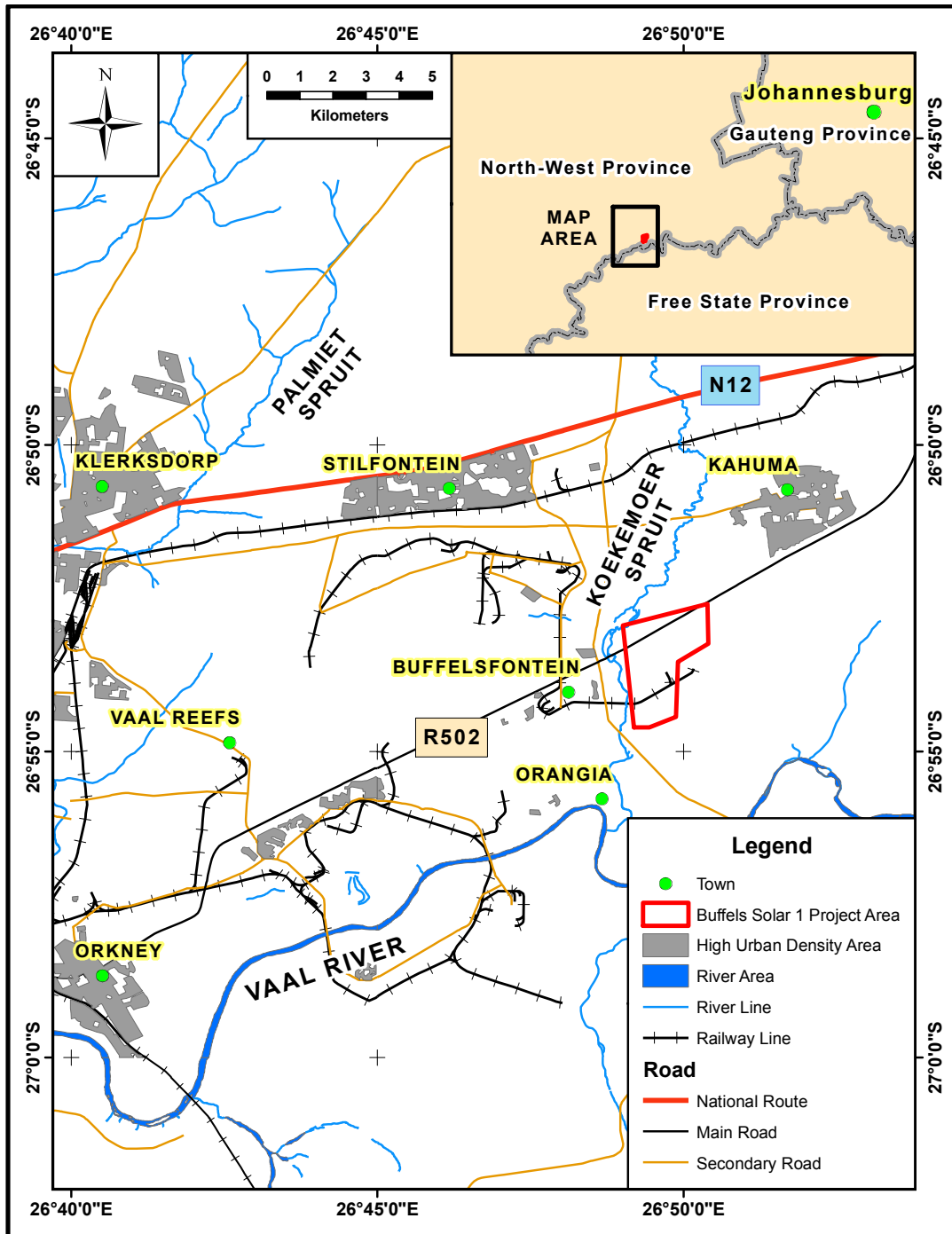
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## **2 TERMS OF REFERENCE AND SCOPE OF THE STUDY**

The terms of reference for this study were as follows:-

- Conduct a desktop assessment of the potential impact of the proposed project on the palaeontological heritage of the project area.
- Describe the possible impact of the proposed development on the palaeontological heritage of the site, according to a standard set of conventions.
- Quantify the possible impact of the proposed development on the palaeontological heritage of the site, according to a standard set of conventions.
- Provide an overview of the applicable legislative framework.
- Make recommendations concerning future work programs as, and if, necessary.

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.



**Figure 1:** Location map showing the position of the Buffels Solar 1 solar energy facility and its associated infrastructure.

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

### **3 LEGISLATIVE REQUIREMENTS**

South Africa's cultural resources are primarily dealt with in two Acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

#### **3.1 The National Heritage Resources Act**

The following are protected as cultural heritage resources by the National Heritage Resources Act:

- Archaeological artefacts, structures and sites older than 100 years,
- Ethnographic art objects (e.g. prehistoric rock art) and ethnography,
- Objects of decorative and visual arts,
- Military objects, structures and sites older than 75 years,
- Historical objects, structures and sites older than 60 years,
- Proclaimed heritage sites,
- Grave yards and graves older than 60 years,
- Meteorites and fossils,
- Objects, structures and sites of scientific or technological value.

The Act also states that those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities. The national estate includes the following:

- Places, buildings, structures and equipment of cultural significance,
- Places to which oral traditions are attached or which are associated with living heritage,
- Historical settlements and townscapes,
- Landscapes and features of cultural significance,
- Geological sites of scientific or cultural importance,
- Sites of Archaeological and palaeontological importance,
- Graves and burial grounds,
- Sites of significance relating to the history of slavery,
- Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.).

#### **3.2 Need for Impact Assessment Reports**

Section 38 of the Act stipulates that any person who intends to undertake an activity that falls within the following:

- The construction of a linear development (road, wall, power line, canal etc.) exceeding 300 m in length,

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- The construction of a bridge or similar structure exceeding 50 m in length,
- Any development or other activity that will change the character of a site and exceed 5 000 m<sup>2</sup> or involve three or more existing erven or subdivisions thereof,
- Re-zoning of a site exceeding 10 000 m<sup>2</sup>,
- Any other category provided for in the regulations of SAHRA or a provincial heritage authority.

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. If there is reason to believe that heritage resources will be affected by such development, the developer may be notified to submit an impact assessment report. A Palaeontological Impact Assessment (PIA) only looks at the potential impact of the development palaeontological resources of the proposed area to be affected.

### **3.3 Legislation Specifically Pertinent to Palaeontology\***

\*Note: Section 2 of the Act defines "palaeontological" material as "any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains".

Section 35(4) of this Act specifically deals with archaeology, palaeontology and meteorites. The Act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- Destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite,
- Destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite,
- 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
- Bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites,
- Alter or demolish any structure or part of a structure which is older than 60 years as protected.

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

The above mentioned palaeontological objects may only be disturbed or moved by a palaeontologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Further to the above point, Section 35(3) of this Act indicates that “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”. Thus, regardless of the granting of any official clearance to proceed with any development based on an earlier assessment of its impact on the Palaeontological Heritage of an area, the development should be halted and the relevant authorities informed should fossil objects be uncovered during the progress of the development.

### **3.4 The National Environmental Management Act [as amended]**

This Act does not provide the detailed protections and administrative procedures for the protection and management of the nation’s Palaeontological Heritage as are detailed in the National Heritage Resources Act, but is more general in its application. In particular Section 2(2) of the Act states that environmental management must place people and their needs at the forefront of its concerns and, amongst other issues, serve their cultural interests equitably. Further to this point section 2(4)(a)(iii) states that disturbances of sites that constitute the nation’s cultural heritage should be avoided, and where it cannot be avoided should be minimised and remedied.

Section 23(1) indicates that a general objective of integrated environmental management is to identify, predict and evaluate the actual and potential impact of activities upon the cultural heritage. This section also highlights the need to identify options for mitigating of negative effects of activities with a view to minimising negative impacts.

In order to give effect to the general objectives of integrated environmental management outlined in the Act the potential impact on cultural heritage of activities that require authorisation or permission by law must be investigated and assessed prior to their implementation and reported to the relevant organ of state. Thus, a survey and evaluation of cultural resources must be done in areas where development projects that will potentially negatively affect the cultural heritage will be performed. During this process the impact on the cultural heritage will be determined and proposals for the mitigation of the negative effects made.

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

#### **4 RELEVANT EXPERIENCE**

Prof Millsteed holds a PhD in palaeontology and has previously been employed as a professional palaeontologist with the Council for Geoscience in South Africa. He is currently the principle of BM Geological Services and has sufficient knowledge of palaeontology and the relevant legislation required to produce this Palaeontological Impact Assessment Report. Prof Millsteed is registered with the South African Council for Natural Scientific Professions (SACNASP), and is a member of the Palaeontological Society of South African and the Geological Society of South Africa.

#### **5 INDEPENDENCE**

Prof Millsteed was appointed as an independent consultant to conduct this Palaeontological Heritage Impact Assessment study and shall receive fair remuneration for these professional services. Neither Prof Millsteed nor BM Geological Services has any financial interest in either Kabi Solar (Pty) Ltd or the proposed Buffels Solar 1 Energy Facility.

#### **6 GEOLOGY AND FOSSIL POTENTIAL**

Figure 2 shows that the project area is completely underlain by Palaeoproterozoic (i.e., early Precambrian age) rocks of the Malmani Subgroup, Chuniespoort Group of the Transvaal Supergroup. A summary of the characteristics of the Malmani Subgroup and its fossiliferous potential follows.

##### **6.1 Malmani Subgroup**

###### **6.1.1 Geology**

The Malmani Subgroup of the Transvaal Supergroup is up to 2000 m thick and is comprised of five formations; these stratigraphic units are the Oaktree, Montecristo, Lyttelton, Eccles and Frisco Formations (Eriksson *et al.*, 2006). The five units represent a cyclic alternation of between dark and light coloured carbonates, chert content and the abundance of contained stromatolites and their morphology (Eriksson *et al.*, 2006).

The Malmani Subgroup is Vaalian (i.e., Late Achaean to early Proterozoic in age) and a tuff layer in the upper portions of the Oaktree Formation has been dated at 2585 (Martin *et al.*, 1998). The sediments of the Malmani Subgroup are proposed to have been deposited within a shallow, epi-arc sea marine environment.



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### 6.1.2 Palaeontological potential

The carbonate rocks of the Malmani Subgroup are well-known for their prolific assemblages of stromatolites. A tidal palaeoenvironmental model has been proposed for the subgroup with palaeoenvironments ranging from supraidal flat stromatolite mats to intertidal columnar stromatolites and a subtidal zone characterised by the presence of giant stromatolitic domes (Eriksson and Truswell, (1974) and (Eriksson et al., 1975). The early Precambrian age of the strata predate the evolution of metazoan life and, accordingly, no macrofossils of other biological groups is known from the unit.

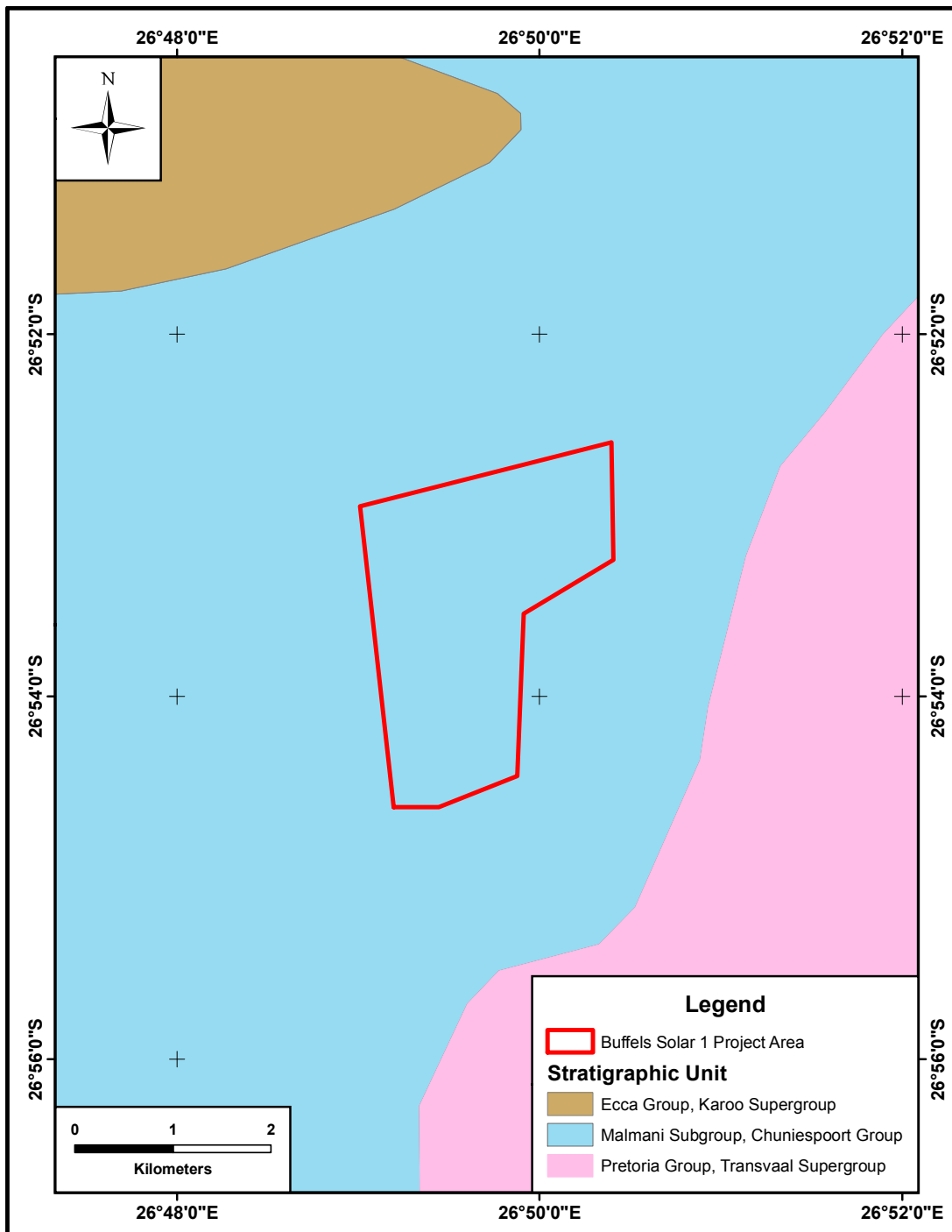
## **7 ENVIRONMENT OF THE PROPOSED PROJECT SITE**

The area reported upon, herein, is approximately 537 ha in extent, but the final footprint of the project is expected to be restricted to only approximately 330 ha of the total area. Examination of Figure 3 indicates that the reporting area lies on the western flank of a gently sloping topographic spur; it lies immediately to the east of the Koekemoer Spruit and approximately 2.8 km north of the Vaal River. Figure 3 further shows that the towns of Stilfontein, Buffelsfontein, Orangia and Kahuma lie in close proximity to the project area and the road R502 transects the northern portion of the area, while a dirt road traverses the southern portions. A railway line traverses the southern portion of the area, lying just to the north of the dirt road. It is evident that much of the surrounding environs of the project area have been modified by mining activities, with large areas being covered by mine slimes dams and waste rock dumps. Inside the project area there are a number of water pipelines present that traverse the land surface.

Google earth imagery (Figures 4, 5 and 6) indicate that the proposed location of the photovoltaic generation facility is generally topographically flat and featureless, and vegetated with grassland. A mine dump, a dam and a series of built structures are also evident immediately adjacent to the central eastern margin of the project area. Similarly, numerous built structures are evident to the west of the area and immediately adjacent to Koekemoer Spruit.

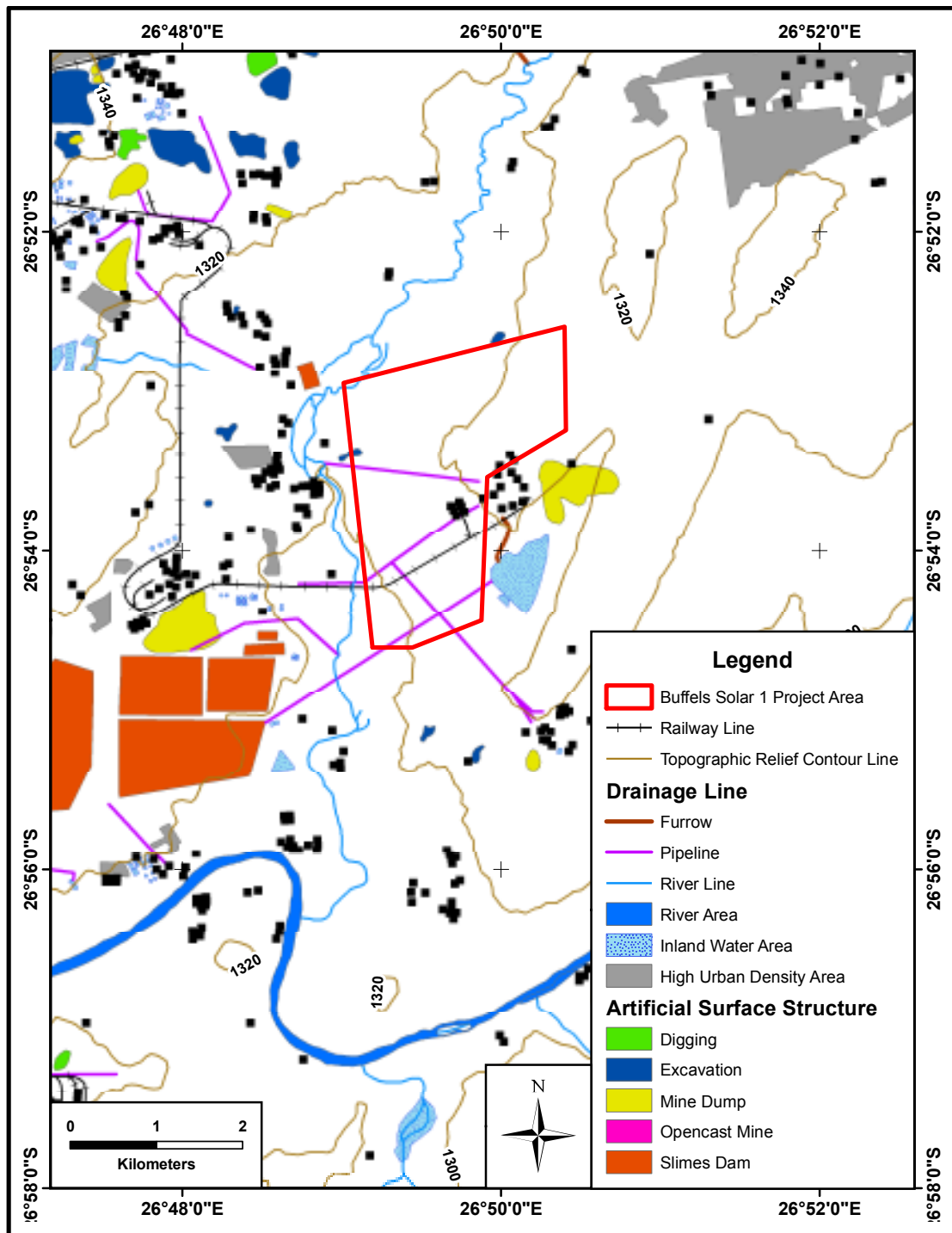
The entire extent of the project area was originally vegetated with the Vaal Reefs Dolomite Sinkhole Woodland vegetation type (Figure 7). Although named as a woodland type, this vegetation assemblage was listed by Mucina and Rutherford (2006) as forming part of the wider Grassland Biome; the grassland biome assignment is in agreement with the observations of the vegetation cover of the area made above from Google earth imagery. The conservation status of this vegetation assemblage has been categorised as vulnerable by Mucina and Rutherford (2006).

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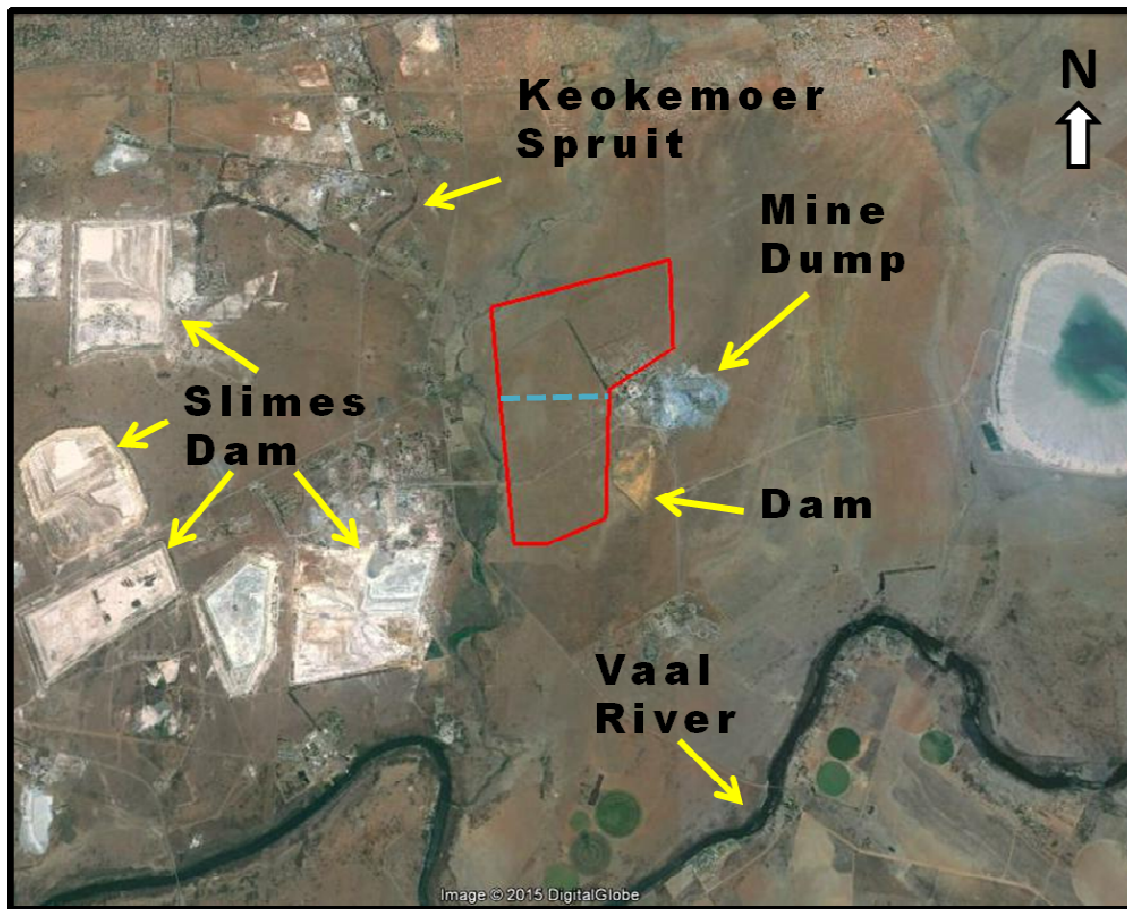
**Figure 2.** Generalised geological map of the areas underlying the Buffels Solar 1 solar energy facility, its associated infrastructure and the immediate environs.

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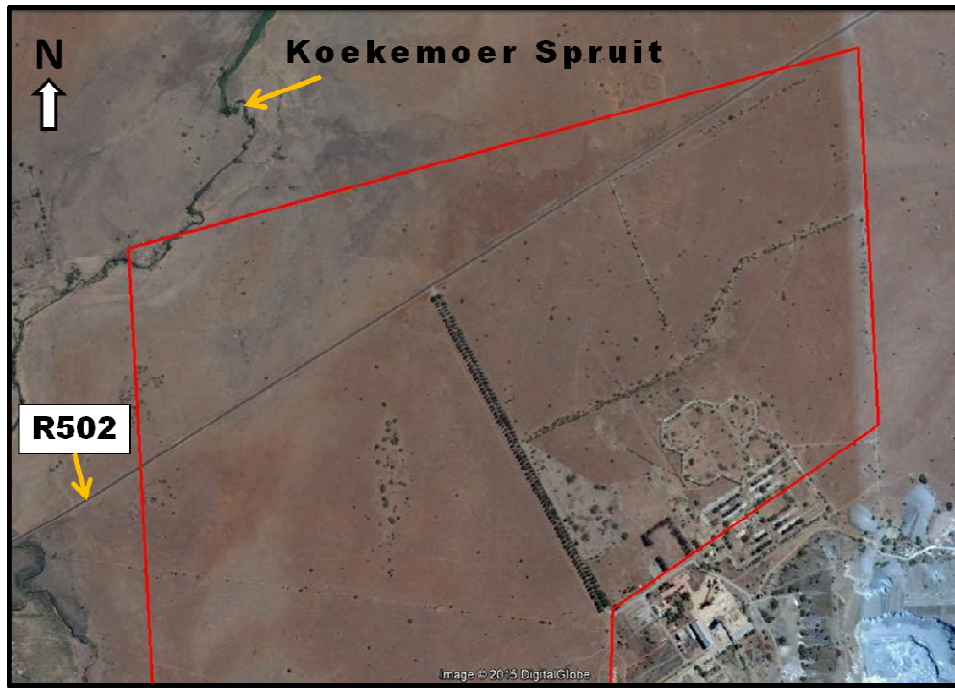
**Figure 3.** Environment of the Buffels Solar 1 project area and its immediate environs. The topographic relief contour interval is 20 m.

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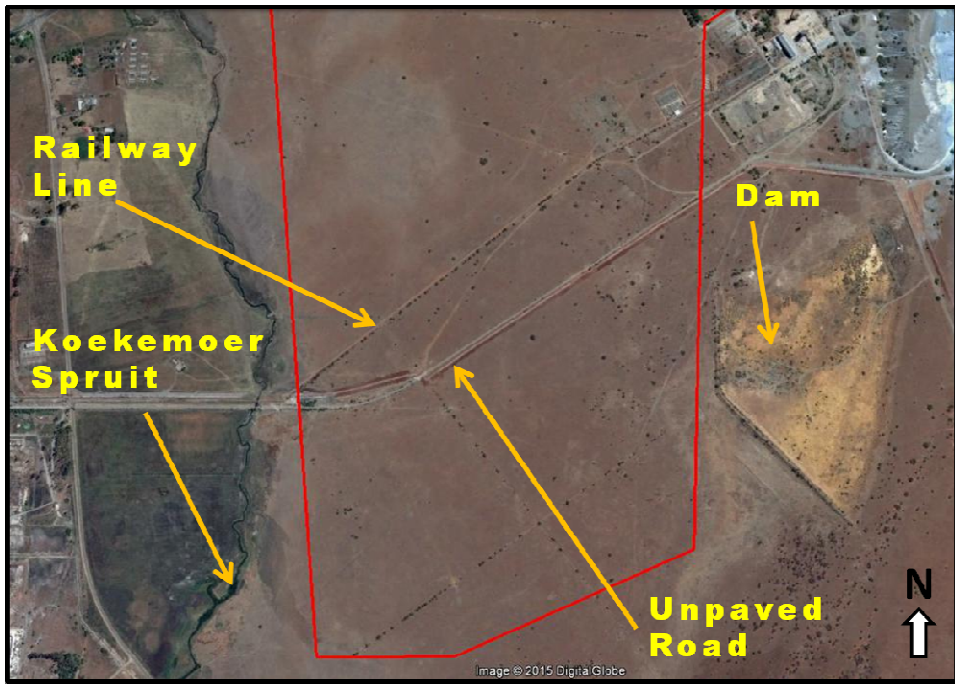


**Figure 4:** Google earth image of the site of the proposed Buffels Solar 1 solar energy facility (red polygon) and its associated infrastructure. The subdivision of the project area into the area depicted in Figures 5 and 6 is either side of the blue dashed line.

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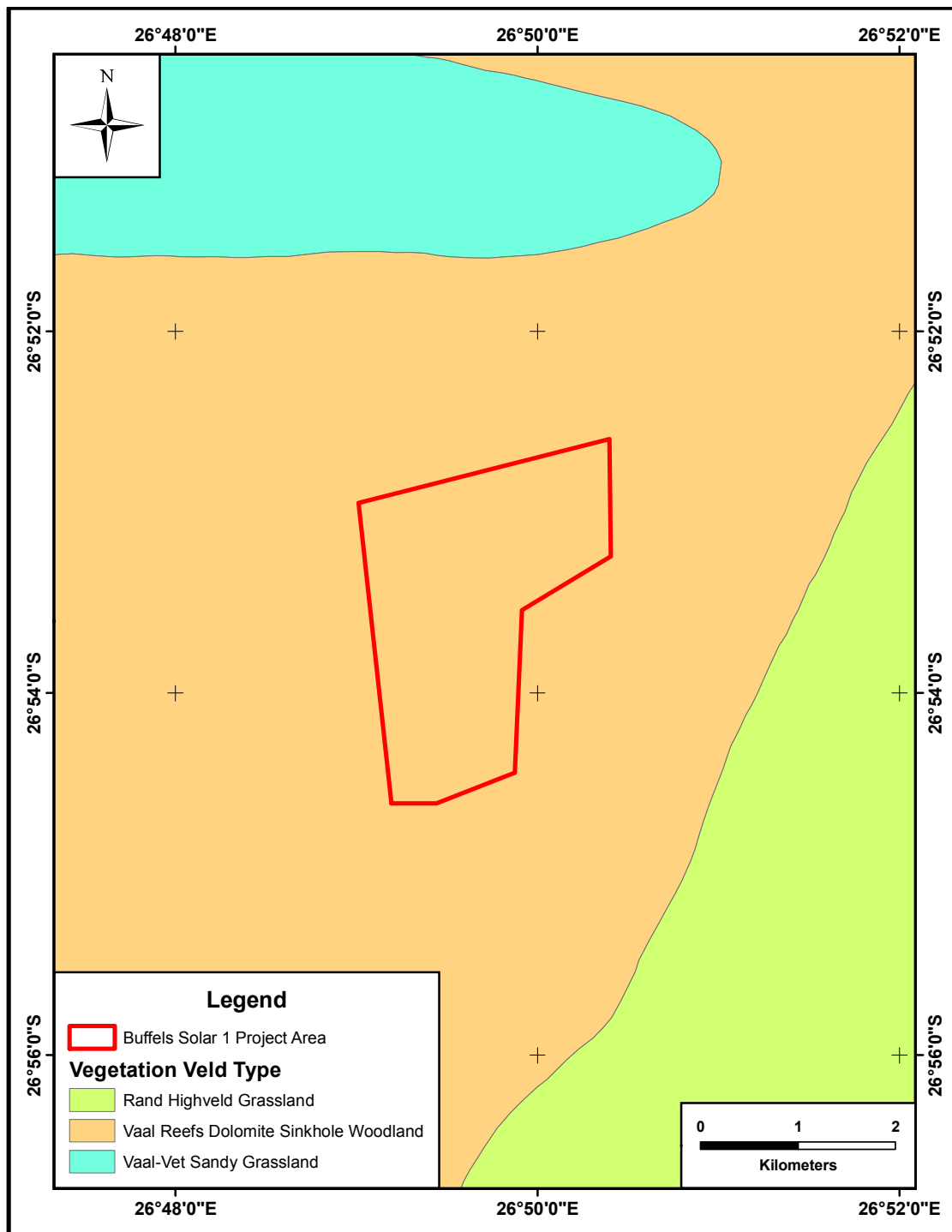


**Figure 5.** Google earth image showing a close-up view of the northern portion of the Buffels Solar 1 project area (i.e., the area north of the blue dotted line in Figure 4).



**Figure 6.** Google earth image showing a close-up view of the southern portion of the Buffels Solar 1 project area (i.e., the area south of the blue dotted line in Figure 4).

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.



**Figure 7:** Map of the distribution of the vegetation veld types located beneath the project area and within its immediate environs (after Mucina and Rutherford, 2006).



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## **8 OVERVIEW OF SCOPE OF THE PROJECT**

The Buffels Solar 1 facility is proposed to include arrays of photovoltaic (PV) solar panels with a generating capacity of up to 100 MW. The development footprint for the facility is anticipated to be approximately 330 hectares in extent.

Infrastructure associated with the proposed facility will include:

- Mounting structures to support the PV panels.
- On-site inverters to step up the power and a substation to facilitate the connection between the solar energy facility and the Eskom electricity grid.
- New 132kV power line between the on-site substation and the Eskom grid connection point.
- Cabling between the projects components, to be laid underground where practical.
- Offices and workshop areas for maintenance and storage.
- Temporary laydown areas.
- Internal access roads and fencing around the development area.

The planned grid connection for the project is as follows:

- Buffels Solar 1: Connect into a bay at the Eskom’s Buffels East substation situated on the site or alternatively turn in – turn out of the Hermes–Buffels East 132 kV power line.

### **8.1 Effect of project on the geology**

It is interpreted from Section 8 above that the development anticipated within the project area could be expected to be restricted to the upper 1-2 m of the land surface, with the deepest anticipated impacts upon the underlying geology resulting from the excavations required to lay the underground cables, and for the foundations required for the various buildings and photovoltaic panels.

## **9 IMPACT ASSESSMENT**

The potential impact of the proposed mining area is categorised below according to the following criteria:-

### **9.1 Nature of Impact**

The potential negative impacts of the proposed project on the palaeontological heritage of the area are:

Palaeontological Impact Assessment Report –On the site of a proposed solar power production facility known as Buffels Solar 1 Energy Facility, approximately 20 km north east of Orkney, North West Province.

- Damage or destruction of fossil materials during the construction of project infrastructural elements to a maximum depth of those excavations. Many fossil taxa (particularly vertebrate taxa) are known from only a single fossil and, thus, any fossil material is potentially highly significant. Accordingly, the loss or damage to any single fossil can be potentially significant to the understanding of the fossil heritage of South Africa and to the understanding of the evolution of life on Earth in general. Where fossil material is present and will be directly affected by the building or construction of the projects infrastructural elements the result will potentially be the irreversible damage or destruction of the fossil(s).
- Movement of fossil materials during the construction phase, such that they are no longer *in situ* when discovered. The fact that the fossils are not *in situ* would either significantly reduce or completely destroy their scientific significance.
- The loss of access for scientific study to any fossil materials present beneath infrastructural elements for the life span of the existence of those constructions and facilities.

## **9.2 Extent of impact**

The possible extent of the permanent impact of the proposed project on the palaeontological heritage of South Africa is restricted to the damage, destruction or accidental relocation of fossil material caused by the excavations and construction of the necessary infrastructure elements forming part of the project. The possible source of a less permanent negative impact on the palaeontological heritage is the loss of access for scientific research to any fossil materials that become covered by the various infrastructural elements that comprise the project. The **extent of the area of potential impact is, accordingly, categorised as local** (i.e., restricted to the project site).

## **9.3 Duration of impact**

The anticipated duration of the identified potential impact is assessed as potentially **permanent to long term**. This assessment is based on the fact that, in the absence of mitigation procedures (should fossil material be present within the area to be affected) the damage or destruction of any palaeontological materials will be permanent. Similarly, any fossil materials that exist below the structures and infrastructural elements that will constitute the two industrial parks will be unavailable for scientific study for the life of the existence of those features.

## **9.4 Probability of impact**

The area reported upon, herein, is completely underlain by rocks of the Malmani Subgroup and, thus, these rocks will underlie the entire solar energy facility regardless



of where its infrastructure is finally located within the reporting area. The geological unit is composed predominantly of marine carbonate sedimentary rocks. The only fossil materials known to occur within these rocks anywhere in their extent are stromatolite assemblages. These stromatolite assemblages are common and occur over large geographic area where they occur, and they are certainly common within the rocks of the Malmani Subgroup. Accordingly, should the emplacement of the project infrastructure disrupt bedrock strata the probability of negatively impacting upon the stromatolite assemblages is high. However, it was evident from Google earth imagery (see discussion in Section 7 above) that the entire extent of the reporting area is topographically flat and featureless and is extensively vegetated with grasslands. The combination of these features suggests an extensive regolith cover and a paucity of outcrop (none was evident in the Google earth imagery). Accordingly, as it is anticipated that the impacts of the building of the infrastructure will be limited to the upper 1-2 m of the land surface the probability of any negative impact upon the stromatolite assemblages is assessed as being **moderate**.

#### **9.5 Significance of the impact**

The sedimentary rocks of the Malmani Subgroup contain abundant stromatolite assemblages that exhibit marked morphological variation according to the depositional environment prevalent at the time of deposition. However, the stromatolite assemblages cover extensive aerial extents and the range of morphologies exhibited is reasonably restricted. As a result, it is considered herein that the significance of any negative impact upon these stromatolite assemblages will be low. The significance of any affect of the mining operations on the palaeontological heritage of this unit is **low**. The strata comprising the Pretoria group are unfossiliferous and the significance of any negative impact to the palaeontological heritage of this stratigraphic unit is **nil**.

#### **9.6 Severity / Benefit scale**

The proposed project is categorised, herein, as being potentially **beneficial**. This classification is based on the intention that the project will provide renewable energy to an increasingly strained national power grid.

The probability of a negative impact on the palaeontological heritage of the project areas underlain by the Malmani Subgroup has been categorised as **moderate**, but the significance of that impact will be low while both the probability and significance of any impact upon the Pretoria group is **nil**. As such there will be minimal negative effects on the palaeontological heritage of the project area compared to the potential benefits of the project.

## **9.7 Status**

Given the combination of factors discussed above, it is anticipated that the construction phase of the project will result in minimal negative effects on the palaeontological heritage of the area. As the proposed project would provide electricity to the national power grid which is currently regularly failing to meet the demands placed upon it. The project is determined as having a **positive status** herein.

## **10 DAMAGE MITIGATION, REVERSAL AND POTENTIAL IRREVERSABLE LOSS**

The degree to which the possible negative effects of the proposed project can be mitigated, reversed or will result in irreversible loss of the palaeontological heritage can be determined as discussed below.

### **10.1 Mitigation**

No damage mitigation protocols are required to preserve the palaeontological heritage of this area and none are suggested herein.

### **10.2 Reversal of damage**

Any damage to, or the destruction of, palaeontological materials or reduction of scientific value due to a loss of the original location is **irreversible**.

### **10.3 Degree of irreversible loss**

Once a fossil is damaged, destroyed or moved from its original position without its geographical position and stratigraphic location being recorded the **damage is irreversible**.

Fossils are usually scarce and sporadic in their occurrence and the chances of negatively impacting on a fossil in any particular area are low. However, any fossil material is potentially of the greatest scientific and cultural importance. Thus, the potential always exists during construction and excavation within potentially fossiliferous rocks for the permanent and irreversible loss of extremely significant or irreplaceable fossil material. This said, many fossils are incomplete in their state of preservation or are examples of relatively common taxa. As such, just because a fossil is present it is not necessarily of great scientific value. Accordingly, not all fossils are necessary significant culturally or scientifically significant and the potential degree of irreversible loss will vary from case to case. The judgement on the significance of the fossil must be made by an experienced palaeontologist.

## **11 ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE**

The information provided within this report was derived from a desktop study of available maps and scientific literature; no direct observation was made of the area as result of a site visit.

## **12 ENVIRONMENTAL IMPACT STATEMENT**

A desktop study has been conducted on the site of the proposed Buffels Solar 1 solar energy facility. The proposed project area reported upon herein is moderately large (approximately 537 ha) with the final development footprint being approximately 330 ha). However, any negative impacts to the palaeontological heritage of the region will be limited to the footprint area of the final development area. The extent of any impacts is accordingly characterised as local.

In terms of the effects of the required construction operations disruption to geological strata will be restricted to carbonate sedimentary rocks of the Malmani Subgroup and any overlying regolith. However, as only the uppermost 1-2 m of the land surface will be affected by this project little of the underlying bedrock will be directly impacted. No areas of bedrock outcrop were visible within the project area and there is evidence of an extensive regolith cover. The combination of these features suggest that the majority of any impacts caused by the construction of the project will be restricted to the regolith cover, with little direct impact upon the stromatolite-bearing bedrock. However, should bedrock be impacted upon the probability of a negative impact upon the stromatolite assemblages occurring will be moderate, but the significance of the impact will be low.

The social benefits of the project have been classified as beneficial, herein, as the project aims to provide electricity to the increasingly stressed national power grid. This positive assessment does not need to be balanced against any possible negative impacts upon the palaeontological heritage of the project area. As such **this desktop study has not identified any palaeontological reason to prejudice the progression of the Buffels Solar 1 Energy Facility.**

## **13 REFERENCES**

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Prof B.D. Millstead

21<sup>st</sup> June 2015



# environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


## DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	12/12/20/
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

## PROJECT TITLE

Buffels Solar 1 Solar Energy Facility near Orkney, North West Province

Specialist:	Professor B.D. Millsteed		
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Project Consultant:	Savannah Environmental (Pty) Ltd		
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E-mail:	karen@savannahsa.com		

4.2 The specialist appointed in terms of the Regulations\_

I, **Professor B.D. Millstead**, declare that --

General declaration:

- I act as the independent specialists in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- **all the particulars furnished by me in this form are true and correct; and**
- **I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.**



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Signature of the specialist:

**BM Geological Services**

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Name of company (if applicable):

**21 June 2015**

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Date