

# **ARCHAEOLOGICAL IMPACT ASSESSMENT**

## **THE PROPOSED ROMA ENERGY DANIELSKUIL SOLAR ENERGY FARM ON ERF 753 (PORTION OF ERF 1) DANIELSKUIL, NORTHERN CAPE PROVINCE**

Assessment conducted under Section 38 (3) of the National Heritage  
Resource Act (No. 25 of 1999)

Prepared for:

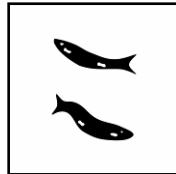
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## **EXECUTIVE SUMMARY**

### *Introduction*

ACRM was appointed to conduct an Archaeological Impact Assessment (AIA) for the, proposed construction and operation of a 5MW Solar Energy PV facility on Erf 753 (Portion of Erf 1) in Danielskuil near Kimberley in the Northern Cape.

The site for the proposed solar energy farm is located south of the town, directly opposite the Idwala Lime Mine adjacent the R31.

The proposed development site is flat and featureless, comprising a mix of old grazing land, bush, scrub, and grassland vegetation. The site is covered by infrastructure that includes several large overhead powerlines/servitudes that feed directly into the Ouplaas substation. There is virtually no surface stone covering the site. There are no streams, pans, or any natural sources of water on the proposed PV site.

### *Proposed development*

The proposal entails the construction of solar panels/modules covering a footprint area of about 10ha. The Photo-voltaic (or PV) panels will be raised above the ground and mounted on pedestals drilled and set into the ground. Apart from trenches for underground cabling, limited bedrock excavations are envisaged. The excavations for the footings are about 1.5m in diameter and so the actual ground disturbance is quite limited. Some vegetation will need to be cleared from the site. Associated infrastructure includes internal access roads, trenches for cables, transformer pads, a switching station, a maintenance shed, and a temporary construction camp. The electricity generated from the project will be fed directly into the national grid at the Eskom Ouplaas substation which is situated alongside the proposed facility.

The AIA forms part of the Environmental Basic Assessment process that is being conducted by EnviroAfrica.

### *Aim of the HIA*

The overall purpose of the HIA is to assess the sensitivity of archaeological resources on the proposed development site, to determine the potential impacts on such resources, and to avoid and/or minimise such impacts by means of management and/or mitigation measures.

### *Results of the study*

A field assessment was undertaken on the 22<sup>nd</sup> February 2017, in which the following observations were made:

- No archaeological remains were found
- No graves, or typical grave markers were found

*Conclusion*

The proposed activity will not impact on any significant archaeological heritage.

Indications are that the proposed development site is not a sensitive archaeological landscape.

The impact significance of the proposed construction of the Danielskuil Solar Energy Farm on archaeological heritage is assessed as LOW.

*Recommendations*

1. No archaeological mitigation is required.
2. If any unmarked human remains, or ostrich eggshell caches, for example, are exposed or uncovered during excavations these must immediately be reported to the South African Heritage Resources Agency (Ms Natasha Higgitt 021 462 4509), or the contracted archaeologist (Jonathan Kaplan 082 321 0172).
3. The above recommendations must be incorporated into the Environmental Management Plan (EMP) for the proposed development.

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## 1. INTRODUCTION

ACRM was appointed by EnviroAfrica, on behalf of Roma Energy Danielskuil (Pty) Ltd to conduct an Archaeological Impact Assessment (AIA) for the proposed construction of a 5MW Photovoltaic (PV) Energy Generation Facility on Erf 753 (Portion of Erf 1) in Danielskuil (Kgatelopele Municipality), in the Northern Cape Province (Figures 1 & 2).

The proposed development site is located about 3kms south of Danielskuil, opposite the Idwala Lime Mine, directly adjacent the R31. The proposed site is flat and featureless and comprises old grazing land.

EnviroAfrica is the appointed independent Environmental Assessment Practitioner (EAP) responsible for facilitating the Basic Assessment Process.

## 2. THE DEVELOPMENT PROPOSAL

The proposed development entails the construction of solar panels/modules covering an estimated footprint area of about 10ha. The PV panels will be raised about 2m above the ground, mounted on pedestals drilled and set into the ground. Apart from trenches for underground cabling, limited bedrock excavations are envisaged. The excavations for the footings are about 1.5m in diameter and so the actual ground disturbance is quite limited. Some vegetation will need to be cleared from the site. Associated infrastructure includes internal access roads, trenches for cables, transformer pads, a switching station, a maintenance shed, and a temporary construction camp. The electricity generated from the project will be fed directly into the national grid at the Eskom Ouplaas substation which is located within the proposed 20ha footprint area (Figure 3).

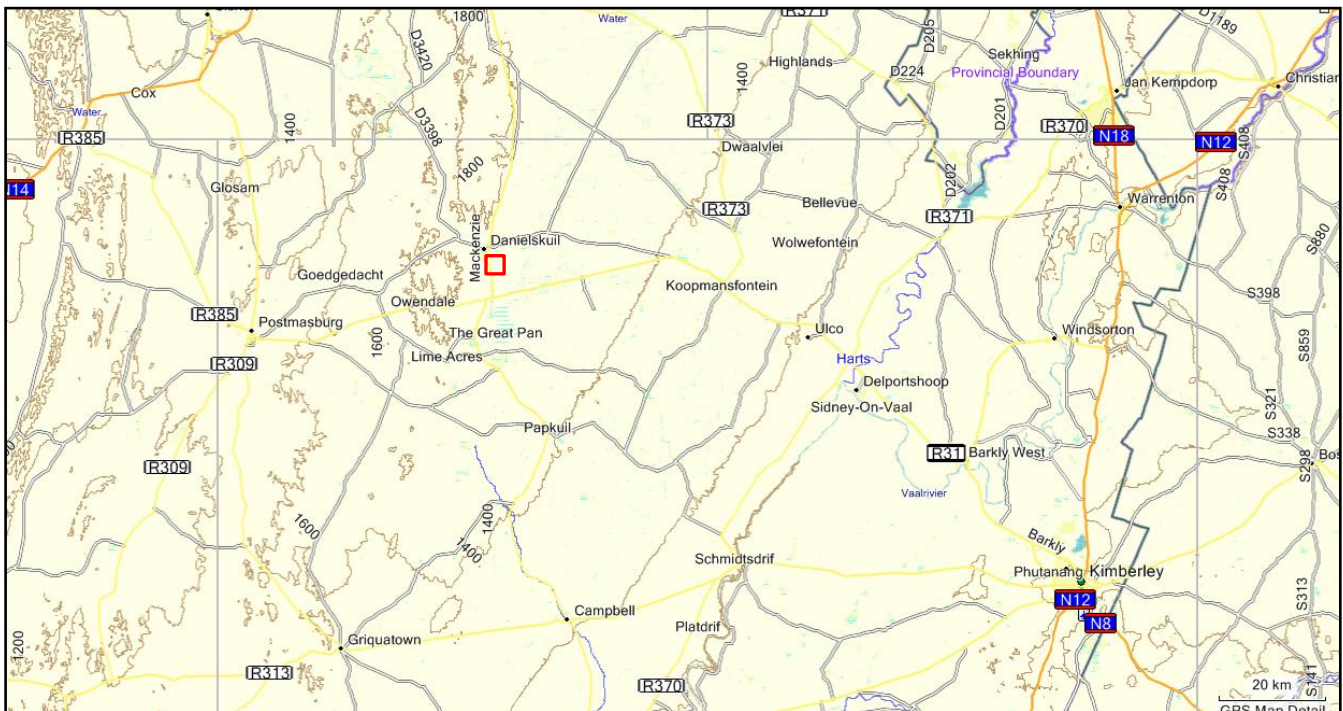


Figure 1. Locality Map. Red polygon illustrated the location of the proposed Danielskuil SEF

Archaeological study proposed solar energy farm near Danielskuil



Figure 2. Google satellite map illustrating the location of the proposed Danielskuil PV facility (red polygon)

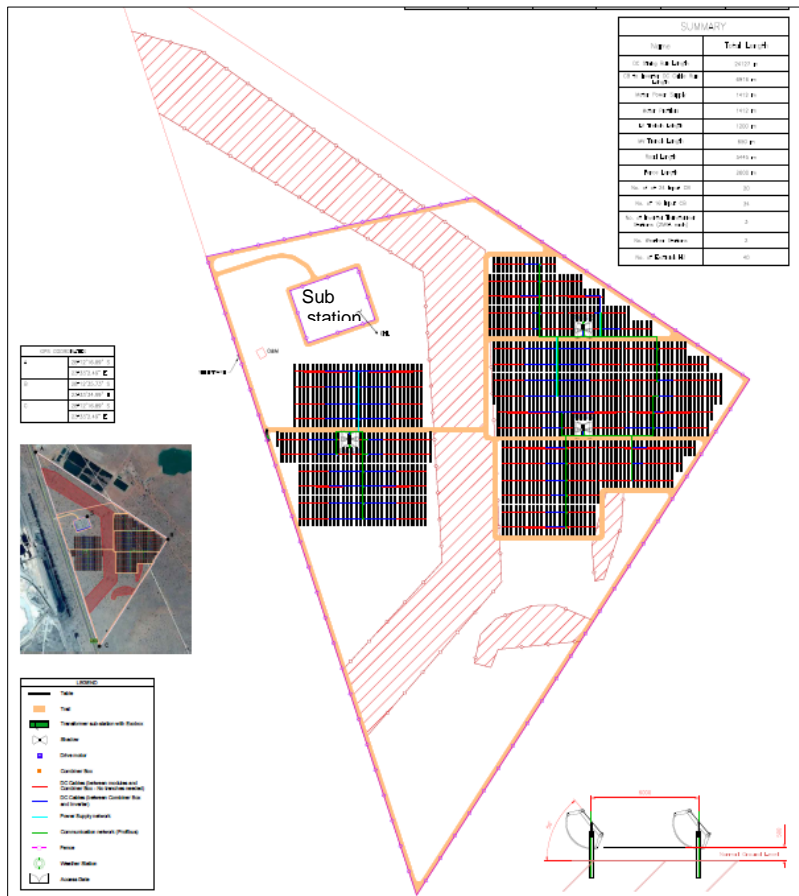


Figure 3. Danielskuil Solar Energy Farm: proposed layout plan

### **3. HERITAGE LEGISLATION**

The National Heritage Resources Act (NHRA No. 25 of 1999) protects archaeological and palaeontological sites and materials, as well as graves/cemeteries, battlefield sites and buildings, structures and features over 60 years old.

The South African Heritage Resources Agency (SAHRA) administers this legislation nationally, with Heritage Resources Agencies acting at provincial level. According to the Act (Sect. 35), it is an offence to destroy, damage, excavate, alter or remove from its original place, or collect, any archaeological, palaeontological and historical material or object, without a permit issued by the SAHRA or applicable Provincial Heritage Resources Agency, viz. Heritage Western Cape (HWC).

Notification of SAHRA is required for proposed developments exceeding certain dimensions (Sect. 38), upon which they will decide whether or not the development must be assessed for heritage impacts (an HIA) that may include an assessment of archaeological (a AIA) or palaeontological heritage (a PIA).

### **4. TERMS OF REFERENCE**

The terms of reference for the study were to:

- Determine whether there are likely to be any important archaeological resources that may be impacted by the proposed development;
- Indicate any constraints that would need to be taken into account in considering the development proposal;
- Identify any `No-Go` areas, and
- Recommend mitigation action

### **5. DESCRIPTION OF THE RECEIVING ENVIRONMENT**

Danielskuil is located about 150 kms northwest of Kimberley. The site for the proposed solar energy farm is located about 3kms south of the town, alongside the R31 and directly opposite (i. e. east of), the Idwala Lime Mine. The footprint area for the proposed PV facility is flat and featureless comprising a mix of old grazing land, bush and grassland vegetation on a substrate of fine brown sand (Figures 4-9). The vegetation across the eastern portion of the site is quite dense. The site is fairly severely degraded, and covered by infrastructure including several large overhead powerlines that feed directly into the Ouplaas substation, as well as internal access roads and old farm roads. There is virtually no surface stone covering the site. There are no streams, pans, or natural sources of water on the proposed development site. Surrounding land use is the Idwala Lime Mine, Danielskuil Waste Water Treatment Works (WWTW) north east of the proposed site, and vast tracts of agricultural land.

Archaeological study proposed solar energy farm near Danielskuil



Figure 4. View of the proposed site facing north



Figure 7. View of the proposed site facing south west



Figure 5. View of the proposed site facing north



Figure 8. View of the proposed site facing north



Figure 6. View of the proposed site facing south



Figure 9. View of the proposed site facing north.



## **6. STUDY APPROACH**

### **6.1 Method of survey**

The purpose of the HIA is to assess the sensitivity of archaeological resources in the study area, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of management and/or mitigation measures

A field assessment of the proposed developments site was undertaken by ACRM on February 23<sup>rd</sup>, 2017. A track path of the survey was captured (Figure 10).

A literature survey was carried out to assess the heritage context surrounding the proposed development site.

### **6.2 Constraints and limitations**

There were no constraints or limitations associated with the study.

### **6.3 Identification of potential risks**

The result of the study indicates there are no archaeological risks associated with the proposed project.

### **6.4 Results of the desk top study**

Bushman rock engravings occur in the hills southwest of Danielskuil (Morris 2010), and the Wonderwerk Cave (a Provincial Heritage Site) is located about 30 kms west of the town on the R31 to Kuruman (Beaumont & Morris 1990; Morris & Beaumont 2004). Rock engravings also occur at Lime Acres about 20 kms south of Danielskuil (Morris 2010). Morris (2010) also recorded flaked stone at Owendale, an abandoned mine about 13 kms south west of the town, on the road to Postmansberg. Webley (2010) recorded small numbers of Early, Middle, and Later Stone Age flakes in banded ironstone and chalcedony on the farm Humansrus, a few kilometres south of Owendale on the R385, indicating the long antiquity of the archaeological heritage in this part of the Northern Province, which stretches back more than 1 million years. Beaumont and Boshier (1974) have excavated a prehistoric pigment (specularite) mine on the farm Doornfontein a few kilometres north of Postmansburg. The Doornfontein site consists of a number of chambers which have been dug into a hillside. Archaeological excavations uncovered a large numbers of stone artefacts as well as pottery, decorated ostrich eggshell pieces, beads and bone implements. Radiocarbon dates place the mining activities to 1200 years ago. Fragmentary human remains from the Blinkklipkop mine north-east of Postmasburg suggest that the early miners were of Khoisan physical type rather than representing Iron Age settlement (Webley 2010). Kaplan (2014, 2011) also recorded dispersed scatters of LSA tools during a survey for a water pipeline and waste treatment facility in Postmansberg.

A baseline study of the proposed alternative site for the Danielskuil SEF did not record any archaeological heritage (Kaplan 2012).

## 7. FINDINGS

No archaeological remains were recorded during the study (Figure 10).



Figure 10. Track path in blue. The red polygon is the proposed 20ha footprint area, of which only an estimated 10ha will be utilized for the PV facility.

## 8. CONCLUSION

The proposed Danielskuil PV facility is not likely to impact on important archaeological heritage. No evidence of human occupation, or pre-colonial movement across the landscape was encountered during the study.

Indications are that, in terms of archaeological heritage, the proposed development site is not a sensitive landscape.

The impact significance of the proposed development on important archaeological heritage is therefore assessed as LOW.

## 9. CUMULATIVE IMPACT ON ARCHAEOLOGICAL HERITAGE

According to the Department of Environmental Affairs (DEA) Renewable Energy EIA Application Database for renewable projects (new builds)<sup>1</sup>, there are up to four renewable energy (RE) projects planned within a 30km radius of Danielskuil. However, despite the presence of these RE sites in the region, it will not impact on archaeological resources in the proposed PV facility. The existing Idwala Lime Mine is located adjacent the proposed development site. The only other infrastructure close to the proposed Danielskuil PV site includes the Ouplaas Eskom substation, overhead powerlines, service roads, and Waste Water Treatment Works.

## 10. RECOMMENDATIONS

With regard to the proposed Roma Energy Danielskuil Solar Energy Farm on Erf 753 (Portion of Erf 1), the following recommendations are made:

1. No archaeological mitigation is required.
2. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to the contracted archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Ms Natasha Higgitt 021 462 4502).
3. The above recommendations must be incorporated into the Environmental Management Plan (EMP) for the proposed project.

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<https://dea.maps.arcgis.com/apps/webappviewer/index.html?id=b8452ef22aeb4522953f1fb10e6dc79e>

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