

**HERITAGE ASSESSMENT OF THE  
PROPOSED ESTABLISHMENT OF PHOTO VOLTAIC (SOLAR POWER) PANELS ON  
THE FARM BADSFONTEIN, VENTERSTAD DISTRICT, EASTERN CAPE  
(Forming part of an environmental authorisation process for the project)**

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**Sustainable Development Projects**

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## **1 Introduction and Background Information**

The specialist and writer of this report was appointed in July 2011 by Scatec Solar SA (Pty) Ltd (the Applicant) and Sustainable Development Projects, the environmental assessment practitioner (EAP) in July 2011, the Applicant and EAP to undertake a heritage impact assessment of sites in the Eastern Cape Province for the establishment of photovoltaic (solar power) projects. This heritage assessment forms part of an environmental authorization process for the establishment of a photovoltaic farm on portions 2, 3 and 5 of the farm Badsfontein, No. 60 in the Venterstad district.

## **2 Legislative Requirements**

Heritage resources are protected in South Africa by the National Heritage Resources Act (NHRA), No. 25 of 1999. A heritage resource is defined in the Act as any place or object of cultural significance. Cultural significance is defined as a place or object as having aesthetic, architectural, historical, scientific, social, spiritual, linguistic and technological value.

The above mentioned Act states that heritage resources that 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 the heritage resources authorities.

The term heritage resource is defined as places and objects of 'cultural significance' which is defined as "aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

The national estate may include-

- places, buildings, structures and equipment of cultural significance;
- places which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and paleontological sites;
- graves and burial grounds;
- sites of significance relating to the history in South Africa;
- movable objects, including-
  - objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

- objects to which oral traditions are attached or which are associated with living heritage; etc.

This assessment is performed in accordance with sections 34 through to 37 of the NHRA that refers to the protection of structures older than 60 years; archaeological and palaeontological sites, burial grounds and graves, public monuments and memorials. Such heritage resources may not be disturbed, damaged, altered, exhumed or removed without a permit issued by the relevant provincial and/or national heritage resources authority.

### **3 Details of Heritage Specialist**

A brief overview of the specialist and writer of this report is provided here below:

- Manager of the Burial Sites Unit of the South African Heritage Resources Agency (SAHRA) for 11 years (1991 – 2002)
- She established her own heritage consulting company before joining the Gauteng Department of Agriculture, Environment and Conservation (GDACE) (late 2003 – June 2005) working for the Management Authority of the Cradle of Humankind World Heritage Site.
- Senior environmental practitioner from 2005-2010 for PBA International, Consulting Engineers.
- She left PBAI at the end of February 2010 and undertakes heritage impact assessments (HIAs) as an independent consultant.
- She is a registered heritage practitioner with Amafa aKwaZulu Natali and an affiliate member of the Association of Southern African Professional Archaeologists (ASAPA).

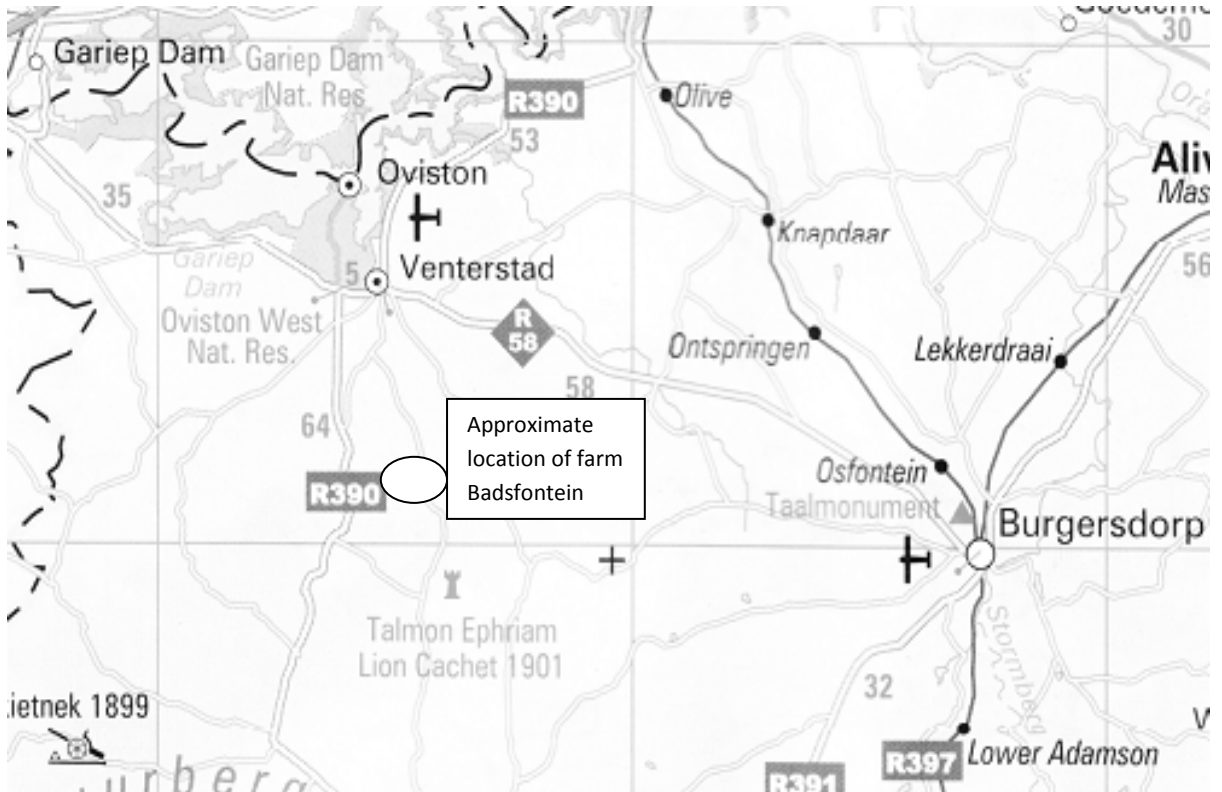
### **4 Description of Project Site**

The farm Badsfontein is situated about 11km south east of the town of Venterstad which is situated just south of the Gariep Dam. The farm is mainly used for sheep farming and there is an existing substation (Badsfontein substation) and power lines on the farm with the main district road cutting through the farm with the proposed development site situated on either side of this road.

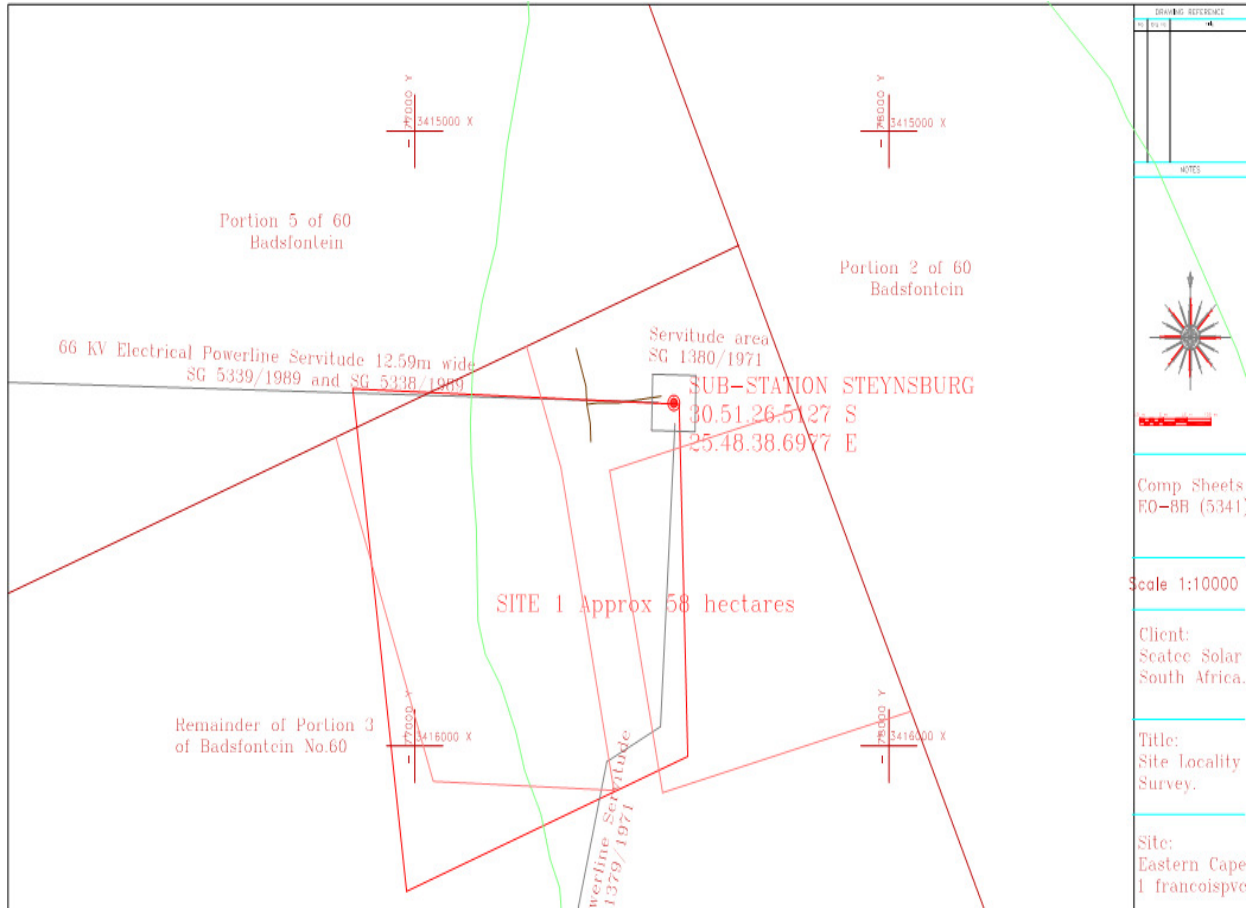
The area has a semi-arid climate and the site of the proposed development is covered by dense grass and scrubby bush with few areas of open ground. The area south and west of the substation is currently disturbed by access roads and drainage walls.

See location of farm on the map below and in the proposed development area as depicted on the schematic below. The location of the Badsfontein substation is S30°51'455", E025°48'627".

Map 1: Approximate Location of Farm Badsfontein

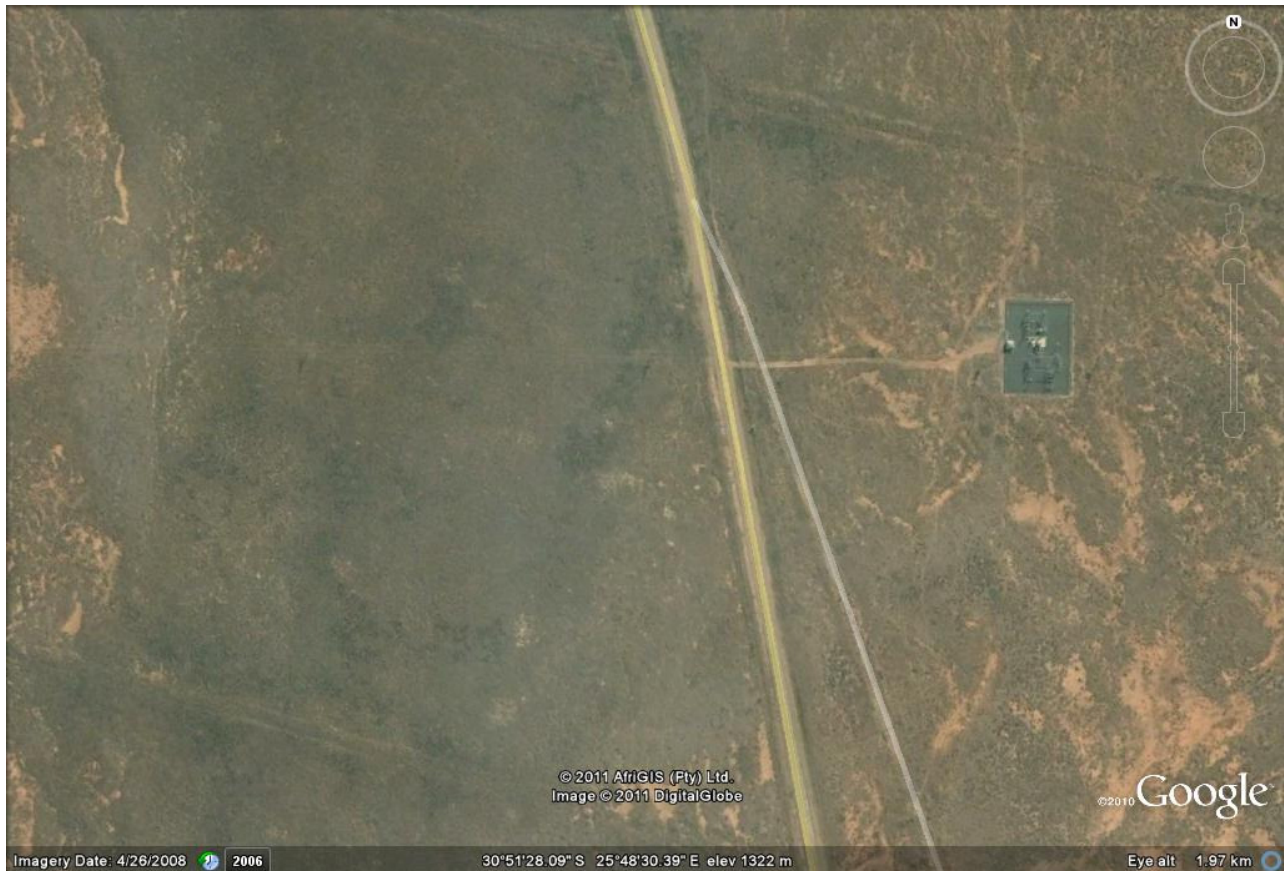


**Diagram 1: Proposed Layout of Solar Panels on Farm Badsfontein**



It should be noted that the rectangular shape outline in red in which Site 1 is written is the area that was investigated and the area in which the solar panels will be located.

**Map 2: Google Earth Image of Substation and Development Area**



## **5 Project Motivation and Description**

### **5.1 Project Motivation<sup>1</sup>**

The provision of power or energy has become a significant limiting factor to both economic growth and competitiveness in South Africa. Additionally, there are both mandatory and voluntary directives for the establishment of sustainable energy projects, including wind and solar energy.

The Applicant has identified the need for the provision of solar power and through its international sister organisation is proposing the establishment of a number of solar farms that will supplement power to the power grid. Solar power is considered a desirable energy production mechanism as its utilisation has no adverse bi-products; the method of harnessing solar energy is relatively innocuous in comparison to fossil fuel power production and most existing land use practices can continue with little interruption.

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<sup>1</sup> First Draft: Environmental Scoping Report. Establishment of Photovoltaic (Solar Power) Farms in the Northern Cape, p 11-12

It is also stated by the Applicant that photo voltaic centres offer employment opportunities with approximately 80 people been required on a 10MW plant.

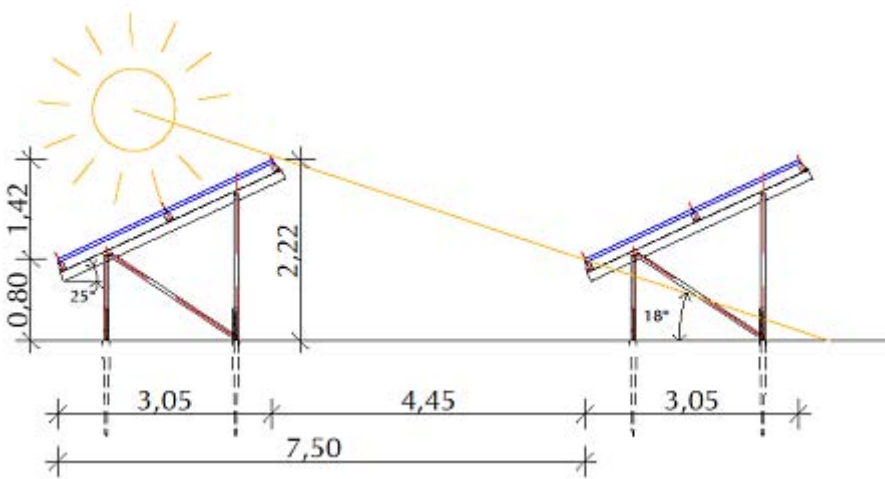
## 5.2 Project Description<sup>2</sup>

Identified or selected sites will have panels of photo voltaic (PV) cells mounted on wood or aluminium frames across level areas of the sites. Minor earthworks may have to be undertaken to accommodate such frames and such excavations will be surface related and is required to ensure that the orientation of the panels is congruous throughout the PV farm. Small removable plinths will be established to anchor the panels.

The panels will be approximately 2.2m in height above ground level with a width of approximately 3.0m. The panels are constructed of selenium based material encapsulated in a laminated plastic of high durability. Each panel is edged in plastic and feeds a small circuit board that delivers a direct current to the inverter that step up the current for delivery to the grid. The panels are non-reflective and are of a dark grey colour.

The schematic diagram below indicates the approximate size of the proposed solar panels.

**Diagram 2: Schematic Diagram of Photo Voltaic Panels**



## 6 Methodology

- The site of the proposed area of development was extensively walked through by the author of this report on 24 August 2011.
- A desktop and internet search for pertinent information regarding the historical context of the project area revealed general information regarding the larger area around the project site including the history of the town of Venterstad. Other heritage/archaeological or environmental

<sup>2</sup> First Draft: Environmental Scoping Report. Establishment of Photovoltaic (Solar Power) Farms in the Northern Cape, p 12-13



studies undertaken in the area were searched for with no pertinent information / studies being found.

- Google imagery of the proposed site for the development was also studied.

## **7 Historical Context**

The prehistory of the Eastern Cape is conventionally divided into the Early (approx. 2 million to 200 000 years ago), Middle (250 000 to 20 000 years ago) and Late Stone Ages (20 000 years BP to historic times). The Early Stone Age people who roamed the Karoo were the Australopithecines. These Early Stone Age people were essentially hunters and gatherers and used their stone tools for butchering meat, making other stone tools and cutting and shaping plants and wood. As the intellectual capacity and skills of the early Karoo humans improved, they produced more effective and smaller tools from harder materials. Thus, during the Middle Stone Age they hunted more efficiently and hunted smaller species and they seemed to prefer caves and shelters to live in.<sup>3</sup>

The Later Stone Age is characterised by the prehistory of the more recent and historically more familiar people of the Karoo, the gathering-hunting |Xam (San/Bushmen) and the herding Khoekhoen (Griqua, Korana/'Hottentots').<sup>4</sup> Iron Age crop farmers probably entered southern Africa along the north eastern coastal margins in or before the 3<sup>rd</sup> Century AD and within a few years' descendants of these farmers moved westwards along river valleys.

The historical period refers to the last 500 years when European settlers and colonialism entered Southern Africa. By the end of the 18<sup>th</sup> Century the trekboers who had been steadily moving northwards from the Dutch East India Company and its rules and had reached the Fish River and the boundary of the Cape Colony. By crossing the Fish River, the Trekboers and Xhosa people who occupied the area north of the river came into conflict and there were numerous Frontier Wars that eventually led to the domination of the Xhosa by the British Colony by the mid-1850s.<sup>5</sup>

The town of Venterstad was laid out in 1875 and became a municipality in 1895. It is named after Johannes Venter on whose farm the town was built.<sup>6</sup>

## **8 Site Investigation Report**

The project site was walked by the writer of this report on 24 of August 2011. No visible heritage sites were discovered during the walk through and only small scatters of Stone Age tools were located in some of the exposed areas. Due to the disturbed nature of the archaeological material, the primary

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<sup>3</sup> [www.karogariep.co.za](http://www.karogariep.co.za)

<sup>4</sup> ditto

<sup>5</sup> Reader's Digest Illustrated History of South Africa - The Real Story. The Reader's Digest Association, Cape Town, 1992, p.68, 133

<sup>6</sup> [www.routes.co.za/ec/venterstad/index.html](http://www.routes.co.za/ec/venterstad/index.html)

context of the material is unclear hence reducing the significance of the artefacts found to a low significance.

The project area is densely grassed and is used for sheep farming and parts of the project site near the substation are disturbed by access roads and drainage walls. Photographs 1 and 2 below indicate the vegetation of the site as well as an existing power line that crosses the farm.

**Photograph 1: Vegetation and Existing Power Line**



The area to the south of the substation and east of the district road is disturbed by a number of existing roads and no heritage resources were found on this section of the proposed site.

An archaeologist investigated the project site on 28 November 2011 and his report is attached as Appendix 1 of this report. His findings supported the findings of this report as his report states that no archaeological, other cultural or historical material was found at the site and that the proposed development will have no impact on any cultural or historical remains at the site.<sup>7</sup>

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<sup>7</sup> Dreyer, J. First Phase Archaeological Investigation of the Proposed Solar Installation at Badsfontein, Venterstad, Eastern Cape, p. 3



## **9 Conclusions and Recommendations**

It is the opinion of the heritage specialist that the proposed development of a solar farm on the farm Badsfontein can proceed as long as the following recommendations are implemented:

- In the event that any heritage sites are discovered or unearthed during the construction process, work in the immediate vicinity of the find must be stopped, the Eastern Cape Provincial Heritage Agency and the Cape Town office of the South African Heritage Resources Agency (SAHRA) must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources found.
- All measures recommended by the heritage professional in terms of resources found during construction must be implemented and adhered to.
- Existing access roads should be used where possible to avoid the building of new access roads.

## 10 Sources

### Internet Sites

[www.karogariep.co.za](http://www.karogariep.co.za)

[www.routes.co.za/ec/venterstad/index.html](http://www.routes.co.za/ec/venterstad/index.html)

### Publications:

Dreyer, J. 2011. First Phase Archaeological Investigation of the Proposed Solar Installation at Badsfontein, Venterstad, Eastern Cape

First Draft: Environmental Scoping Report. Establishment of Photovoltaic (Solar Power) Farms in the Northern Cape. Sustainable Development Projects cc, Ballito, November 2010

Illustrated History of South Africa. The Real Story. The Reader's Digest Association South Africa (Pty) Ltd. Cape Town, 1992

Jones, Huw M. and Jones, Meurig G.M. A Gazetteer of the Second Anglo-Boer War 1899-1902. The Military Press, 1999