

**PHASE I CULTURAL HERITAGE IMPACT ASSESSMENT OF THE
PROPOSED FARM 217 SOLAR ENERGY PLANT, NEAR ULCO,
NORTHERN CAPE PROVINCE**

Prepared by



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ACRONYMS AND ABBREVIATIONS

BA	Basic Assessment
EIA	Environmental Impact Assessment
EIAge	Early Iron Age
ESA	Early Stone Age
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Later Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
SAHRA	South African Heritage Resources Agency
SEF	Strategic Environmental Focus (Pty) Ltd

EXECUTIVE SUMMARY

The aim of the cultural heritage survey was to locate, identify, document and assess sites of cultural heritage and archaeological significance that may occur within the proposed study area for the establishment of the Transalloy's Energy Project 7, solar farm on part of Farm 217. An assessment of the impact of the establishment of the solar plant on such resources will be provided. Where the impact is negative, alternatives and/ or mitigation will be considered.

In accordance with the National Heritage Resources Act, 1999 (Act No. 25 of 1999), the Phase I Heritage Survey investigated the proposed site within the bigger Farm 217 for cultural heritage resources. The study revealed no heritage resources within the proposed site. It is therefore, recommended, from a heritage point of view, that the establishment of the proposed solar farm within the proposed area on Farm 217, proceed.

1 INTRODUCTION

The proposed project involves a new photovoltaic paneled solar farm (approximately 19.9ha in size) to be located strategically on the surveyed forty hectare (40ha) portion of Farm 217, near Ulco sub-station in the Northern Cape. The larger area was surveyed in order to place the solar farm on a portion of the study area where the impacts associated with potential heritage resources would be minimal or non-existent.

Strategic Environmental Focus (Pty) Ltd (SEF) was commissioned by Transalloys (Pty) Ltd to undertake a Heritage Impact Assessment (HIA) of the 40ha study area. This HIA was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended, (NEMA), and it is based on the requirements of the National Heritage Resources Act, 1999 (Act No 25 of 1999) (NHRA). This HIA is a specialist study that forms part of the Basic Assessment (BA) process and investigates the possible impact of the proposed development on heritage resources within the proposed study area.

According to Section 3 (2) of the NHRA, the heritage resources of South Africa include:

- a. places, buildings, structures and equipment of cultural significance;*
- b. places to which oral traditions are attached or which are associated with living heritage;*
- c. historical settlements and townscapes;*
- d. landscapes and natural features of cultural significance;*
- e. geological sites of scientific or cultural importance;*
- f. archaeological and palaeontological sites;*
- g. graves and burial grounds, including-*
 - i. ancestral graves;*
 - ii. royal graves and graves of traditional leaders;*
 - iii. graves of victims of conflict;*
 - iv. graves of individuals designated by the Minister by notice in the Gazette;*
 - v. historical graves and cemeteries; and*
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);*

h. sites of significance relating to the history of slavery in South Africa;

i. movable objects, including-

- i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;*
- ii. objects to which oral traditions are attached or which are associated with living heritage;*
- iii. ethnographic art and objects;*
- iv. military objects;*
- v. objects of decorative or fine art;*
- vi. objects of scientific or technological interest; and*
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)."*

In terms of Section 3 (3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of:

- a. its importance in the community, or pattern of South Africa's history;*
- b. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;*
- c. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;*
- d. its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;*
- e. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;*
- f. its importance in demonstrating a high degree of creative or technical achievement at a particular period;*
- g. its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;*
- h. its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and*

i. sites of significance relating to the history of slavery in South Africa.”

The aim of the investigation was to identify, verify and analyze heritage issues and to recommend how to manage them within the context of the proposed construction of the solar energy plant.

The objectives of the investigation were:

- Identifying and analysing heritage places, objects, buildings, structures, graves etc.;
- Assessing broad cultural significance of identified sites, places, buildings, structures, graves and objects within the site;
- Surveying and mapping of significance/sensitivity issues and opportunity/constraint issues;
- Reviewing of the general compatibility of the proposed construction of the solar energy plant with heritage policy planning frameworks;
- Undertaking a preliminary assessment of the acceptability of the proposed establishment of the solar energy plant from a heritage perspective;
- Identifying the need for alternatives, if necessary; and
- Recommending appropriate initial management measures to conserve significant heritage elements and reduce the impact on heritage resources.

2 BACKGROUND INFORMATION TO THE PROJECT

Table 1: Background Information

Consultant:	Mamoluoane Seliane
Type of development:	Construction of a 19.9ha solar energy plant (generation capacity of approximately 7MW)
Rezoning or subdivision:	Rezoning (i.e. change in land use)
Terms of reference	To carry out a Phase 1 HIA
Legislative requirements:	The HIA was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended, (NEMA), and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

2.1 Details of the study area

The proposed solar power plant will be located on the north western portion of the Farm 217 (Figure 1). It is proposed that the solar farm will connect to the existing power line to the east of it.

Current land-use: The proposed study area falls within rural Northern Cape, which is characterized with large stock farms, predominantly for sheep, goat and/or cattle grazing.

2.2 Locational Data

- Province: Northern Cape.
- District Municipality: Frances Baard.
- Local Municipality: Dikgatlong.
- Ward no: 6.
- General Coordinates: 28°19'56.37"S , 24°11'41.26"E

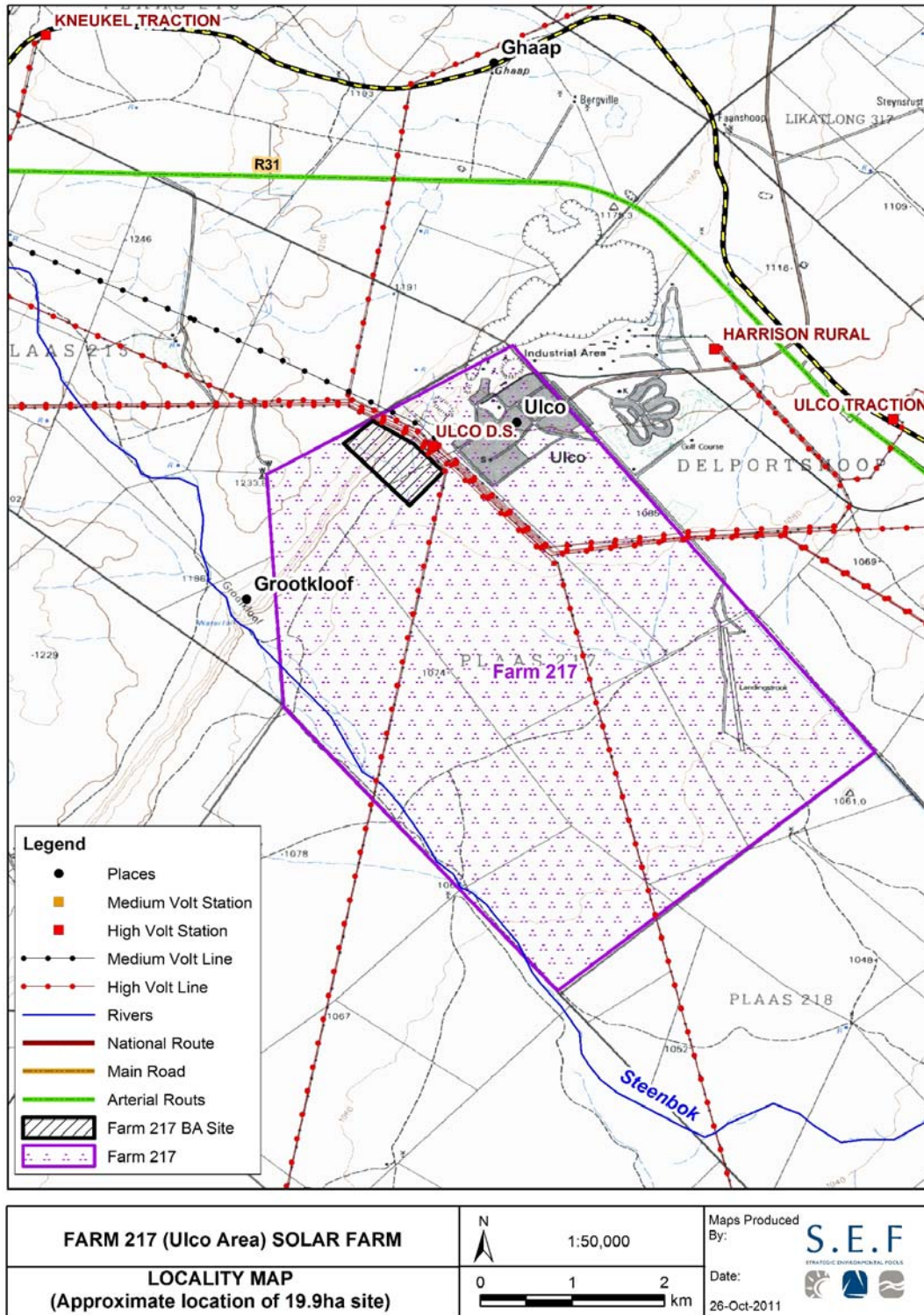


Figure 1: Location of the study area

3 BACKGROUND INFORMATION OF THE SURVEY

3.1 Methodology

3.1.1 Details of the site visit

The site visit for the proposed Farm 217 Solar Farm was conducted on 18 November 2011. The survey was undertaken by means of walking throughout the site to:

- Search for, locate and identify objects and structures of heritage and/or archaeological significance in accordance with accepted archaeological practices; and
- Document all heritage/ archaeological sites, objects and structures according to minimum standards and procedures accepted by the archaeological profession.

3.1.2 Literature Review

A brief literature review pertaining to the prehistory and history of the Northern Cape Province was undertaken.

3.2 Restrictions to the survey

3.2.1 Visibility

Visibility across the study site was very poor due to vegetation growth (Figure 2).

3.2.2 Disturbance

There is no disturbance of any potential archaeological stratigraphy noted during the field investigation.

3.3 Details of the equipment used in the survey

- GPS: Garmin eTrek Camo (accuracy: margin of error 4m); and
- Digital cameras: Canon Powershot A460.

All readings were taken using the GPS. Accuracy was to a margin of error of 4 m.



Figure 2: Typical vegetation found on site – poor visibility for identification of heritage resources

4 BRIEF ARCHAEOLOGICAL HISTORY AND THE HISTORICAL PERIOD OF THE NORTHERN CAPE PROVINCE

Although the Northern Cape is one of the poorly researched provinces archaeologically, studies indicate that this province has a long history of human occupation throughout different time periods and cultural traditions, with evidence for utilization and exploitation of resources for more than 2.5 million years (Mitchell, 2002).

4.1 Stone Age

The Early Stone Age (ESA) period covers approximately the last 2.5 million years to about 250 000 years ago. This is the period during which human ancestors began the usage of stone tools (Mitchell, 2002). ESA tools were simple tools which, were among other things, used to chop and butcher meat, de-skin animals and probably to smash animal bones to obtain bone marrow. Human ancestors may have preyed on a drowned

or crippled animal or shared a kill by another predator, which explains why at some ESA sites there would occur high bone proportions of large, dangerous game.

The ESA tool technology consists of two industries, namely the Oldowan Industry and Acheulean Industry (Mitchell, 2002). The Oldowan Industry is named after Olduvai Gorge in Tanzania where these tools were first discovered. This industry dates from approximately 2.5 million years ago to around 1.7 million years. The Oldowan Industry consists of very simple, crudely made core tools from which flakes are struck a couple of times. Although to date, there is no consensus among archaeologists as to which hominid species manufactured these artifacts. It is believed that the first tool making hominids belonged to either an early species of *Homo* (our own genus) or an immediate ancestor which is yet to be discovered here in South Africa.

At around 1.7 million years ago, it is thought that another hominid appeared on the landscape and is believed to have been responsible for manufacturing Acheulean tools (Mitchell, 2002). The Acheulean Industry lasted until about 250 000 years ago. Acheulean tools were more specialized tools than those of the earlier industry. They were shaped intentionally to carry out specific tasks such as hacking and bashing to remove limbs from animals and marrow from bone. These duties were performed using the large sharp pointed artifacts known as handaxes. Cleavers, with their sharp, flat cutting edges were used to carry out more heavy duty butchering activities.

The Middle Stone Age (MSA) dates back to about 250 000 years ending around 25 000 years ago (Mitchell, 2002). In general the MSA stone tools are smaller than those of the ESA. Although some MSA tools are made from prepared cores that are pre-shaped to produce flakes of standardized size and shape, the majority of MSA flakes are irregular and are probably part of knapping waste material. A variety of MSA tools include blades, flakes, scrapers and pointed tools that may have been hafted onto shafts or handles and used as spearheads (Mitchell, 2002). Between 70 000 and 60 000 years ago, appeared new tool types in South Africa known as segments and trapezoids. These tool types are referred to as backed tools from the method of preparation. Residue analyses on the backed tools from other South African MSA sites indicate that these tools were certainly used as spear heads.

Unlike ESA people who were opportunistic scavengers, MSA people were true hunters. This is proven by the recovery of stone tools whose residue analysis indicates that they were used as spear heads. MSA people would have targeted middle sized game with the following regional variants: eland, hartebeest, wildebeest or zebra.

Not only stone tools, but also bone tools and ostrich egg shell have been recovered in the archaeological sites in the karoo. Ostrich egg shells recovered in sites in the karoo were thought to have various uses including, specularite containers as well as drinking vessels (Morris, 2002; 2005; Morris. & von Bezing, 1996).

The Later Stone Age (LSA) dating to about 40 000 to 2000 years ago and possibly beyond), is a period signaled by social transformation and technological innovation (Mitchell, 2002; Humphreys and Thackeray, 1983). This period saw the emergence of microlithic tool types such as adzes for cutting wood, backed tools, blades, segments and trapezoids.

The stone artefacts in the karoo are mostly made from locally available raw material and more often than not occur as open sites of surface tool scatters although other contexts such as pans, have revealed remarkable stone tool stratigraphy (Humphreys and Thackeray, 1983). In some instances, although rarely, these stone tool scatters are associated with botanical and faunal remains.

Also part from the Later Stone Age period is the rich rock art legacy in the form of rock engravings and rock paintings to a lesser extent across the karoo landscape (Parkington *et. al.*, 2008). The rock art represents various ages covering the Later Stone Age until recently in the historical period.

4.2 Iron Age

A farming way of life was introduced to southern Africa about 2 000 years ago by Bantu-speaking people coming from the north. They brought with them crops such as sorghum, millet, ground beans and cow peas to be cultivated for the first time in this part of the world (Huffman, 2007; Mitchell, 2000). Domestic animals such as cattle, sheep and goats were also part of the newly introduced farming way of life. Unlike the hunter-gatherers and herders who lived in temporary camps and led a nomadic way of life,

farming necessitated sedentary life styles (Huffman, 2007). Some features of the permanent settlements of these early mixed farming communities are houses, raised grain bins, underground storage pits and stock enclosures. An important feature of this time period was that they also made their own iron implements, hence the name Iron Age (Huffman, 2007). The Iron Age has been divided into three periods, namely the Early Iron Age (EIAge) (AD 200 – 900), the Middle Iron Age (MIA) (AD 900 – 1300) and the Late Iron Age (LIA) (AD 1300 – 1820) (Huffman, 2007).

4.3 Historical Period

The early travelers and white settlers ventured into the interior and documented encounters with the San and Khoe people. This encounters often resulted in skirmishes over ownership of land and resources. The Historical period is associated with various historical features and artefacts including various types of structures and building foundations. These include artefacts associated with the early farming activities and remnants of the South African War and World War I.

5 DESCRIPTION OF THE STUDY AREA' HERITAGE

5.1 Description of the materials observed

The investigation revealed no heritage resources on the proposed site (Table 2)

Table 2: Identified heritage resources and their NHRA status

Identified heritage resources	
<i>Category, according to NHRA</i>	<i>Identification/Description</i>
Formal protections (NHRA)	
National heritage site (Section 27)	None
Provincial heritage site (Section 27)	None
Provisional protection (Section 29)	None
Place listed in heritage register (Section 30)	None
General protections (NHRA)	
Structures older than 60 years (Section 34)	None
Archaeological site or material (Section 35)	None
Palaeontological site or material (Section 35)	None
Graves or burial grounds (Section 36)	None
Public monuments or memorials (Section 37)	None
Other	
Any other heritage resources (describe)	None

5.3 Summary of the findings

No heritage resources were identified on site.

6 STATEMENT OF SIGNIFICANCE

This section does not apply as no heritage resources were identified.

7 RECOMMENDATIONS

It is recommended that the proposed installation of the Farm 217 Solar Energy Plant proceed from a heritage point of view as no heritage resources were identified within the proposed development area, with acceptance of the following conditions:

- Construction activities should be limited to the proposed development boundary. If the size of the footprint is increased at a later stage, a heritage specialist should be involved in order to assess how the increase in the size of the footprint will affect heritage resources.

8 RISK PREVENTATIVE MEASURES ASSOCIATED WITH CONSTRUCTION

Archaeological material, by its very nature, occurs below ground. The developer should therefore keep in mind that archaeological sites might be exposed during the construction phase. If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to SAHRA or a museum, preferably one at which an archaeologist is available. The find should then be investigated and evaluated by the archaeologist.

9 CONCLUSION

The heritage survey for the proposed Farm 217 Solar Energy Plant revealed surface no cultural heritage resources. Therefore from a heritage point of view, the proposed Farm 217 Solar Energy Plant development can proceed.

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