Archaeological Scoping Report for the Proposed Kotulo Tsatsi Energy Solar Park including Concentrated Solar Power (Tower & Trough Technologies) and Photovoltaic (PV) Solar Facilities, Northern Cape

Prepared For

Savannah Environmental (Pty) Ltd

By

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VERSION 1.1

12 MAY 2014

ACKNOWLEDGEMENT OF RECEIPT

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Heritage Contracts and Archaeological Consulting

Professional Member of the Association of Southern African Professional Archaeologist (#159)

I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Savannah Environmental was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.

SIGNATURE: _____

EXECUTIVE SUMMARY

Site name and location: Exheredo (Pty) Ltd (trading as Kotulo Tsatsi Energy) proposes to establish Kotulo Tsatsi Energy for a Solar Power Park (consisting of 3 concentrated solar tower plants (CSP) x with a generation capacity of up to approximately 200MW of power each, 2 concentrated solar trough plants (CSP) x with a generation capacity of up to 200MW of power each, and 2 photovoltaic (PV) plants x with a generation capacity of up to 100MW each) on a site approximately 70 kilometres south east of Kenhardt in the Northern Cape Province. The scoping phase of the proposed project is conducted on the following farms Styns Vley 280, Melkboschvley 278, Kopjesvley 281, Gemsboksrivier 301.

1: 50 000 Topographic Map: 2920 DA, 2920 DC, 2920 CD, 3020 AB, 3020 BA.
EIA Consultant: Savannah Environmental (Pty) Ltd.

Developer Exheredo (Pty) Ltd (trading as Kotulo Tsatsi Energy)
Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).

Contact person: Jaco van der Walt Tel: +27 82 373 8491 E –mail jaco.heritage@gmail.com.

Date of Report: 12 May 2014, revised 4 June 2014

Findings of the Assessment:

CRM surveys, e.g. Jonathan Kaplan (2011), Halkett & Orton (2011), Webley & Halkett (2012), Anton Pelser (2012) and van der Walt (2012) conducted directly north east of the study area and a single publication by Beaumont et al (1995) provides a good basis for understanding the local archaeology and the following sites can be expected in the study area:

- Archaeological sites are expected in the form of widespread stone artefact scatters mainly from the Early Stone Age (ESA) and Middle Stone Age (MSA). Later Stone Age (LSA) material is also recorded in the general area. Thousands of square kilometres of Bushmanland are covered by these low density artefacts scatters and surface samples was taken in the area e.g. Pelser 2012 providing baseline information;
- Several farmsteads occur in the study area and some might be older than 60 years. Structures older than 60 years are protected and will require mitigation if impacted on.
- Some stone cairns are recorded in the wider region and could be graves and similar occurrences can be expected in the study area. Family cemeteries might be found in association with farmsteads and labourer dwellings.

Based on the current information obtained for the area at a desktop level it is anticipated that any sites that occur within the proposed development area and power line corridor can be mitigated and no red flags are identified. Based on the presence of archaeological material in the area it is recommended that the study area must be subjected to a Phase 1 AIA as part of the EIA phase of the project

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

Contents

Figures

ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (2 million to 300 000 years ago)

Middle Stone Age (300 000 to 30 000 years ago)

Late Stone Age (30 000 years ago until recent)

Historic (approximately AD 1840 to 1950)

Historic building (over 60 years old)

Lithics: Stone Age artefacts

1. INTRODUCTION

Heritage Contracts and Archaeological Consulting CC was contracted by Savannah (Pty) Ltd to conduct a Heritage Scoping report for the Kotulo Tsatsi Energy for a Solar Power Park

- (3 concentrated solar tower plants (CSP) x with a generation capacity of up to approximately 200MW of power each,
- 2 concentrated solar trough plants (CSP) x with a generation capacity of up to 200MW of power each, and
- 2 photovoltaic (PV) plants x with a generation capacity of up to 100MW each.

The project site proposedis approximately 70 kilometres south east of Kenhardt in the Northern Cape Province. The scoping phase of this project is conducted on the following farms Styns Vley 280, Melkboschvley 278, Kopjesvley 281, Gemsboksrivier 301, Grootvloer 325, Karree Bosch Kolk 329 and Verdorstkolk 342.

The proposed project will require the construction of a 400kV substation and the construction of a 400kV power line to turn in –out of the Aries-Helios 400kV power line. The Aries – Helios 400kV power line traverses the proposed study site. The heritage scoping report forms part of the scoping phase of the EIA for the proposed project.

The aim of this scoping report is to conduct a desktop study to identify possible heritage resources within the project area and to assess their importance within a Local, Provincial and National context. The study furthermore aims to assess the impact of the proposed project on non - renewable heritage resources and to submit appropriate recommendations with regards to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage legislation.

The report outlines the approach and methodology utilized for the Scoping phase of the project. The report includes information collected from various sources and consultations. Possible impacts are identified and mitigation measures are proposed in the following report. It is important to note that no field work was conducted as part of the scoping phase but will be conducted as part of the Impact Assessment phase of the EIA.

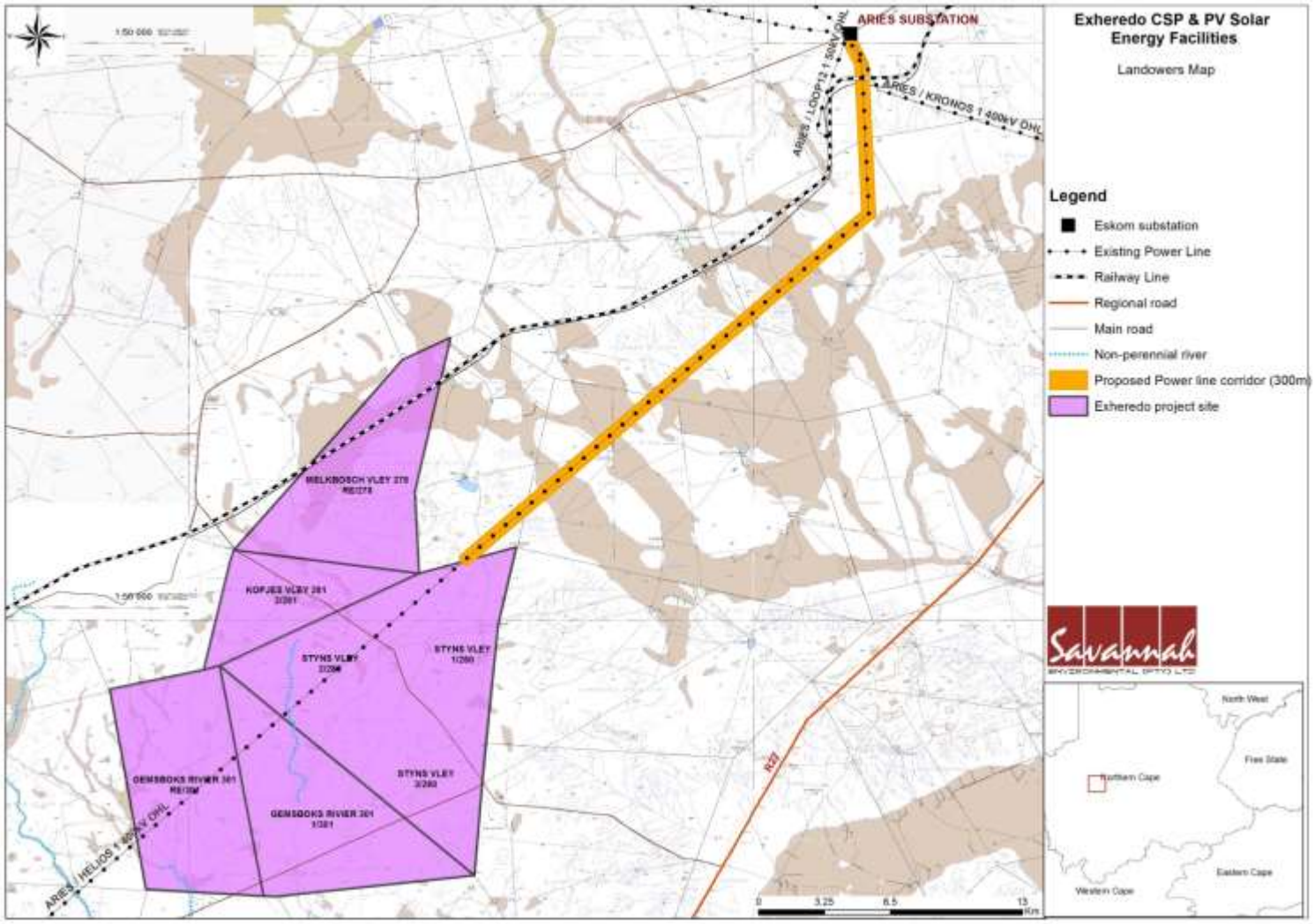

Figure 1: Location Map of the Exheredo Project.

1.2 Terms of Reference

The main aim of this scoping report is to determine if any known heritage resources occur within the study area and to predict the occurrence of any possible heritage significant sites that might present a fatal flaw to the proposed project. The objectives of the scoping report were to:

- Conduct a desktop study:
    - Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area;
    - Gather data and compile a background history of the area;
    - Identify known and recorded archaeological and cultural sites;
    - Determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.
- Report

The reporting of the scoping component is based on the results and findings of the desk-top study, wherein potential issues associated with the proposed project will be identified, and those issues requiring further investigation through the IA Phase highlighted. Reporting will aim to identify the anticipated impacts, as well as cumulative impacts, of the operational units of the proposed project activity on the identified heritage resources for all 3 development stages of the project, i.e. construction, operation and decommissioning. Reporting will also consider alternatives should any significant sites be impacted on by the proposed project. This is done to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage Legislation.

1.3 Nature of the development

Exheredo (Pty) Ltd t/a Kotulo Tsatsi Energy has appointed Savannah Environmental (Pty) Ltd to manage the EIA process for five (5) Concentrating Solar Power and two (2) Photovoltaic Solar Energy Facilities about halfway between Kenhardt and Brandvlei, Northern Cape. The proposed sites will be approximately 70 km southwest of Kenhardt, between the R27 and the Sishen-Saldanha railway line. Several portions of the farms Steyns Vley 280, Melkbosch Vley 278, Kopjes Vley 281 and Gemsbok Rivier 301 have been earmarked for these developments. Associated infrastructure such as grid connection and pipelines will traverse further properties.

The Proposed Kotula Tsatsi Energy Concentrating Solar Power Facilities will have a combined power generating capacity of up to approximately 1,000 MW, and will consist of:

- Three (3) Concentrated Solar Tower Plants with a generation capacity of up to 200MW each;
- Two (2)Concentrated Solar Trough Plants with a generation capacity of up to 200MW each;
- Each facility will require a substation and switching station
- One 400 kV substation and turn in and out of the existing Aries-Helios 400kV power line

- » One water pipeline from Kenhardt/Keimoes to the site (details have not been finalised at this stage)
- » Associated infrastructure including:
    - o Mancamp
    - o Batching plant and possibly borrow pit for initial construction work
    - o Cabling between the plant components, to be lain underground
    - o Evaporation ponds
    - o Access roads
    - o Protective fencing
    - o Workshops
    - o Offices
    - o Assembly plant and laydown area
    - o Subsoil and topsoil stockpiles from ground preparation work (especially from the trough power plants) that will have to be landscaped and rehabilitated as permanent altered landscape features

The Proposed Kotulo Tsatsi Energy Photovoltaic Solar Power Facilities will have a combined power generating capacity of up to 200 MW, and will consist of:

- » Two arrays of photovoltaic (PV) panels, each with a generating capacity of up to 100 MW with:
    - o Appropriate mounting structures (so far both tracking and fixed panel options are being considered)
    - o Cabling between the project components, to be lain underground where practical.
    - o New on-site substation and 132 kV power line to evacuate the power from the facility into the Eskom grid
    - o Internal access roads and fencing
    - o Workshop area for maintenance, storage, and offices
    - o Mancamp (only construction).

1.4 The receiving environment

The study area is situated approximately 67 km south west of the town of Kenhart in the Northern Cape. The site is directly west of the R27 provincial road that links Kenhart and Brandvlei, several secondary dirt roads transect the site. The northern boundary of the site borders the Riemvasmaak Community Conservancy. Various drainage lines occur on site especially in the northern section with several pans and manmade dams. The largest of these like Verdorskolk and Grondvloer Pan occur in the southern section with Bosduiflaagte in the north. Occupation in the area is scarce but some farmhouses and associated buildings occur scattered over the study area. The area is rugged and falls within the bioregion described by Mucina *et al* (2006) as the Bushmanland Bioregion with the vegetation described as Bushmanland basin shrub land. Land use in the general area is dominated by sheep farming.

Figure 2: Google image of the study area.

2. APPROACH AND METHODOLOGY

The assessment is to be undertaken in two phases, a desktop study as part of the Scoping phase and an Archaeological Impact Assessment as part of the Environmental Impact Assessment phase. This report concerns the scoping phase. The aim of the scoping phase is to cover archaeological and cultural heritage data available to compile a background history of the study area. In order to identify possible heritage issues or fatal flaws that should be avoided during development.

This was accomplished by means of the following phases (the results are represented in section 4 of this report):

2.1 Literature search

Utilising data for information gathering stored in the archaeological database at Wits University, published articles on the archaeology and history of the area. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

2.2 Information collection

The SAHRA report mapping project (Version 1.0) and SAHRIS was consulted to further collect data from CRM practitioners who undertook work in the area to provide the most comprehensive account of the history of the area where possible.

2.3 Public consultation

No public consultation was conducted during this phase.

2.4 Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological sites might be located.

2.5 Genealogical Society of South Africa

The database of the genealogical society was consulted to collect data on any known graves in the area.

3. LEGISLATION

For this project the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is of importance and the following sites and features are protected:

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

The national estate that includes the following:

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 features of cultural significance
e. Geological sites of scientific or cultural importance
f. Archaeological and palaeontological importance
g. Graves and burial grounds
h. Sites of significance relating to the history of slavery
i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

Section 34 (1) of the act deals with structures which is older than 60 years. Section 35(4) of this act deals with archaeology, palaeontology and meteorites. Section 36(3) of the National Heritage Resources Act, deals with human remains older than 60 years. Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

3.1 Heritage Site Significance and Mitigation Measures

The presence and distribution of heritage resources define a Heritage Landscape. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. National and Provincial Monuments are recognised for conservation purposes. The following interrelated criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposit;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined or is known);
- The preservation condition of the site;
- Potential to answer present research questions.

The criteria above will be used to place identified sites with in SAHRA's (2006) system of grading of places and objects which form part of the national estate. This system is approved by ASAPA for the SADC region. The recommendations for each site should be read in conjunction with section 11 of this report.

FIELD RATING	***GRADE***	***SIGNIFICANCE***	***RECOMMENDED MITIGATION***
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

4. REGIONAL OVERVIEW

4.1 General Information

4.1.1. Literature search

Several previous heritage studies were conducted in the general study area (SAHRA report mapping project V1.0 and SAHRIS) mostly to the north of the study area (approximately 18 km) by Jonathan Kaplan (2011), Halkett & Orton (2011), Webley & Halkett (2012) and Anton Pelser (2012). Kaplan conducted a study on the farm Olyvenkolk 187/3 for a solar facility. Webley & Halkett and Pelser's study were conducted on the farm Klein Zwart Bast 188. To the north east of the study area a study by Van der Walt (2012) also recorded Middle Stone Age material. Further away studies by K van Ryneveld (2007) and Cobus Dreyer (2006) were also consulted. Van Ryneveld conducted a study on the farm Boksputs 118 and Dreyer's study was conducted on the farm Tampansrus 294/295. Both these studies recorded isolated MSA artefacts scattered over the landscape.

4.1 3. Public consultation

No public consultation was conducted by the heritage consultant during the scoping phase.

4.1.4. Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area was utilised to identify possible places where archaeological sites might be located.

4.1.5. Genealogical Society of South Africa

No grave sites are indicated within the study area.

4.2 Archaeological and Historical Information Available on the Study Area

4.2.1. Maps of the area under investigation

Figure 3: Google earth Image of the development area (green and red) in relation to Kenhardt, Brandvlei, Van Wyks Vlei and Carnarvon

Figure 4: Map of the Cape Colony by December 1901. This map was compiled from information supplied by the Attorney General's Department at the time. The lighter areas were occupied at this stage of the Anglo-Boer War. (National Archives of South Africa *SAB, Maps: 3/1044*)

4.2.2. Historical information on the greater study area

Evidence has been found that the predecessors of today's Khoi-San Bushmen lived in the area thousands of years ago. According to Hocking (1938), the Khoikhoi, nomadic cattle herders, had their forbears in East Africa and lived in the Northern Cape for at least 3000 years and dominated the region until the eighteenth century when the Tswana tribe arrived from the west. The Tswana tribe settled around the present day Kuruman. Evidence of the Khoikhoi's existence in the Cape can for instance be seen in the form of Bushmen drawings at the Damfontein and Brandfontein sites in the Karoo. (Hocking 1983: 2; Marais 1977: 1)

It was in the early nineteenth century that the Griqua frontiersmen of the old Cape Colony crossed the Orange River from the south. The Griquas were half white and half Khoikhoi. These people dressed like Europeans and lived aboard wagons, much like the *Trekboere* who migrated northward from the Cape Colony. (Hocking 1983: 2)

The *Trekboer* movement had already begun by the end of the seventeenth century, as the quest for land, grazing and hunting inspired farmers to move into the central spaces of South Africa. These people were semi-nomadic, moving from fountain to fountain by ox wagon, without any desire to build a house or improve the land in which they were living. For more than a generation before the Great Trek, the first migration led to settlement across the Orange River. Trekboer families were however discouraged by the scarcity of surface water in the Northern Cape, and therefore advancement into the area was slow. The first Europeans to settle in the Northern Cape were missionaries, but there was a larger influx of white men into the province during the 1860s and 1870s when diamonds were discovered in Griqualand. (Wagenaar 1984: 122, 128; Hocking 1983: 2)

When Willem Adriaan van der Stel issued grazing licences to stock farmers and lifted the ban on the bartering of cattle in the early eighteenth century, this opened up a new world of possibilities for white farmers. A new attitude was acquired among the stock farmers; he was able to occupy greater areas of land, and would need more land to obtain farms for his children. (Wagenaar 1984: 122, 125)

By the late 1820's, a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent. (Ross 2002: 39)

The discovery of diamonds and gold in the Northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonized the Cape and Natal, had intensions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, and as a consequence republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was, however, a clear statement of British war aims. (Du Preez 1977).

In March 1900 Boer forces had taken Prieska, Kenhardt, Kakamas and Upington, attracting rebel support in the process. British columns were able to recapture the towns and the invasion had ended by June 1900. Local militias, including the Border Scouts (Upington), Bushmanland Borderers (Kenhardt) and Namaqualand Border Scouts (from the west) were established and patrolled the area.

Pre-colonial background to the study area

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2011). The three main phases can be divided as follows;

- Later Stone Age; associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago
- Middle Stone Age; associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

The archaeology of the Northern Cape is rich and varied covering long spans of human history. According to Beaumont et al (1995) "thousands of square kilometres of Bushmanland are covered by a low density lithic scatter". CRM surveys in the immediate vicinity provide some insight as to the occupation of the area (such as Portions 14 and 15 of Olyven Kolk 187 (Halkett & Orton 2011), Olyvenkolk 187/3 (Jonathan Kaplan 2011), Portion 1 of Klein Swart Bast 118 (Pelser 2011), remainder of Klein Swart Bast 118 (Webley & Halkett 2012), and in the wider region (Beaumont et al 1995), provides a good basis for understanding the local archaeology. Collection of surface samples by Beaumont and Pelser means that stone artefacts from this area have been analysed and indicates the presence of humans in the area for the last two million years. The larger area also probably represented a rich source of rocks for knapping.

Previous work therefore suggests that the study area would contain a widespread distribution of Early and Middle Stone Age material with perhaps a few Later Stone Age sites, depending on topography and proximity to water.

5. PALAEONTOLOGY

An assessment of the palaeontology of the area will be conducted by an independent specialist.

6 PROBABILITY OF OCCURRENCE OF SITES

Based on the above information, it is possible to determine the probability of finding archaeological and cultural heritage sites within the study area to a certain degree. For the purposes of this section of the report the following terms are used – low, medium and high probability. Low indicates that no known occurrences of sites have been found previously in the general study area, medium probability indicates some known occurrences in the general study area are documented and can therefore be expected in the study area and a high probability indicates that occurrences have been documented close to or in the study area and that the environment of the study area has a high degree of probability having sites.

» Archaeological And Cultural Heritage Landscape

NOTE: *Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface*.

Archaeological remains dating to the following periods can be expected within the study area:

» Stone Age finds

ESA: *Medium to High Probability*
MSA*: Medium-High Probability*
LSA: Low to Medium Probability
LSA –Herder: Low to Medium Probability

» Iron Age finds

EIA: *Not applicable*
MIA*: Not applicable*
LIA: Not applicable

» Historical finds

Historical period: *-Medium to High Probability*
Historical dumps: *Medium to High Probability*
Structural remains: *Medium to High Probability*
Cultural Landscape*: Low probability*

» Living Heritage
For example rainmaking sites: *Low Probability*

» Burial/Cemeteries

Burials over 100 years: *Medium Probability*
Burials younger than 60 years*: Medium Probability*

Subsurface excavations including ground levelling, landscaping, and foundation preparation can expose any number of these.

7. ASSUMPTIONS AND LIMITATIONS

The study area was not subjected to a field survey as this will be done in the EIA phase. It is assumed that information obtained for the wider area is applicable to the study area.

8. FINDINGS

The heritage scoping study revealed that the following heritage sites, features and objects can be expected within the study area.

8.1. Palaeontological

This will be assessed in an independent study commissioned by Savanah Environmental.

8.2. Archaeology

8.2.1 Archaeological finds

There is a high likelihood of finding MSA and ESA sites scattered over the study area. As raw material suitable for knapping is abundant in the area, Dwyka tillite is known to be a favourite source of raw materials in Early Stone Age times and dwyka tillite is found in abundance in the larger study area. Analysis by Professor M. Lombard for Pelser (2012) on a surface sample from Klein Swart Bast showed that the LSA sample is dominated by Jasper, Chert and CCS, the MSA sample is dominated by quartzite, Following other studies in the area these sites will consist mostly of open sites near stream beds or hills and outcrops (van der Walt 2012). Later Stone Age sites were also recorded in the larger area (e.g Pelser 2011) and especially shelters with archaeological deposit could be of high significance. Although no rock art has been recorded in the direct area of impact some rock art can be expected (e.g Morris 1988).

8.2.2 Nature of Impact

The construction phase of the project could directly impact on surface and subsurface archaeological sites.

8.2.3 Extent of impact

The project could have a low to medium impact on a local scale.

8.3. Historical period

8.3.1 Historical finds: I

Historical finds include middens, structural remains and cultural landscape. The study area has been used for farming in the past and features dating to this period associated with farming can occur and can include houses and other structures older than 60 years, farming infrastructure such as wind mills, etc. For example a "brakdak" farmhouse on Klein Zwartbas is on record and probably dates to the late 1800 (Webley & Halkett 2012).

Remains dating to the Anglo-Boer War were also recorded (Pelser 2011, De Jong 2011) and remains dating to this period could occur in the study area.

8.3.2 Nature of Impact

The construction of the project can directly impact on both the visual context and sense of place of historical sites.

8.3.3 Extent of impact

The construction of the project could have a medium impact on a local scale.

8.4. Burials and Cemeteries

8.4.1 Burials and Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape. Family cemeteries can be expected close to farmsteads while stone cairn that could represent graves was recorded in the wider area by (Webley & Halkett 2012, van der Walt 2012).

8.4.2 Nature of Impact

The construction and operation of the proposed project could directly impact on marked and unmarked graves.

8.4.3 Extent of impact

The project could have a low to medium impact on a local scale.

9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area at a desktop level it is anticipated that any sites that occur within the proposed development area will have a Generally Protected B (GP.B) field rating apart from graves and rock art that could have a Generally Protected A (GP.A) field rating and all sites should be mitigatable and no red flags are identified.

10. CONCLUSIONS AND RECOMMENDATIONS

This scoping study revealed that a range of heritage sites occur in the larger region and similar sites can be expected within the study area. Every site is relevant to the Heritage Landscape, but it is anticipated that few sites in the study area could have conservation value. The following conclusions are applicable to the following sites:

» Archaeological sites

All sites could be mitigated either in the form of conservation of the sites with in the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development.

» Historical finds and Cultural landscape

It is not anticipated that the built environment will be severely impacted upon as few structures occur within the study area (based on Google Earth). This assumption will how ever have to be verified in the field. If any sites dating to the Anglo Boer War occur in the study area it is recommended that these sites are conserved.

» Burials and cemeteries

Formal and informal cemeteries as well as pre-colonial graves occur widely across Southern Africa. It is generally recommended that these sites are preserved with in a development. These sites can how ever be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable. The presence of any grave sites must be confirmed during the field survey and the public consultation process.

» General

It is recommended that as part of the public consultation process the presence of graves, archaeological and historical sites should be determined.

From an archaeological viewpoint the proposed Solar energy project and power line corridor is viable.

11. PLAN OF STUDY

In order to comply with the National Heritage Resources Act (Act 25 of 1999) a Phase 1 Archaeological Impact Assessment must be undertaken. During this study sites of archaeological, historical or places of cultural interest must be located, identified, recorded, photographed and described. During this study the levels of significance of recorded

heritage resources must be determined and mitigation proposed should any significant sites be impacted upon, ensuring that all the requirements of SAHRA are met.

12. LIST OF PREPARERS

Jaco van der Walt (Archaeologist and project manager)

13. STATEMENT OF COMPETENCY

The author of the report is a member of the Association of Southern African Professional Archaeologists and is also accredited in the following fields of the Cultural Resource Management (CRM) Section, member number 159: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. Jaco is also an accredited CRM Archaeologist with SAHRA and AMAFA.

Jaco has been involved in research and contract work in South Africa, Botswana, Mozambique, Zimbabwe, Tanzania and the DRC and conducted well over 300 AIAs since he started his career in CRM in 2000. This involved several mining operations, Eskom transmission and distribution projects and infrastructure developments. The results of several of these projects were presented at international and local conferences.

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