Archaeological Impact Assessment

For The Proposed Gihon Solar Energy Facility And Associated Infrastructure, Bela-Bela, Limpopo Province

Prepared For

Savannah Environmental (Pty) Ltd

By

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Contracts and Archaeological Consulting

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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 the client was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Site name and location: The Gihon Solar Energy Facility is proposed to be developed on portions 1, 2, 5 and 7 of the farm Turfbult 494 KR. The site is approximately 4 km south of Bela-Bela, in the Limpopo Province and falls within the jurisdiction of Bela-Bela Local Municipality, which is part of Waterberg District Municipality.

Purpose of the study: Phase 1 Archaeological Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed project on these resources within the study area.

1:50 000 Topographic Map: 2428 CD

Environmental Consultant: Savannah Environmental (Pty) Ltd.

Developer: Networx Renewables (Pty) Ltd

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).

Contact person: Jaco van der Walt Tel: +27 82 373 8491

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Date of Report: 11 February 2014

Findings of the Assessment:

There were no red flags identified during the AIA and subject to approval from SAHRA there is from an archaeological point of view no reason why the development should not proceed if the recommendations as made in this report are adhered to.

One site (site) 1 was located in the east road block that might be older than 60 years. A conservation architect will have to assess the site to determine the age and architectural significance of the site. If the site is older than 60 years a demolition permit will be needed before construction starts. No cultural landscape elements were noted and visual impacts to scenic routes and sense of place are also considered to be low. No further mitigation is recommended for this aspect.

General

Due to extensive ground disturbance, archaeological visibility was low on portions of the site during the survey. It must also be noted that due the subsurface nature of archaeological material and graves the possible occurrence of unmarked or informal graves and subsurface finds can thus not be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

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.*

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- The results of the project;
- The technology described in any report;

Recommendations delivered to the Client.

General

Due to extensive sand cover, ground visibility was low on portions of the site during survey. The possible occurrence of unmarked or informal graves and subsurface finds can thus not be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

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.*

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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 (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 BACKGROUND INFORMATION

Kind of study	Archaeological Impact Assessment
Type of development	Solar
Developer:	Networx Renewables (Pty) Ltd
Consultant:	Savannah (Pty) Ltd

Heritage Contracts and Archaeological Consulting CC was contracted by Savannah (Pty) Ltd to conduct a Heritage Impact Assessment report for the Gihon Solar Development.

Networx Renewables (Pty) Ltd is proposing to construct a commercial photovoltaic (PV) solar energy facility (known as the Gihon Solar Energy Facility) with a generating capacity of up to 150 MW (over two phases), as well as associated infrastructure on a site located approximately 4 km south of Bela-Bela in the Limpopo Province.

The Archaeological Impact Assessment report forms part of the EIA for the proposed project.

The aim of the study is to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard 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. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, a review of the heritage scoping report that includes collection from various sources and consultations; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey a single abandoned derelict farm house was identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the SAHRA for peer review and comment.

1.1 Terms of Reference

Field study

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources;
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) of the NEMA and sections 39(3)(b)(iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The Gihon Solar Energy Facility is proposed to be developed on portions 1, 2, 5 and 7 of the farm Turfbult 494 KR (Figure 1). The site is approximately 4 km south of Bela-Bela, in the Limpopo Province and falls within the jurisdiction of Bela-Bela Local Municipality, which is part of Waterberg District Municipality.

The site is bordered by the Het Bad Nature reserve to the North while a railway line and the provincial R101 traverses the site from North to south. The study area is considered to be highly desirable for the establishment of a solar facility based on several key factors such as solar resource, climatic conditions, extent of the site, orographic conditions, availability of land, and grid connection.

The topography of the area is flat with deep turf and was used extensively for agricultural purposes in the past. The study area falls within the bioregion described by Mucina *et al* (2006) as the Central Bushveld Bioregion with the vegetation described as Springbokvlakte thornveld. Land use in the general area is characterized by agriculture, dominated by crops and cattle farming.

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1.3.2. Location Map

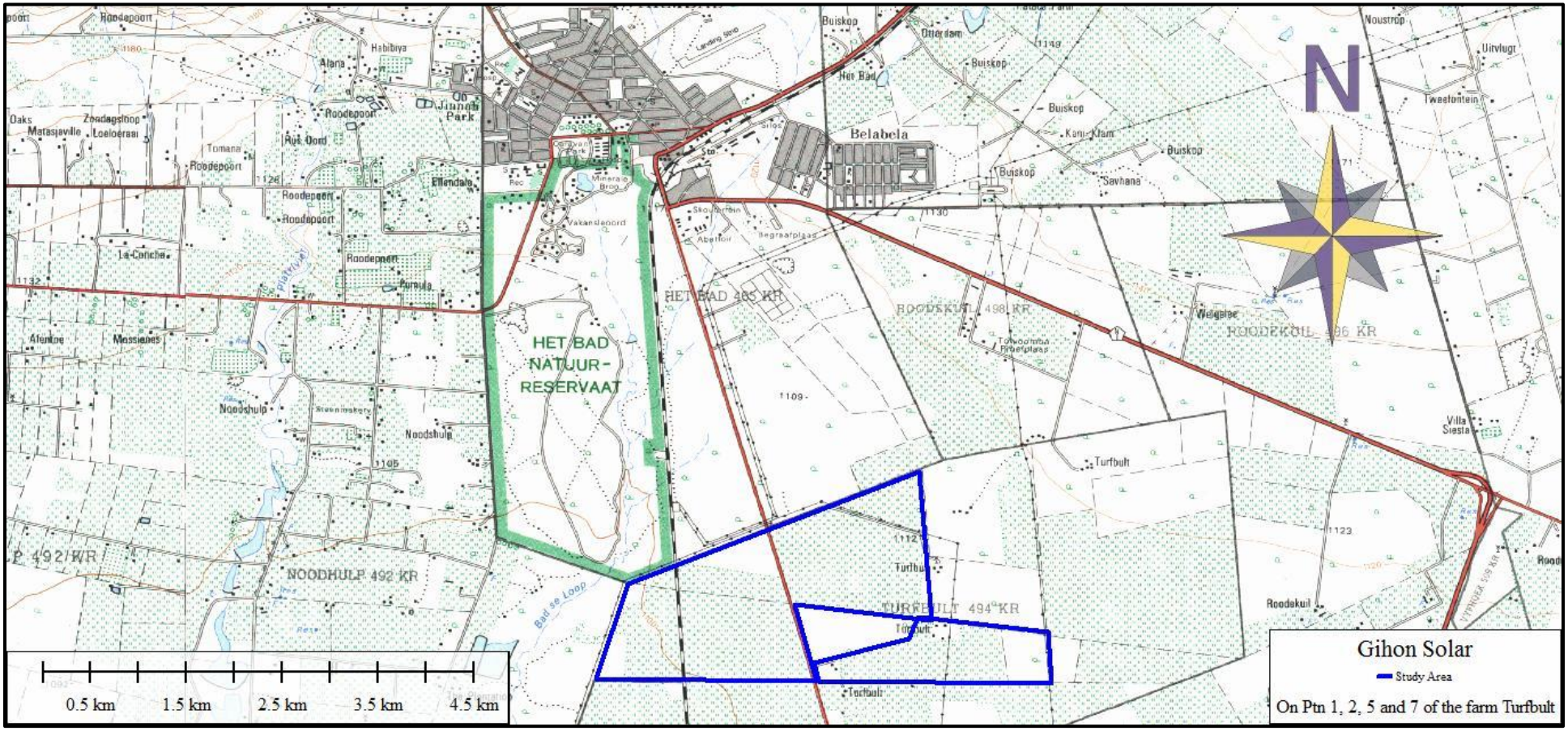

Figure 1: Location map.

1.3.3. Google Maps

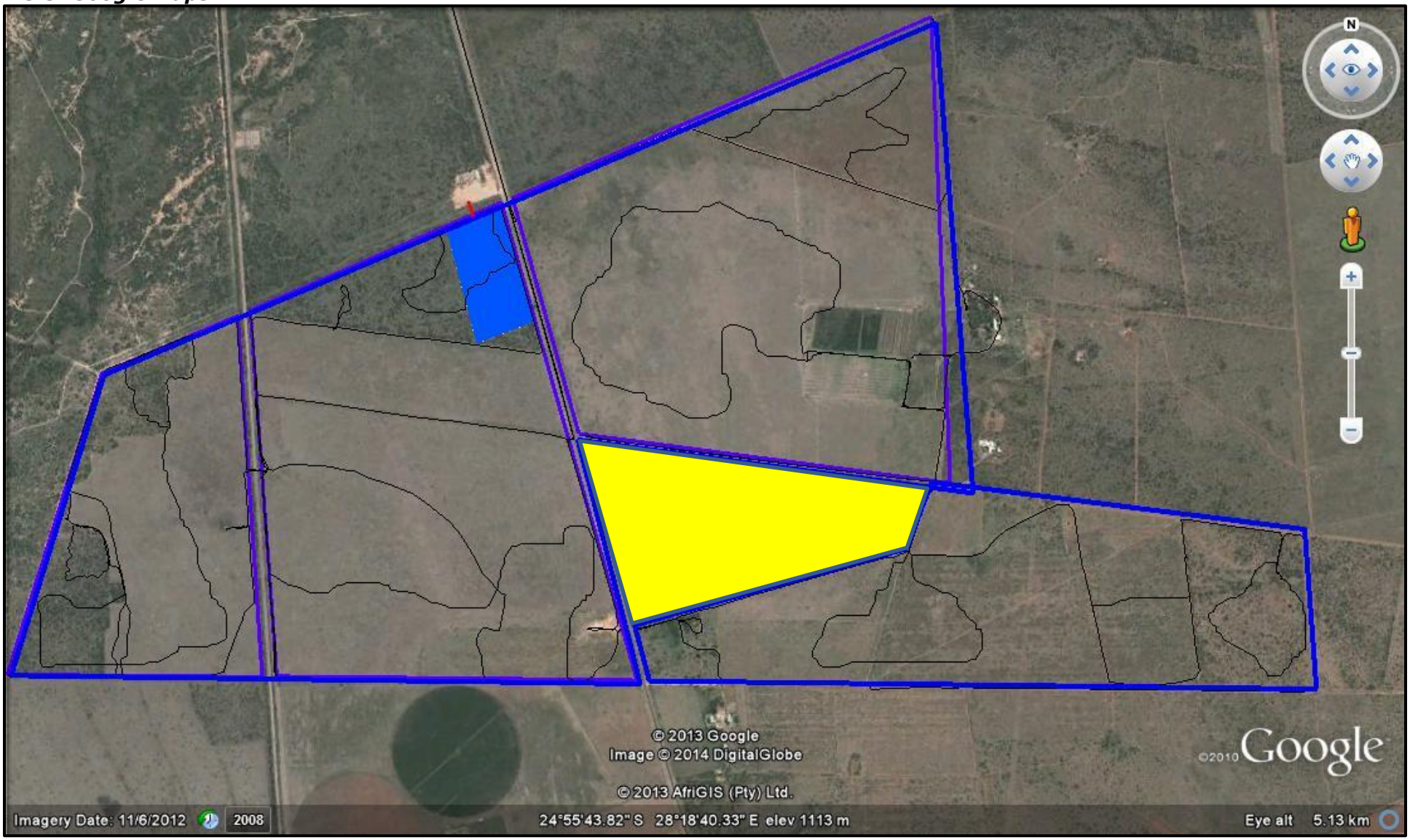

Figure 2: Google Image showing the development footprint (blue) and track log (black) of the areas that were covered during the survey. The yellow polygon does not form part of the study.

2. APPROACH AND METHODOLOGY

The aim of the study is to cover archaeological databases and historical sources to compile a background history of the study area followed by field verification; this was accomplished by means of the following phases.

2.1 Phase 1 - Desktop Study

The first phase comprised a desktop study, gathering data to compile a background history of the area in question. It included scanning existing records for archaeological sites, historical sites, graves, and ethnographical information on the inhabitants of the area. This phase consisted of a heritage scoping report done by Heritage Contracts and Archaeological Consulting CC (van der Walt 2013).

2.1.1 Literature Search
In addition to the archival study from the scoping study the actions indicated below were also taken.

2.1.2 Information Collection
The SAHRA report mapping project (Version 1.0) and SAHRIS was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

2.1.3 Consultation
A Public Participation process was conducted by Savannah Environmental for this project. No heritage concerns were raised.

2.1.4 Google Earth and Mapping Survey
Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located.

2.1.5 Genealogical Society of South Africa
The database of the Genealogical Society was consulted to collect data on any known graves in the area.

2.2 Phase 2 - Physical Surveying
A field survey of the study area of 479 ha was conducted; focusing on drainage lines, outcrops, high lying areas and disturbances in the topography. The study area was surveyed by means of vehicle and extensive surveys on foot by a professional archaeologist on the 29 January 2014.

All sites discovered inside the proposed development area was plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

2.3. Restrictions
Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Low ground visibility of parts of the study area is due to crop farming, and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Only the surface infrastructure footprint areas were surveyed as indicated in the location map, and not the entire farm. This study did not assess the impact on the palaeontological component of the project. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

3 NATURE OF THE DEVELOPMENT

The facility is proposed to include several arrays of photovoltaic (PV) solar panels with a generating capacity of up to 150 MW, to be developed in two phases. The development footprint is anticipated to be approximately 479 hectares in extent.

Infrastructure associated with the facility will include:

- Mounting structures for the solar panels to support the PV panels.
- An on-site inverter to step up the power and a substation to facilitate the connection between the solar energy facility and the Eskom electricity grid.
- An overhead power line to loop-in and loop out of the existing Pelly-Warmbad 132kV power line located at the northern boundary of the site.
- Cabling between the projects components, to be laid underground where practical.
- Workshop area for maintenance and storage.
- Internal access roads and fencing.

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 General Information

CRM reports on the area together with secondary source material, primary sources, maps and online sources the study area was contextualised. Four previously recorded sites exist with the Archaeological databases at Wits University (referenced 2009) for the 2428 CD Topographical map. None of these sites are in close proximity to the study area and consists of Stone Age flakes dating to the ESA, MSA and LSA. Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological and historical sites might be located.

The scoping study indicated that a Single ESA site is on record near the project area at the Wits archaeological database, and isolated finds are possible. MSA artefacts have also been found in the larger study area (van der Walt & Fourie 2007, Roodt 2008 and Hufman 2008) These are however open air sites and of limited significance. The scoping study also indicated that Iron Age sites could be expected in the study area.

Please refer to the scoping study (vd Walt 2013) for a more comprehensive background study on the area

5. 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, or a representative sample, depending on the nature of the project. In the case of the proposed PV Solar Facility the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. 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. The following criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- 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/is known);
- The preservation condition of the sites;
- Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

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

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 9 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

5.2 Impact Rating of Assessment

The criteria below are used to establish the impact rating of a site. as provided by the client:

» The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.

» The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):

» The **duration**, wherein it will be indicated whether:

- the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
- the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
- medium-term (5-15 years), assigned a score of 3;
- long term (> 15 years), assigned a score of 4; or
- permanent, assigned a score of 5;

» The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight

impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

» The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

» The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and

» the **status**, which will be described as either positive, negative or neutral.

» the degree to which the impact can be reversed.

» the degree to which the impact may cause irreplaceable loss of resources.

the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:

S=(E+D+M)P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

» < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),

» 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),

» > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

6. BASELINE STUDY-DESCRIPTION OF SITES

It is important to note that the entire farm was not surveyed but only the footprint of the proposed phases for the PV layout area, power line for connection to the grid and access routes as indicated in Figure 1. The different blocks earmarked for the solar development are on areas that were extensively ploughed in the past and would have destroyed any surface indications of in-situ cultural material. One site consisting of a farm house and associated outbuildings that might be older than 60 years was identified during the survey located on the north western portion of the east road block (Figure 3). Highly weathered undecorated ceramics (Figure 4) was recorded in the west rail block but does not constitute a site, similar to the findings made by Roodt (1999). These undecorated ceramics are indicative of Iron Age people using the landscape surrounding the area around the Bad Se Loop River possibly for agricultural reasons. This area is also characterised by turf and is not suitable for permanent villages. This turf area also has isolated scattered MSA artefacts (Figure 5) that show a high degree of weathering possibly from being washed from their original location. Artefacts is characterised by triangular flakes (some with retouch) with faceted buts mostly on fined grained quartzite. As these tools are out of context and does not constitute a habitation or knapping site or even a concentration of tools these individual finds were not point plotted. The study area was extensively used for agricultural purposes in the past with small portions still used for this purpose (Figure 6 and 7) most of the area now consist of rehabilitated agricultural fields with knee high grass and thorn trees that hampers archaeological visibility.

6.1 Site Distribution Map

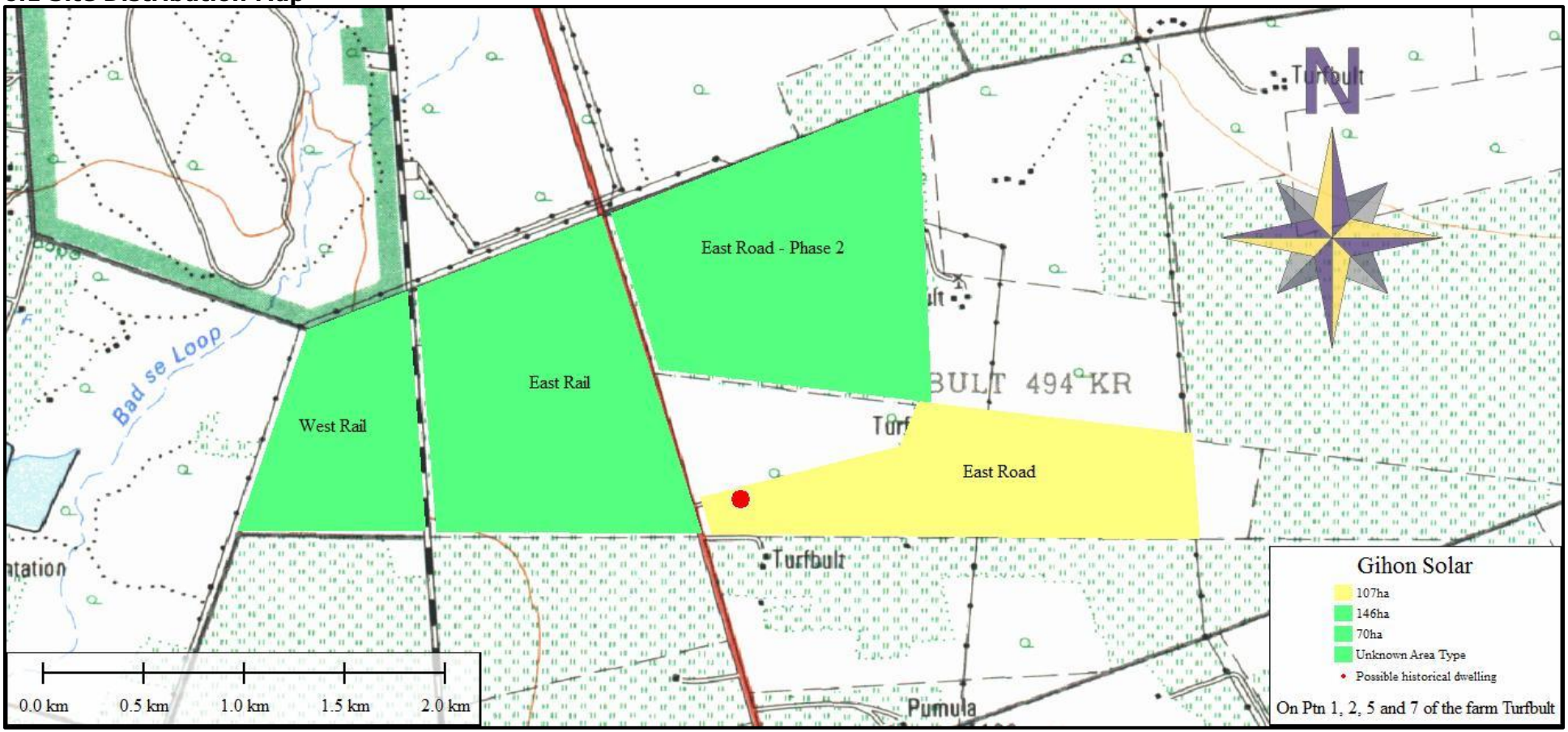

Figure 3: Showing the location of a possible historical structure in relation to the proposed PV panel area.

Figure 4. Undecorated ceramics.

Figure 5. MSA artefacts.

Figure 6. Agricultural activities in east road-phase 2.

Figure 7. Agricultural activities in east road-phase 2.

Figure 8. Environment in west rail block.

Figure 9. Environment in east rail block.

Figure 10. Environment in east road block.

Figure 11. Environment in east road block phase 2.

6.2. Sites with Coordinates

Site Number	Type Site	Cultural Markers	Co ordinate	Impact
Site 1	Recent/historical	Farm house with outbuildings.	S24 56 06.0 E28 18 38.5	Direct impact

6.3. Site Descriptions

6.3.1. Farm dwelling (Site 1) on the south western periphery of east road block

Site Number	Site 1	**1:50 000 map nr**	2428 CD
Site Data	**Description:**		
Type of site	Open site		
Site categories	Recent/historical ruin		
Context	**Site 1** consists of a derelict farm house and 2 associated outbuildings. The main house has a hipped roof with a veranda facing north. Most of the windows, plumbing and electrical fittings have been looted. The landscape used to be manicured but is now overgrown with various alien species. It must be kept in mind that sites like these might contain unmarked graves.		
Cultural affinities, approximate age and significant features of the site;	Based on the architecture of the main dwelling it is possible that the structures are older than 60 years.		
Estimation or measurement of the extent	The site covers an area of 0.29 ha.		
Description of artefacts	Modern industrial artefacts, such as wire, glass and cans, are scattered over the site.		

Photographs

Figure 12: Structures on site 1

Figure 13: Possible dwelling at Site 1.

Figure 14: Windows and electrical connections have been looted from the structures.

Figure 15: Possible dwelling and outbuildings at Site 1

Field Rating (Recommended grading or field significance) of the site:	Generally Protected B
Statement of Significance (Heritage Value)	The site is of low - medium heritage significance.

Site 1

Impact evaluation of the proposed project on heritage resources

Nature: During the operation of the project an indirect visual impact is expected for the site.		
	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (3)	Low (3)
Probability	Probable (4)	Probable (3)
Significance	**Medium (40)**	**Low (27)**
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation: The site must be assessed by a conservation architect and will possibly require a destruction permit for demolishment (Please refer to section 7 for full details on recommendations).		
Cumulative impacts: Historical and cultural sites are non-renewable and impact on any historical feature or material will be permanent and destructive.		
Residual Impacts: N.A		

7. RECOMMENDATIONS

One site of possible heritage significance was identified during the survey consisting of an old farm house and outbuildings. The site is located in the south western portion of east road block. It is recommended that a conservation architect assess the site if the east road block will be used for the PV layout. If the site is older than 60 years a demolition permit will be required before construction starts.

If any possible finds such as tool scatters, bone or fossil remains are exposed or noticed during construction, the operations must be stopped and a qualified archaeologist must be contacted to assess the find.

An independent Palaeontological desktop study (Almond 2013) was conducted on the area as part of the scoping phase. Recommendations and mitigation measures in this report are to be implemented prior to development based on comments and approval from SAHRA.

8. CONCLUSIONS

Based on the results of the study there are no significant archaeological risks associated with the proposed solar energy facility. No structures or farming infrastructure occur within the study area apart from site 1 located in the east road block that might be older than 60 years. A conservation architect will have to assess the site to determine the age and architectural significance of the site. If the site is older than 60 years a demolition permit will be needed before construction starts. No cultural landscape elements were noted and visual impacts to scenic routes and sense of place are also considered to be low. No further mitigation is recommended for this aspect.

Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible

finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

There were no red flags identified during the AIA and subject to approval from SAHRA there is from an archaeological point of view no reason why the development should not proceed if the recommendations as made in this report are adhered to.

9. PROJECT TEAM

Jaco van der Walt, Project Manager

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique and Tanzania as well as the DRC; and have conducted more than 300 AIAs since 2000.

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