Phase 1 Cultural Heritage Impact Assessment:

THE REQUIRED PROCESSES TO APPLY FOR CLOSURE CERTIFICATES AND AMENDMENT OF AN ENVIRONMENTAL MANAGEMENT PLAN FOR SASOL MINING PROSPECTING RIGHTS, GERT SIBANDE DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE

Prepared for:
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- Revision No: -
- Date: -
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Declaration:

I, J.A. van Schalkwyk, declare that:

- I am suitably qualified and accredited to act as independent specialist in this application.
- I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services, for which a fair numeration is charged.
- The work was conducted in an objective manner and any circumstances that might have compromised this have been reported.

J A van Schalkwyk
Heritage Consultant
March 2017
EXECUTIVE SUMMARY

Phase 1 Cultural Heritage Impact Assessment:
THE REQUIRED PROCESSES TO APPLY FOR CLOSURE CERTIFICATES AND
AMENDMENT OF AN ENVIRONMENTAL MANAGEMENT PLAN FOR SASOL MINING
PROSPECTING RIGHTS, GERT SIBANDE DISTRICT MUNICIPALITY,
MPUMALANGA PROVINCE

In terms of section 43 of the Mineral and Petroleum Resources Development Act 28 of 2002 (“MPRDA”) the holder of a prospecting right must apply for a closure certificate when, inter alia, the right is abandoned or lapses. In addition to various closure related regulations issued under the MPRDA, this is one of the few provisions associated with environmental management that had not been repealed then as part of the so-called “One Environmental System” (“OES”).

In summary, the terms of the scope of work, requires the consultant to prepare and submit on behalf of Sasol:

- The applications for a Closure Certificate in respect of each of the Holfontein PR, the Poortjesfontein PR and the Springbokkuil PR;
- The application for the amendment of the Blesbokspruit PR so as to extend the mining area to include a portion of the farm Rolspruit 127IS; and
- The application for the amendment of the EMP so as to include a portion of the farm Rianel 98 IS and the Proposed Amendments.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by ILISO Consulting Environmental Management to conduct a cultural heritage assessment to determine if the proposed development would have an impact on any sites, features or objects of cultural heritage significance.

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial component which gave rise to an farming environment.

Identified sites

- (No. 8 & 9): Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. The smaller section has about 10 graves, and the larger section about 30 graves. Most of them have no headstones with inscriptions. The graves all seems to belong to former farm labourers.
  - This feature is viewed to have high significance on a local level – Grade IV-A

- (No. 18): The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. Although no graves were noticed, it is possible that there might be some belonging to infants that were buried in the homestead.
  - This feature is viewed to have low significance on a local level – Grade IV-C

- (No. 10 &17): The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. Only the foundations of the different features remain. One feature has been identified as a grave: an elongated stone cairn; it is possible that there might be some graves belonging to infants that were buried inside the homestead.
This feature is viewed to have low significance on a local level – Grade IV-A

Mitigation

- (No. 8 & 9): Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. These sites are located approximately 100 metres southwest of the borehole. It is therefore unlikely that it would be impacted on by the proposed development.
  - The significance weighting for the impact on the identified sites is rated as low.
    - Mitigation: None required.
    - Requirements: None

- (No. 18): The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. This site is located on top of one of the boreholes and would therefore be impacted on if the development continues.
  - The significance weighting for the impact on the identified sites is rated as high.
    - Mitigation: The site has been sufficiently recorded in the Phase 1 HIA. It requires no further recording before destruction.
    - Requirements: PHRA permit

- (No. 10 & 17): The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. One feature has been identified as a grave.
  - The significance weighting for the impact on the identified sites is rated as high.
    - Mitigation: It is recommended that this feature is retained and that it is fenced off with danger tape if drilling activities take place in its vicinity. If that is not possible and must be demolished, it should be documented in full prior to construction taking place.
    - Requirements: PHRA permit

Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view it is recommended that the proposed development be allowed to continue, on condition of acceptance of the proposed mitigation measures.

Conditions for inclusion in the environmental authorisation:

- Should archaeological sites or graves be exposed during drilling activities, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

J A van Schalkwyk
Heritage Consultant
March 2017
<table>
<thead>
<tr>
<th>TECHNICAL SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project description</strong></td>
</tr>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Project name</strong></td>
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<tr>
<td><strong>Applicant</strong></td>
</tr>
<tr>
<td><strong>Environmental assessors</strong></td>
</tr>
<tr>
<td>Iliso</td>
</tr>
<tr>
<td>Mr D Esterhuizen</td>
</tr>
<tr>
<td><strong>Property details</strong></td>
</tr>
<tr>
<td><strong>Province</strong></td>
</tr>
<tr>
<td><strong>Magisterial district</strong></td>
</tr>
<tr>
<td><strong>District municipality</strong></td>
</tr>
<tr>
<td><strong>Topo-cadastral map</strong></td>
</tr>
<tr>
<td><strong>Farm name</strong></td>
</tr>
<tr>
<td><strong>Closest town</strong></td>
</tr>
<tr>
<td><strong>Development criteria in terms of Section 38(1) of the NHR Act</strong></td>
</tr>
<tr>
<td>Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length</td>
</tr>
<tr>
<td>Construction of bridge or similar structure exceeding 50m in length</td>
</tr>
<tr>
<td>Development exceeding 5000 sq m</td>
</tr>
<tr>
<td>Development involving three or more existing erven or subdivisions</td>
</tr>
<tr>
<td>Development involving three or more erven or divisions that have been consolidated within past five years</td>
</tr>
<tr>
<td>Rezoning of site exceeding 10 000 sq m</td>
</tr>
<tr>
<td>Any other development category, public open space, squares, parks, recreation grounds</td>
</tr>
<tr>
<td><strong>Land use</strong></td>
</tr>
<tr>
<td><strong>Previous land use</strong></td>
</tr>
<tr>
<td><strong>Current land use</strong></td>
</tr>
</tbody>
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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

**Stone Age:** The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Stone Age</td>
<td>2 000 000 - 150 000 Before Present</td>
</tr>
<tr>
<td>Middle Stone Age</td>
<td>150 000 - 30 000 BP</td>
</tr>
<tr>
<td>Later Stone Age</td>
<td>30 000 - until c. AD 200</td>
</tr>
</tbody>
</table>

**Iron Age:** Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. As they produced their own iron tools, archaeologists call this the Iron Age.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Iron Age</td>
<td>AD 200 - AD 900</td>
</tr>
<tr>
<td>Middle Iron Age</td>
<td>AD 900 - AD 1300</td>
</tr>
<tr>
<td>Late Iron Age</td>
<td>AD 1300 - AD 1830</td>
</tr>
</tbody>
</table>

**Historical Period:** Since the arrival of the white settlers - c. AD 1840 - in this part of the country.

**Cumulative impacts:** “Cumulative Impact”, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

**Mitigation:** means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADRC</td>
<td>Archaeological Data Recording Centre</td>
</tr>
<tr>
<td>ASAPA</td>
<td>Association of Southern African Professional Archaeologists</td>
</tr>
<tr>
<td>CS-G</td>
<td>Chief Surveyor-General</td>
</tr>
<tr>
<td>EIA</td>
<td>Early Iron Age</td>
</tr>
<tr>
<td>ESA</td>
<td>Early Stone Age</td>
</tr>
<tr>
<td>LIA</td>
<td>Late Iron Age</td>
</tr>
<tr>
<td>LSA</td>
<td>Later Stone Age</td>
</tr>
<tr>
<td>HIA</td>
<td>Heritage Impact Assessment</td>
</tr>
<tr>
<td>MSA</td>
<td>Middle Stone Age</td>
</tr>
<tr>
<td>NASA</td>
<td>National Archives of South Africa</td>
</tr>
<tr>
<td>NHRA</td>
<td>National Heritage Resources Act</td>
</tr>
<tr>
<td>PHRA</td>
<td>Provincial Heritage Resources Agency</td>
</tr>
<tr>
<td>SAHRA</td>
<td>South African Heritage Resources Agency</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

In terms of section 43 of the Mineral and Petroleum Resources Development Act 28 of 2002 ("MPRDA") the holder of a prospecting right must apply for a closure certificate when, inter alia, the right is abandoned or lapses. In addition to various closure related regulations issued under the MPRDA, this is one of the few provisions associated with environmental management that had not been repealed then as part of the so-called “One Environmental System” (“OES”).

In terms of the scope of work, the prospecting right held in respect of the farms Holfontein 395 IS and Ploegschaar 399 IS ("Holfontein PR") and the prospecting right in respect of portions 3-5, 7, 11 and 12 of the farm Poortjesfontein 398 IS ("Poortjesfontein PR") have lapsed. Furthermore, Sasol has abandoned the prospecting right in respect of portion 2 of the farm Springbokkuil 369 IS ("Springbokkuil PR"). Therefore, Sasol is required to submit a closure certificate in terms of section 43 of the MPRDA ("Closure Certificate") in respect of the Holfontein PR, the Poortjesfontein PR and the Springbokkuil PR.

In addition to the above, Sasol wishes to amend the prospecting right over portions 1, 8, 15-24 and 28 of the farm Blesbokspruit 90 IS and the remainder and portions 1 and 5 of the farm Rolspruit 127 IS ("Blesbokspruit PR") so as to extend the prospecting area to include a portion of the farm Rianel 98 IS. Furthermore, Sasol Mining wishes to amend the environmental management plan in respect of Blesbokspruit PR ("EMP") so as to include a portion of the farm Rianel 98 IS and further to increase the number of boreholes from 6 to 40 and to add directional drilling as an alternative prospecting method ("Proposed Amendments"). An application for renewal of the Blesbokspruit PR is pending, but undecided.

In summary, the terms of the scope of work, requires the consultant to prepare and submit on behalf of Sasol:

- The applications for a Closure Certificate in respect of each of the Holfontein PR, the Poortjesfontein PR and the Springbokkuil PR;
- The application for the amendment of the Blesbokspruit PR so as to extend the prospecting area to include a portion of the farm Rianel 98 IS; and
- The application for the amendment of the EMP so as to include a portion of the farm Rianel 98 IS and the Proposed Amendments.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. According to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by ILISO Consulting Environmental Management to conduct a cultural heritage assessment to determine if the proposed development would have an impact on any sites, features or objects of cultural heritage significance.
This report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended and is intended for submission to the South African Heritage Resources Agency (SAHRA).

2. TERMS OF REFERENCE

The aim of a full HIA investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.

The result of this investigation is a heritage impact assessment report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed development.

Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.

2.1 Scope of work

The aim of this study is to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the boreholes is to be developed or closed down. This includes:

- Conducting a desk-top investigation of the area;
- A visit to the proposed development site,

The objectives were to:

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

2.2 Limitations

The investigation has been influenced by the following factors:

- It is assumed that the description of the proposed project, provided by the client, is accurate.
- No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities.
- It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and that is does not have to be repeated as part of the heritage impact assessment.
- The unpredictability of buried archaeological remains.
- This report does not consider the palaeontological potential of the site.
3. LEGISLATIVE FRAMEWORK

The HIA is governed by national legislation and standards and International Best Practise. These include:

- **South African Legislation**
  - National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) – see Appendix 4 for more detail on this Act
  - Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA);
  - National Environmental Management Act 1998 (Act No. 107 of 1998) (NEMA);

- **Standards and Regulations**
  - South African Heritage Resources Agency (SAHRA) Minimum Standards;
  - Association of Southern African Professional Archaeologists (ASAPA) Constitution and Code of Ethics;

- **International Best Practise and Guidelines**
  - ICOMOS Standards (Guidance on Heritage Impact Assessments for Cultural World Heritage Properties); and
  - The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

4. HERITAGE RESOURCES

4.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscape;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including:
  - ancestral graves;
  - royal graves and graves of traditional leaders;
  - graves of victims of conflict;
  - graves of individuals designated by the Minister by notice in the Gazette;
  - historical graves and cemeteries; and
  - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery 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;
  - ethnographic art and objects;
4.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential.

According to 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:

- its importance in 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; and
- sites of significance relating to the history of slavery in South Africa.

A matrix was developed whereby the above criteria were applied for the determination of the significance of each identified site (see Appendix 3). This allowed some form of control over the application of similar values for similar identified sites.

5. STUDY APPROACH AND METHODOLOGY

5.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 7 below and illustrated in Figure 2 & 3.

5.2 Methodology

5.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted – see list of references in Section 11.
• Information on events, sites and features in the larger region were obtained from these sources.

5.2.1.2 Data bases
The Heritage Atlas Database, various SAHRA databases, the Environmental Potential Atlas, the Chief Surveyor General and the National Archives of South Africa were consulted.

• Database surveys produced a number of sites located in the larger region of the proposed development.

5.2.1.3 Other sources
Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

• Information of a very general nature were obtained from these sources

The results of the above investigation are summarised in Table 1 below – see list of references in Section 11.

Table 1: Pre-Feasibility Assessment

<table>
<thead>
<tr>
<th>Category</th>
<th>Period</th>
<th>Probability</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early hominin</td>
<td>Pliocene – Lower Pleistocene</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Stone Age</td>
<td>Lower Pleistocene – Holocene</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Early Stone Age</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle Stone Age</td>
<td>Low</td>
<td>Wadley &amp; Turner (1987)</td>
</tr>
<tr>
<td></td>
<td>Later Stone Age</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Rock Art</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron Age</td>
<td>Holocene</td>
<td>None</td>
<td></td>
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<tr>
<td></td>
<td>Early Iron Age</td>
<td>None</td>
<td></td>
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<tr>
<td></td>
<td>Middle Iron Age</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Later Iron Age</td>
<td>Medium</td>
<td>Derricourt &amp; Evers (1973); Huffman (2007); Mason (1986)</td>
</tr>
<tr>
<td>Colonial period</td>
<td>Holocene</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contact period</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recent history</td>
<td>Medium</td>
<td>Higgit (2012); Palmer (1980); Van Schalkwyk (2002)</td>
</tr>
<tr>
<td></td>
<td>Industrial heritage</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

5.2.1.4 Interviews

• Where possible, land owners were consulted as to the presence of sites such as burial places on their properties.

5.2.2 Field survey

The field survey was led by Mr. Duane MacPherson, Eskom’s contract geologist who was in charge of identifying the original location of the different boreholes.

The study areas were visited on 6 and 7 March 2017. The various boreholes under consideration was visited under the leadership of Mr. MacPherson.
During the site visit, the archaeological visibility was limited in some areas by dense vegetation cover and crops – see Fig. 1 below.

![Vegetation Cover](image1.png)

**Fig. 1.** The vegetation cover encountered in sections of the study areas.

5.2.3 Documentation

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the Global Positioning System (GPS) and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

The location of the inspected boreholes was recorded by means of a Garmin Oregon 550 handheld GPS device. Photographic recording was done by means of a Canon EOS 550D digital camera.

Map datum used: Hartebeeshoek 94 (WGS84).

### 6. SITE SIGNIFICANCE AND ASSESSMENT

6.1 Heritage assessment criteria and grading

The National Heritage Resources Act, Act no. 25 of 1999, stipulates the assessment criteria and grading of heritage sites. The following grading categories are distinguished in Section 7 of the Act:

<table>
<thead>
<tr>
<th>SAHRA Cultural Heritage Site Significance</th>
<th>Field Rating</th>
<th>Grade</th>
<th>Significance</th>
<th>Recommended Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Significance</td>
<td>Grade I</td>
<td>High</td>
<td>significance</td>
<td>Conservation by SAHRA, national site nomination, mention any relevant international ranking. No alteration whatsoever without permit from SAHRA</td>
</tr>
<tr>
<td>Provincial Significance</td>
<td>Grade II</td>
<td>High</td>
<td>significance</td>
<td>Conservation by provincial heritage authority, provincial site nomination. No alteration whatsoever without permit from provincial heritage authority.</td>
</tr>
</tbody>
</table>
### Cultural Heritage Assessment

**SASOL Prospecting Rights**

<table>
<thead>
<tr>
<th>Local Significance</th>
<th>Grade</th>
<th>High Significance</th>
<th>Conservation by local authority, no alteration whatsoever without permit from provincial heritage authority. Mitigation as part of development process not advised.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Significance</td>
<td>Grade</td>
<td>High Significance</td>
<td>Conservation by local authority, no external alteration without permit from provincial heritage authority. Could be mitigated and (part) retained as heritage register site.</td>
</tr>
<tr>
<td>Generally Protected A</td>
<td>Grade IV-A</td>
<td>High/medium significance</td>
<td>Conservation by local authority. Site should be mitigated before destruction. Destruction permit required from provincial heritage authority.</td>
</tr>
<tr>
<td>Generally Protected B</td>
<td>Grade IV-B</td>
<td>Medium significance</td>
<td>Conservation by local authority. Site should be recorded before destruction. Destruction permit required from provincial heritage authority.</td>
</tr>
<tr>
<td>Generally Protected C</td>
<td>Grade IV-C</td>
<td>Low significance</td>
<td>Conservation by local authority. Site has been sufficiently recorded in the Phase 1 HIA. It requires no further recording before destruction. Destruction permit required from provincial heritage authority.</td>
</tr>
</tbody>
</table>

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II, III and IV sites, the applicable of mitigation measures would allow the development activities to continue.

### 6.2 Methodology for the assessment of potential impacts

All impacts identified during the EIA stage of the study will be classified in terms of their significance. Issues were assessed in terms of the following criteria:

- **The nature**, a description of what causes the effect, what will be affected and how it will be affected;
- The physical **extent**, wherein it is indicated whether:
  - 1 - the impact will be limited to the site;
  - 2 - the impact will be limited to the local area;
  - 3 - the impact will be limited to the region;
  - 4 - the impact will be national; or
  - 5 - the impact will be international;
- **The duration**, wherein it is indicated whether the lifetime of the impact will be:
  - 1 - of a very short duration (0–1 years);
  - 2 - of a short duration (2-5 years);
  - 3 - medium-term (5–15 years);
  - 4 - long term (> 15 years); or
  - 5 - permanent;
- **The magnitude** of impact, quantified on a scale from 0-10, where a score is assigned:
  - 0 - small and will have no effect;
  - 2 - minor and will not result in an impact;
  - 4 - low and will cause a slight impact;
  - 6 - moderate and will result in processes continuing but in a modified way;
  - 8 – high, (processes are altered to the extent that they temporarily cease); or
  - 10 - very high and results in complete destruction of patterns and permanent cessation of processes;
- **The probability** of occurrence, which describes the likelihood of the impact actually occurring and is estimated on a scale where:
  - 1 - very improbable (probably will not happen);
  - 2 - improbable (some possibility, but low likelihood);
  - 3 - probable (distinct possibility);
  - 4 - highly probable (most likely); or
  - 5 - definite (impact will occur regardless of any prevention measures);
- **The significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- **The status**, which is 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; and
- The degree to which the impact can be mitigated.

The significance is determined by combining the criteria in the following formula:

\[ S = (E + D + M) \times P \]

where

- \( S \) = Significance weighting
- \( E \) = Extent
- \( D \) = Duration
- \( M \) = Magnitude
- \( P \) = Probability

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

<table>
<thead>
<tr>
<th>Points</th>
<th>Significant Weighting</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 30 points</td>
<td>Low</td>
<td>Where this impact would not have a direct influence on the decision to develop in the area.</td>
</tr>
<tr>
<td>31-60 points</td>
<td>Medium</td>
<td>Where the impact could influence the decision to develop in the area unless it is effectively mitigated.</td>
</tr>
<tr>
<td>&gt; 60 points</td>
<td>High</td>
<td>Where the impact must have an influence on the decision process to develop in the area.</td>
</tr>
</tbody>
</table>

7. PROJECT DESCRIPTION

7.1 Site location

The areas that were investigated consist of portions of different farms. The first is located a short distance to the east of the town of Leandra. The second group of sites are located approximately 50 km south, to the northwest of Standerton (Fig. 2). For more information, see the Technical Summary on p. iv above.
7.2 Development proposal

In terms of the scope of work, the prospecting right held in respect of the farms Holfontein 395 IS and Ploegschaar 399 IS (“Holfontein PR”) and the prospecting right in respect of portions 3-5, 7, 11 and 12 of the farm Poortjiesfontein 398 IS (“Poortjiesfontein PR”) have lapsed. Furthermore, Sasol has abandoned the prospecting right in respect of portion 2 of the farm Springbokkuil 369 IS (“Springbokkuil PR”). Therefore, Sasol is required to submit a closure certificate in terms of section 43 of the MPRDA (“Closure Certificate”) in respect of the Holfontein PR, the Poortjiesfontein PR and the Springbokkuil PR.

In addition to the above, Sasol wishes to amend the prospecting right over portions 1, 8, 15-24 and 28 of the farm Blesbokspruit 90 IS and the remainder and portions 1 and 5 of the farm Rolspuit 127 IS (“Blesbokspruit PR”) so as to extend the prospecting area to include a portion of the farm Rianel 98 IS. Furthermore, Sasol wishes to amend the environmental management plan in respect of Blesbokspruit PR (“EMP”) so as to include a portion of the farm Rianel 98 IS and further to increase the number of boreholes from 6 to 40 and to add directional drilling as an alternative prospecting method (“Proposed Amendments”).

8. DESCRIPTION OF THE AFFECTED ENVIRONMENT

8.1 Overview of the region

The aim of this section is to present an overview of the history of the larger region in order to eventually determine the significance of heritage sites identified in the study area, within the context of their historic, aesthetic, scientific and social value, rarity and representivity – see Section 3.2 and Appendix 3 for more information.

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial component which gave rise to an farming environment.
8.1.1 Stone Age

Very little habitation of the highveld area took place during Stone Age times. Tools dating to the Early Stone Age period are mostly found in the vicinity of larger watercourses, e.g. the Vaal River, or in sheltered areas near mountains. During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. The MSA is a technological stage characterized by flakes and flake-blades with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. Open sites were still preferred near watercourses. These people were adept at exploiting the huge herds of animals that passed through the area, on their seasonal migration.

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Some sites are known to occur in the larger region (Wadley & Turner 1987). Also, for the first time we get evidence of people’s activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA. The LSA people have also left us with a rich legacy of rock art, which is an expression of their complex social and spiritual beliefs – some sites containing rock art are located further to the south in the Bethal region.

8.1.2 Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior highveld area. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes, but also for firewood and water.

The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating condition that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the treeless plains of the Free State and the Mpumalanga highveld.

This wet period came to a sudden end sometime between 1800 and 1820 by a major drought lasting 3 to 5 years. The drought must have caused an agricultural collapse on a large, subcontinent scale.

This was also a period of great military tension. Military pressure from Zululand spilled onto the highveld by at least 1821. Various marauding groups of displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. The Boers trekked into this area in the 1830s. And throughout this time settled communities of Tswana people also attacked each other.

As a result of this troubled period, Sotho-Tswana people concentrated into large towns for defensive purposes. Because of the lack of trees they built their settlements in stone. These stone-walled villages were almost always located near cultivatable soil and a source of water. Such sites are known to occur near Kriel (e.g. Van Schalkwyk 1998, 2000; Pelser, et al 2007) and in the Standerton region (Derricourt & Ewers 1973).

8.1.3 Historic period

White settlers moved into the area during the first half of the 19th century. They were largely self-sufficient, basing their survival on cattle/sheep farming and hunting. Few towns were established and it remained an undeveloped area until the discovery of coal and later gold. The establishment of the NZASM railway line in the 1880s, linking Pretoria with Lourenço Marques and the world at large, brought much infra-structural and administrative development...
to the area. This railway line also became the scene of many battles during the Anglo-Boer War and a concentration camp was established near the Balmoral station, north of study area.

During the Anglo-Boer War, a number of skirmishes occurred in the larger region, with one of the last and biggest battles fought that being at Bakenlaagte south of the town of Kriel on 30 October 1901. In line with the ‘scorched earth’ policy, most farmsteads were destroyed by the British during the latter part of the hostilities.

Coal mining occurred only sporadically in the area. However, with the discovery of the Witwatersrand gold fields, the need for a source of cheap energy became important, and coal mining developed on a large scale in various regions. By 1899, at least four collieries were operating in the Middelburg-Witbank district, supplying the gold mining industry.

8.2 Identified sites

Although a number of sites, features and objects of cultural significance are known to exist in the larger region, only those that might be impacted on by the boreholes are presented below – see Appendix 6 for a discussion of each individual site.

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a grading as identified in the table below.

Table 4. Summary of Identified Heritage Resources in the Study Area.

<table>
<thead>
<tr>
<th>IDENTIFIED HERITAGE RESOURCES</th>
<th>NHRA category</th>
<th>Number</th>
<th>Coordinates</th>
<th>Impact rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formal protections (NHRA)</strong></td>
<td>National heritage site (Section 27)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Provincial heritage site (Section 27)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Provisional protection (Section 29)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Listed in heritage register (Section 30)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>General protections (NHRA)</strong></td>
<td>Structures older than 60 years (Section 34)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Archaeological site or material (Section 35)</td>
<td>No. 17</td>
<td>-26.81395, 29.15822</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. 18</td>
<td>-26.40696, 28.99535</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Palaeontological site or material (Section 35)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Graves or burial grounds (Section 36)</td>
<td>No. 8</td>
<td>-26.35322, 29.01771</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. 9</td>
<td>-26.35341, 29.01808</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. 10</td>
<td>-26.81429, 29.15809</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Public monuments or memorials (Section 37)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Any other heritage resources (describe)</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
8.2.1.1 Stone Age

- No sites, features or objects dating to the Stone Age were identified in the study area.

8.2.1.2 Iron Age

- No sites, features or objects dating to the Iron Age were identified in the study area.

8.2.1.3 Historic period

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Fig. 3. Layout of the survey areas, showing the boreholes and heritage sites.
• (No. 8 & 9): Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. The smaller section has about 10 graves, and the larger section about 30 graves. Most of them have no headstones with inscriptions. The graves all seem to belong to former farm labourers.
  o This feature is viewed to have high significance on a local level – Grade IV-A

• (No. 18): The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. Although no graves were noticed, it is possible that there might be some belonging to infants that were buried in the homestead.
  o This feature is viewed to have low significance on a local level – Grade IV-C

• (No. 10 & 17): The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. Only the foundations of the different features remain. One feature has been identified as a grave: an elongated stone cairn; it is possible that there might be some graves belonging to infants that were buried inside the homestead.
  o This feature is viewed to have low significance on a local level – Grade IV-A

8.4 Impact assessment

Heritage impacts are categorised as:

• Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries;
• Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment;
• Cumulative impacts that are combinations of the above.

Impacts can be managed through one or a combination of the following measures:

• Mitigation
• Avoidance
• Compensation
• Enhancement (positive impacts)
• Rehabilitation
• Interpretation
• Memorialisation

Sources of risk were considered with regards to development activities defined in Section 2(viii) of the NHRA that may be triggered and are summarised in Table 5 below. These issues formed the basis of the impact assessment described. The potential risks are discussed according to the various phases of the project below.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Activity Description</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Removal of Vegetation</td>
<td>Vegetation removal for site preparation and the installation of required infrastructure, e.g. access roads and water pipelines.</td>
</tr>
<tr>
<td>Issue</td>
<td>Construction of</td>
<td>Construction machinery</td>
</tr>
</tbody>
</table>


Cultural Heritage Assessment

SASOL Prospecting Rights

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

- (No. 8 & 9): Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. These sites are located approximately 100 metres southwest of the borehole. It is therefore unlikely that it would be impacted on by the proposed development.
  - The significance weighting for the impact on the identified sites is rated as low.
    - Mitigation: None required.
    - Requirements: None

- (No. 18): The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. This site is located on top of one of the boreholes and would be therefore be impacted on if the development continues.
  - The significance weighting for the impact on the identified sites is rated as high.
    - Mitigation: The site has been sufficiently recorded in the Phase 1 HIA. It requires no further recording before destruction.
    - Requirements: PHRA permit

- (No. 10 & 17): The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. One feature has been identified as a grave.
  - The significance weighting for the impact on the identified sites is rated as high.
    - Mitigation: It is recommended that this feature is retained and that it is fenced off with danger tape if drilling activities take place in its vicinity. If that is not possible and must be demolished, it should be documented in full prior to construction taking place.
    - Requirements: PHRA permit

9. MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.
9.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

9.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

10. RECOMMENDATIONS

In terms of section 43 of the Mineral and Petroleum Resources Development Act 28 of 2002 (“MPRDA”) the holder of a prospecting right must apply for a closure certificate when, inter alia, the right is abandoned or lapses. In addition to various closure related regulations issued under the MPRDA, this is one of the few provisions associated with environmental management that had not been repealed then as part of the so-called “One Environmental System” (“OES”).

In summary, the terms of the scope of work, requires the consultant to prepare and submit on behalf of Sasol:

- The applications for a Closure Certificate in respect of each of the Holfontein PR, the Poortjesfontein PR and the Springbokkuil PR;
The application for the amendment of the Blesbokspruit PR so as to extend the prospecting area to include a portion of the farm Rolspruit 127IS; and

The application for the amendment of the EMP so as to include a portion of the farm Rianel 98 IS and the Proposed Amendments.

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial component which gave rise to an farming environment.

Identified sites

• (No. 8 & 9): Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. The smaller section has about 10 graves, and the larger section about 30 graves. Most of them have no headstones with inscriptions. The graves all seem to belong to former farm labourers.
  - This feature is viewed to have high significance on a local level – Grade IV-A

• (No. 18): The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. Although no graves were noticed, it is possible that there might be some belonging to infants that were buried in the homestead.
  - This feature is viewed to have low significance on a local level – Grade IV-C

• (No. 10 &17): The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. Only the foundations of the different features remain. One feature has been identified as a grave: an elongated stone cairn; it is possible that there might be some graves belonging to infants that were buried inside the homestead.
  - This feature is viewed to have low significance on a local level – Grade IV-A

Mitigation

• (No. 8 & 9): Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. These sites are located approximately 100 metres southwest of the borehole. It is therefore unlikely that it would be impacted on by the proposed development.
  - The significance weighting for the impact on the identified sites is rated as low.
    - Mitigation: None required.
    - Requirements: None

• (No. 18): The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. This site is located on top of one of the boreholes and would be therefore be impacted on if the development continues.
  - The significance weighting for the impact on the identified sites is rated as high.
    - Mitigation: The site has been sufficiently recorded in the Phase 1 HIA. It requires no further recording before destruction.
    - Requirements: PHRA permit

• (No. 10 &17): The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. One feature has been identified as a grave.
The significance weighting for the impact on the identified sites is rated as **high**.

- **Mitigation**: It is recommended that this feature is retained and that it is fenced off with danger tape if drilling activities take place in its vicinity. If that is not possible and must be demolished, it should be documented in full prior to construction taking place.

- **Requirements**: PHRA permit

**Reasoned opinion as to whether the proposed activity should be authorised:**

- From a heritage point of view it is recommended that the proposed development be allowed to continue, on condition of acceptance of the proposed mitigation measures.

**Conditions for inclusion in the environmental authorisation:**

- Should archaeological sites or graves be exposed during drilling activities, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.
11. REFERENCES

11.1 Data bases

Chief Surveyor General
Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
Heritage Atlas Database, Pretoria
National Archives of South Africa
SAHRA Archaeology and Palaeontology Report Mapping Project (2009)
SAHRIS Database

11.2 Literature


11.3 Maps and aerial photographs

1: 50 000 Topocadastral maps

Google Earth
APPENDIX 1. INDEMNITY AND TERMS OF USE OF THIS REPORT

The findings, results, conclusions and recommendations given in this report are based on the author’s best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and the author reserve the right to modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

Although all possible care is taken to identify all 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. The author of this report will not be held liable for such oversights or for costs incurred as a result of such oversights.

Although the author exercises due care and diligence in rendering services and preparing documents, he accepts no liability and the client, by receiving this document, indemnifies the author against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the author and by the use of the information contained in this document.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.
APPENDIX 2. SPECIALIST COMPETENCY

Johan (Johnny) van Schalkwyk

J A van Schalkwyk, D Litt et Phil, heritage consultant, has been working in the field of heritage management for more than 40 years. Originally based at the National Museum of Cultural History, Pretoria, he has actively done research in the fields of anthropology, archaeology, museology, tourism and impact assessment. This work was done in Limpopo Province, Gauteng, Mpumalanga, North West Province, Eastern Cape, Northern Cape, Botswana, Zimbabwe, Malawi, Lesotho and Swaziland. Based on this work, he has curated various exhibitions at different museums and has published more than 70 papers, most in scientifically accredited journals. During this period he has done more than 2000 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.

A complete curriculum vitae can be supplied on request.
APPENDIX 3. CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE RESOURCES

A system for site grading was established by the NHRA and further developed by the South African Heritage Resources Agency (SAHRA 2007) and has been approved by ASAPA for use in southern Africa and was utilised during this assessment.

Significance

According to the NHRA, Section 2(vi) the significance of a heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

<table>
<thead>
<tr>
<th>1. SITE EVALUATION</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Historic value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is it important in the community, or pattern of history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it have strong or special association with the life or work of a person, group or organisation of importance in history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it have significance relating to the history of slavery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Aesthetic value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Scientific value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is it important in demonstrating a high degree of creative or technical achievement at a particular period</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Social value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Rarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does it possess uncommon, rare or endangered aspects of natural or cultural heritage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6 Representivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Sphere of Significance

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>National</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provincial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific community</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

3. Field Register Rating

1. National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA
2. Provincial/Grade 2: High significance - No alteration whatsoever without
permit from provincial heritage authority.

3. Local/Grade 3A: High significance - Mitigation as part of development process not advised.

4. Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site.

5. Generally protected A: High/medium significance - Should be mitigated before destruction.

6. Generally protected B: Medium significance - Should be recorded before destruction.

7. Generally protected C: Low significance - Requires no further recording before destruction.
APPENDIX 4. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority-

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 36):

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
The National Heritage Resources Act (Act no 25 of 1999) stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I**: Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II**: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III**: Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated in terms of section 8.

Presenting archaeological sites as part of tourism attraction requires, in terms 44 of the Act, a Conservation Management Plan as well as a permit from SAHRA.

(1) Heritage resources authorities and local authorities must, wherever appropriate, co-ordinate and promote the presentation and use of places of cultural significance and heritage resources which form part of the national estate and for which they are responsible in terms of section 5 for public enjoyment, education. research and tourism, including:
   
   (a) the erection of explanatory plaques and interpretive facilities, including interpretive centres and visitor facilities;
   (b) the training and provision of guides;
   (c) the mounting of exhibitions;
   (d) the erection of memorials; and
   (e) any other means necessary for the effective presentation of the national estate.

(2) Where a heritage resource which is formally protected in terms of Part I of this Chapter is to be presented, the person wishing to undertake such presentation must, at least 60 days prior to the institution of interpretive measures or manufacture of associated material, consult with the heritage resources authority which is responsible for the protection of such heritage resource regarding the contents of interpretive material or programmes.

(3) A person may only erect a plaque or other permanent display or structure associated with such presentation in the vicinity of a place protected in terms of this Act in consultation with the heritage resources authority responsible for the protection of the place.
Cultural Heritage Assessment

APPENDIX 5. RELOCATION OF GRAVES

If the graves are younger than 60 years, an undertaker can be contracted to deal with the exhumation and reburial. This will include public participation, organising cemeteries, coffins, etc. They need permits and have their own requirements that must be adhered to.

If the graves are older than 60 years or of undetermined age, an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. This is a requirement by law.

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.

Information needed for the SAHRA permit application

- The permit application needs to be done by an archaeologist.
- A map of the area where the graves have been located.
- A survey report of the area prepared by an archaeologist.
- All the information on the families that have identified graves.
- If graves have not been identified and there are no headstones to indicate the grave, these are then unknown graves and should be handled as if they are older than 60 years. This information also needs to be given to SAHRA.
- A letter from the landowner giving permission to the developer to exhume and relocate the graves.
- A letter from the new cemetery confirming that the graves will be reburied there.
- Details of the farm name and number, magisterial district and GPS coordinates of the gravesite.
APPENDIX 6. INVENTORY OF IDENTIFIED CULTURAL HERITAGE SITES

<table>
<thead>
<tr>
<th>Location</th>
<th>No. 8</th>
<th>Burial place</th>
<th>S 26.35322, E 29.01771</th>
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</thead>
<tbody>
<tr>
<td>Location</td>
<td>No. 9</td>
<td>Burial place</td>
<td>S 26.35341, E 29.01808</td>
</tr>
</tbody>
</table>

**Description**
Two informal burial places approximately 40 m apart. It is possible that it is a single burial site, but due to the tall grass it was difficult to establish this. The smaller section has about 10 graves, and the larger section about 30 graves. Most of them have no headstones with inscriptions. The graves all seem to belong to former farm labourers.

**Significance of site/feature** | High on a local level – Grade IV-A

**Impact assessment**
These sites are located approximately 100 metres southwest of the borehole. It is therefore unlikely that it would be impacted on by the proposed development.

**Significance of impact**

<table>
<thead>
<tr>
<th>Extent</th>
<th>Duration</th>
<th>Magnitude</th>
<th>Probability</th>
<th>Significance</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>20</td>
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</table>

**Mitigation**
None required.

**Requirements**
None

**References**
1: 50 000 topocadastral map
Location | No. 18 | Homestead | S 26.40696, E 28.99535

Description
The ruins of what seems a farm labourer homestead, consisting of a single house structure. Only the foundations remain. Although no graves were noticed, it is possible that there might be some belonging to infants that were buried in the homestead.

Significance of site/feature | Low on a local level – Grade IV-C

Impact assessment
This site is located on top of one of the boreholes and would be therefore be impacted on if the development continues.

<table>
<thead>
<tr>
<th>Extent</th>
<th>Duration</th>
<th>Magnitude</th>
<th>Probability</th>
<th>Significance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>60</td>
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</table>

Mitigation
The site has been sufficiently recorded in the Phase 1 HIA. It requires no further recording before destruction. Destruction permit required from provincial heritage authority.

Requirements
PHRA permit

References
1: 50 000 topocadastral map
**Location**

<table>
<thead>
<tr>
<th>Location</th>
<th>Graves</th>
<th>Homestead</th>
<th>Coordinates</th>
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</thead>
<tbody>
<tr>
<td>No. 10</td>
<td>S 26.81429, E 29.15809</td>
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<td></td>
</tr>
<tr>
<td>No. 17</td>
<td>S 26.81395, E 29.15822</td>
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</table>

**Description**

The ruins of a farm labourer homestead, consisting of a number of house structures, refuse middens and a cattle enclosure. Only the foundations of the different features remain. One feature has been identified as a grave: an elongated stone cairn; it is possible that there might be some graves belonging to infants that were buried inside the homestead.

**Significance of site/feature**

Low on a local level – Grade IV-A

**Impact assessment**

This site is located on top of one of the boreholes and would be therefore be impacted on if the development continues.

**Significance of impact**

<table>
<thead>
<tr>
<th>Extent</th>
<th>Duration</th>
<th>Magnitude</th>
<th>Probability</th>
<th>Significance</th>
<th>Weight</th>
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<td></td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>60</td>
</tr>
</tbody>
</table>

**Mitigation**

It is recommended that this feature is retained and that it is fenced off with danger tape if drilling activities take place in its vicinity. If that is not possible and must be demolished, it should be documented in full prior to construction taking place.

**Requirements**

As these structures are older than 60 years, a permit for its destruction must be obtained from PHRA. Such a permit will only be issued on condition of its full documentation (mapping and photographing).

**References**

1: 50 000 toposcadastral map