

HERITAGE IMPACT ASSESSMENT

(REQUIRED UNDER SECTION 38(8) OF THE NHRA (No. 25 OF 1999))

FOR THE PROPOSED ONDERSTEPSOORT GRID CONNECTION INFRASTRUCTURE, BOJANALA PLATINUM DISTRICT MUNICIPALITY, NORTH WEST PROVINCE.

Type of development:

Powerline and Substation

Client:

Onderstepoort Grid (Pty) Ltd

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REPORT OUTLINE

Appendix 6 of the GNR 326 EIA Regulations published on 7 April 2017 provides the requirements for specialist reports undertaken as part of the Environmental Authorisation process. In line with this, Table 1 provides an overview of Appendix 6 together with information on how these requirements have been met.

Table 1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae.	Section a
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority.	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared.	Section 1
(cA) An indication of the quality and age of base data used for the specialist report.	Section 3.4.
(cB) A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section 9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Section 3
(f) Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives.	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers.	Section 8 and 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers.	Section 8
(I) Description of any assumptions made and any uncertainties or gaps in knowledge.	Section 3.7
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities.	Section 1.3
(k) Mitigation measures for inclusion in the EMPr.	Section 9.1 and 9.5
(l) Conditions for inclusion in the environmental authorisation.	Section 9.1 and 9.5
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation.	Section 9.5
(n) Reasoned opinion - (i) As to whether the proposed activity, activities or portions thereof should be authorised; (iA) Regarding the acceptability of the proposed activity or activities; and (ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan.	Section 9.2
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report.	Section 5
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	Refer to the EIA report
(q) Any other information requested by the competent authority.	No other information requested at this time

Executive Summary

Onderstepoort Grid (Pty) Ltd proposes the construction and operation of a grid connection solution for the proposed Onderstepoort Solar 1 (DFFE Reference: 14/12/16/3/3/2/2319) and Onderstepoort Solar 2 (DFFE Reference: 14/12/16/3/3/2/2320) solar PV facilities, near Boshhoek in the North West Province. The grid connection solution will include the development of a double circuit 132kV power line and collector substation to connect the proposed solar PV facilities to the national grid via the existing Ngwedi Main Transmission Substation (MTS). Other associated infrastructure will also be required for the grid connection solution, including access tracks/roads, administrative buildings and laydown areas.

Onderstepoort Grid (Pty) Ltd appointed Beyond Heritage to conduct a Heritage Impact Assessment (HIA) for the Project and the study area was assessed through a desktop assessment and by a non-intrusive pedestrian field survey that was conducted for the Project. Key findings of the assessment include:


- The proposed powerline traverses a landscape that is characterised by thick bushveld vegetation. The study area is primarily used for the breeding of hunting animals and cattle. The area near the switching station runs along the northern edge of a large rocky ridge line where an Iron Age site (RG101) was recorded;
- During the various surveys (conducted due to layout changes) the following sites were recorded:
 - A broken-down homestead (RG001),
 - MSA scatters (RG002, RG011, RG012),
 - An Iron Age site (RG101), and
 - Remnants of stone structures (RG010);
- Based on the current layout, the Southern Corridor alternative is the preferred option due to the risk of graves associated with the ruins at RG010 within the Northern Corridor. However if the recorded features are avoided by surface infrastructure and construction activities the Northern Corridor is acceptable and the recorded features within the corridor can be spanned by the powerline;
- According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant to high palaeontological sensitivity. Bamford (2023; 2025) concluded that the Project lies in the Transvaal Basin of the Transvaal Supergroup where the intrusive rocks of the Rustenburg Layered Suite are also present. Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the overlying soils and sands of the Quaternary. There is a very small chance that trace fossils such as stromatolites or microbialites may occur in the dolomites or quartzites, respectively. None has been recorded from this area, nonetheless a Fossil Chance Find Protocol should be added to the EMPr.

The impact to heritage resources can be mitigated to an acceptable level provided that the recommendations in this report are adhered to, based on the South African Heritage Resource Authority (SAHRA) 's approval.

Recommendations:

- The Iron Age site RG101 should preferably be added to development plans and avoided with a 30m buffer zone.
 - If avoidance is not possible, the site will require Phase 2 mitigation through mapping, recording, and possible test excavations prior to application for the required destruction permits subject to all legal requirements;
- From a heritage perspective, the Southern Corridor is preferable, due to the risk of graves associated with ruins RG010 which is situated within the Northern Corridor. However, if the recorded features are avoided by surface infrastructure and construction activities the Northern Corridor is acceptable and the recorded features within the corridor can be spanned by the powerline;
- Development activities must be confined to the approved development footprint only
- Monitoring of the Project area by the ECO during pre-construction and construction phases for heritage and palaeontological chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9.2.

Declaration of Independence

Specialist Name	Lara Lucija Kraljević
Declaration of Independence	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 107 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations (as amended), that I:</p> <ul style="list-style-type: none"> • I act as an independent specialist in this application; • I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; • I declare that there are no circumstances that may compromise my objectivity in performing such work; • I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; • I will comply with the Act, Regulations and all other applicable legislation; • I have no, and will not engage in, conflicting interests in the undertaking of the activity; • I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; • All the particulars furnished by me in this form are true and correct; and • I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 49 A of the Act.
Signature	
Date	13/02/2025

a) Expertise of the specialist

Lara Kraljević completed her master's degree in archaeology at the University of Pretoria specialising in chemical and mineralogical studies of Iron Age ceramics. Lara is an accredited member of the Association of South African Professional Archaeologists (ASAPA) (#661). She has authored over 100 impact assessments in Gauteng, Limpopo, Mpumalanga, Northern Cape, Eastern Cape, and North West Provinces in South Africa.

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ABBREVIATIONS

ASAPA	Association of South African Professional Archaeologists
BGG	Burial Ground and Graves
CFPs	Chance Find Procedures
CMP	Conservation Management Plan
CoGHSTA	Co-operative Governance, Human Settlements and Traditional Affairs
CRR	Comments and Response Report
CRM	Cultural Resource Management
DFFE	Department of Fisheries, Forestry and Environment,
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment*
EIA	Early Iron Age*
EAP	Environmental Assessment Practitioner
EMPr	Environmental Management Programme
ESA	Early Stone Age
ESIA	Environmental and Social Impact Assessment
GIS	Geographical Information System
GPS	Global Positioning System
GRP	Grave Relocation Plan
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, 2002 (Act No. 28 of 2002)
MSA	Middle Stone Age
NCHM	National Cultural History Museum
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NID	Notification of Intent to Develop
NoK	Next-of-Kin
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
Earlier 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 the historic period
The Iron Age	~ AD 400 to 1840
Historic	~ AD 1840 to 1950
Historic building	Over 60 years old

1 Introduction

Onderstepoort Grid (Pty) Ltd proposes the construction and operation of a grid connection solution for the proposed Onderstepoort Solar 1 (DFFE Reference: 14/12/16/3/3/2/2319) and Onderstepoort Solar 2 (DFFE Reference: 14/12/16/3/3/2/2320) solar PV facilities, near Boshhoek in the North West Province (Figures 1.1 to 1.3). The report forms part of the Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for the development.

The aim of the study was to survey the proposed development footprint to understand the cultural layering of the area, and if heritage features are found, to assess their importance within local, provincial, and national context. It further served to assess the impact of the proposed Project on non-renewable heritage resources. The study will 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. Recommendations are included to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999) (NHRA).

The report outlines the approach and methodology utilized before and during the survey, which includes:

- Phase 1, review of relevant literature;
- Phase 2, the physical surveying of the area on foot and by vehicle;
- Phase 3, reporting the outcome of the study.

During the survey, an Iron Age site, MSA scatters, a broken-down homestead, and ruins were recorded within the general study area. General site conditions and features in the study area were recorded by means of photographs, GPS locations and descriptions. Possible impacts were identified, and mitigation measures are proposed in this report.

HIA – Onderstepoort Grid

February 2025

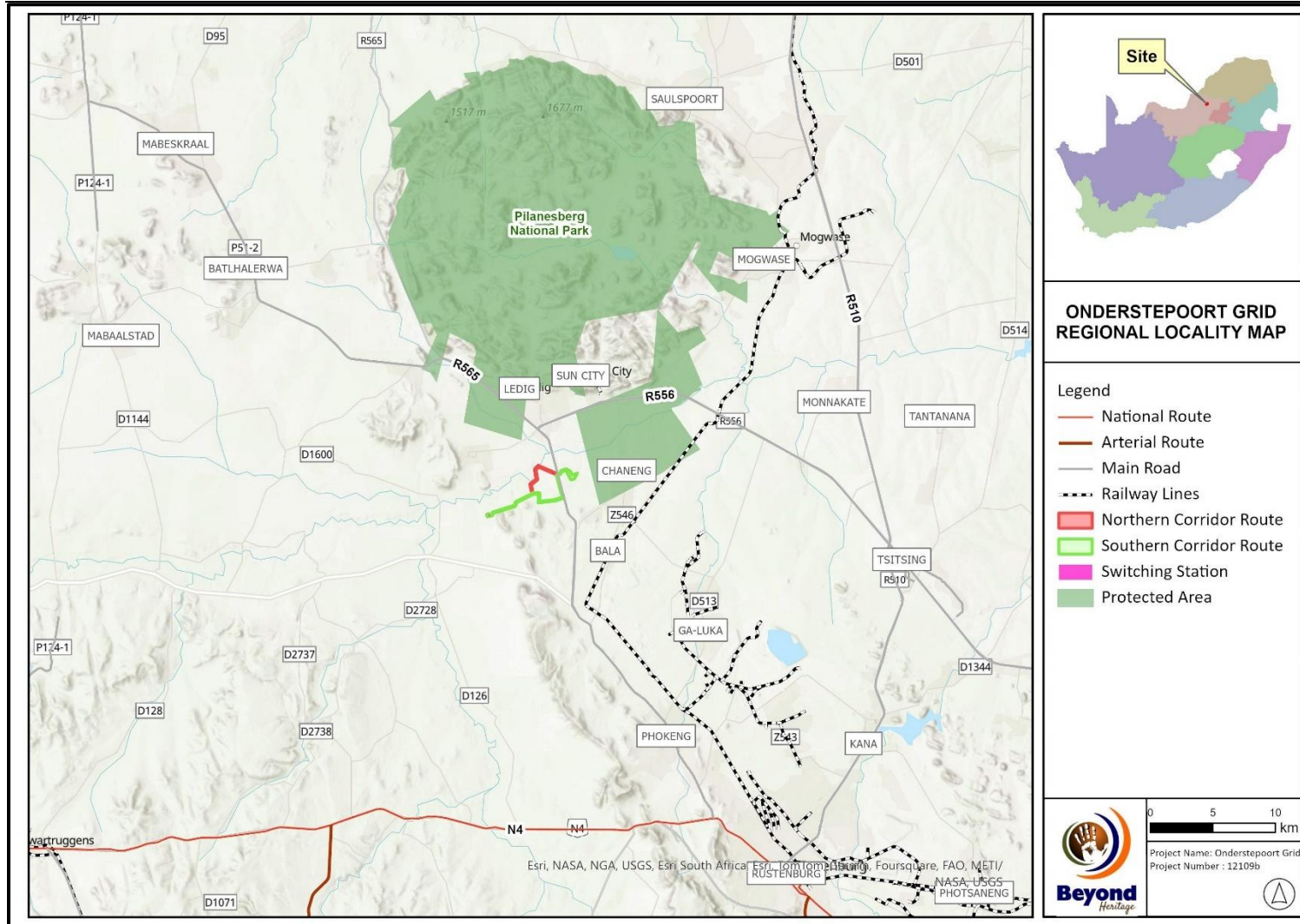


Figure 1.1. Regional setting of the Project (2527 1: 250 000 topographical map).

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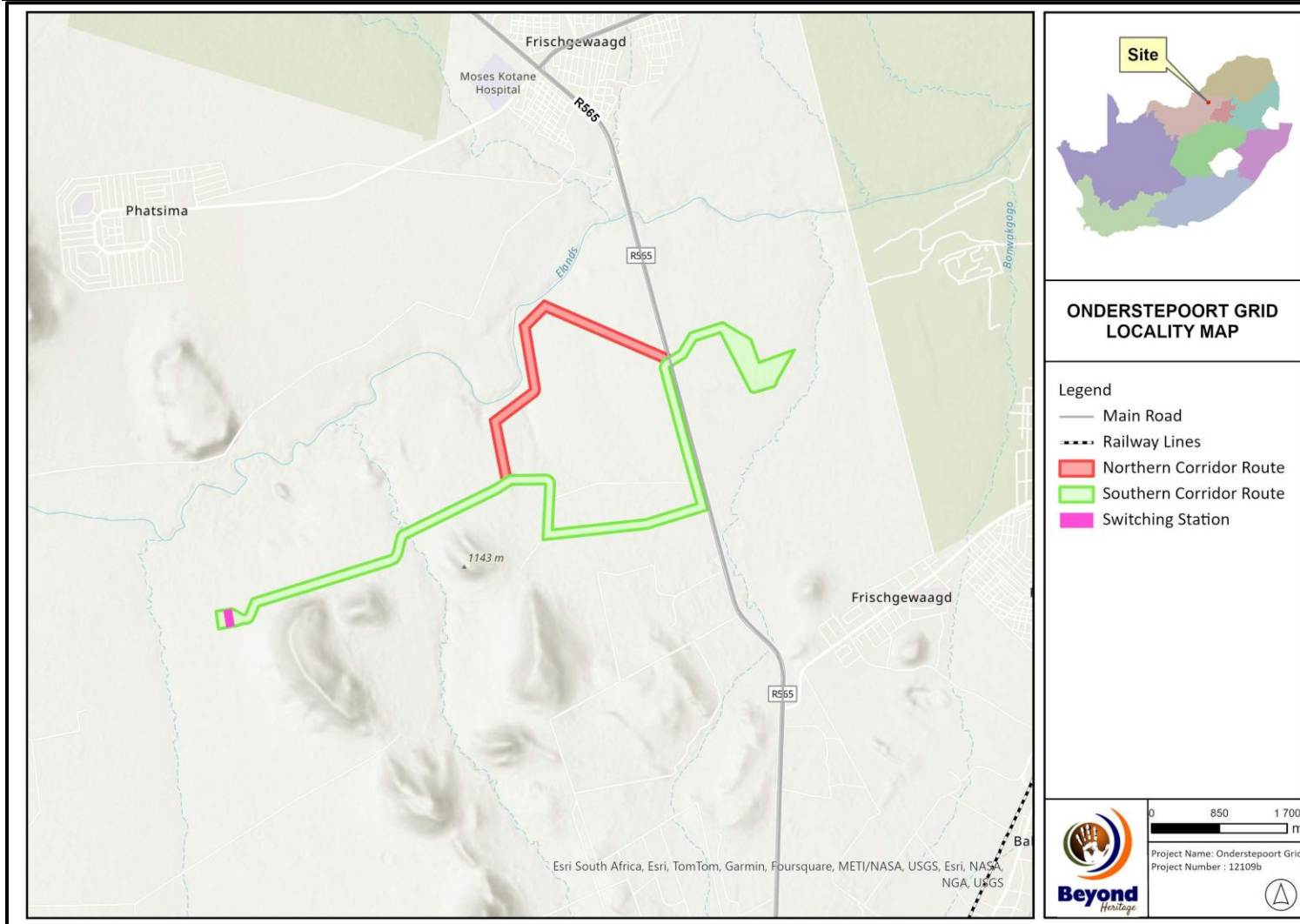


Figure 1.2. Local setting of the Project (Extract from 1: 50 000 topographical map sheet 2527 AC).

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Figure 1.3. Aerial image of the Project components and surrounds.

1.1 Terms of Reference

The following Terms of Reference were adhered to in conducting this HIA.

Field study

Conduct a field study to: (a) survey the development footprint to understand the heritage character of the impact area; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed development.

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, SAHRA minimum standards and the code of ethics and guidelines of Association of South African Professional Archaeologists (ASAPA).

Recommendations are provided 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 No 25 of 1999).

1.2 Project Description

Project components and the location of the Onderstepoort Grid Project are outlined in Tables 2 and 3.

Table 2: Project Description

Magisterial District	Rustenburg Municipality, North West Province
Central co-ordinate of the development	25°25'19.31"S 27° 3'14.45"E
1:50 000 Topographic Map Number	2527 AC

Table 3: Infrastructure and Project activities

Type of development	Powerline
<p>The grid connection solution will include the development of a double circuit 132kV power line and collector substation to connect the proposed solar PV facilities to the national grid via the existing Ngwedi Main Transmission Substation (MTS). Other associated infrastructure will also be required for the grid connection solution, including access tracks/roads, administrative buildings and laydown areas.</p> <p>A corridor 100m wide and approximately 10km long is being assessed to allow for the optimisation of the grid and associated infrastructure, and to accommodate environmental sensitivities. The grid infrastructure will be developed within the assessed corridor. The height of the power line pylons will be up to 32m and the servitude width of the power line will be 31m. The extent of the collector substation will be 100m x 200m and the capacity of the substation will be 132kV. Two grid route alternatives are being considered.</p> <p>The 100m corridor traverses twelve affected properties:</p> <ul style="list-style-type: none"> • Remaining Extent of Portion 2 the Farm ONDERSTEPOORT No. 98 • Portion 13 (a portion of Portion 2) of the Farm ONDERSTEPOORT No. 98 • Remaining Extent of Portion 3 the Farm ONDERSTEPOORT No. 98 • Portion 8 the Farm ONDERSTEPOORT No. 98 • Remaining Extent of Portion 2 the Farm FRISCHGEWAAGD No. 96 • Portion 19 of the Farm FRISCHGEWAAGD No. 96 • Portion 45 of ELANDSFONTEIN No. 102 • Portion 24 of the Farm FRISCHGEWAAGD No. 96 • Portion 23 of the Farm FRISCHGEWAAGD No. 96 • Portion 7 of the Farm FRISCHGEWAAGD No. 96 • Portion 14 of the Farm FRISCHGEWAAGD No. 96 • Portion 10 of the Farm FRISCHGEWAAGD No. 96 	

1.3 Alternatives

A corridor 100m wide and approximately 10km long is being assessed to allow for the optimisation of the grid and associated infrastructure, and to accommodate environmental sensitivities. The grid infrastructure will be developed within the assessed corridor, and this allows for micro siting of Project infrastructure to avoid sensitivities. Two grid route alternatives are being considered. From a heritage perspective, the Southern Corridor alternative is the preferred option due to the risk of graves associated with the ruins at RG010 within the Northern Corridor

2 Legislative Requirements

The HIA, as a specialist study to the EIA, is required under the following legislation:

- National Heritage Resources Act ((NHRA), Act No. 25 of 1999)
- National Environmental Management Act ((NEMA), Act No. 107 of 1998 - Section 23(2)(b))

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

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management (or avoidance) of these impacts.

The HIA should be submitted, as part of the impact assessment report or EMPr, to the Provincial Heritage Resource Agency (PHRA) or to The South African Heritage Resources Agency (SAHRA). SAHRA will ultimately be responsible for the evaluation of Phase 1 HIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 HIA reports and additional development information, as per the impact assessment report and/or EMPr, to be submitted electronically to SAHRA after completion of the study. SAHRA accepts Phase 1 HIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

SAHRA as a commenting authority under section 38(8) of the NHRA require all environmental documents, compiled in support of an EA application as defined by the National Environmental Management Act (NEMA) (Act No 107 of 1998) to be submitted to SAHRA for commenting. EIA Regulations section 40 (1) and (2). The EIA Regulations, Government Notice Regulation (GN) R.982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R.983 (Listing Notice No. 1), GN R.984 (Listing Notice No. 2) and GN R.985 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended. Upon submission to SAHRA the project will be automatically given a case number as reference. As such the EIA report and its appendices must be submitted to the case as well as the EMPr, once it's completed by the Environmental Assessment Practitioner (EAP).

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 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 HIAs are primarily concerned with the location and identification of heritage sites situated within a proposed development area. Identified sites should be assessed according to their significance (refer to Section 3.5). Relevant conservation or mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

HIA – Onderstepoort Grid**February 2025**

Section 3 of the NHRA 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

Conservation or 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 with SAHRA by the applicant before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36 and GNR 548 as well as the SAHRA BGG Policy 2020. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 of the National Heritage Resources Act (NHRA), as well as the National Health Act of 2003 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) re-instituted by Proclamation 109 of 17 June 1994 and implemented by CoGHSTA as well as the National Health Act 2003 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. Authorisation for exhumation and reinternment 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 the National Health Act of 2003.

3 METHODOLOGY

3.1 Literature Review and background study

A brief survey of available literature was conducted to extract data and information on the area in question to provide general heritage context into which the development would be set. This literature search included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS). Findings are included in Section 6.1 and 6.2.

3.2 Genealogical Society and Google Earth Monuments

Google Earth and 1:50 000 topographic maps of the area were utilised to identify possible places of heritage sensitivity might be located; these locations were marked and visited during the fieldwork phase. The database of the Genealogical Society of South Africa (GSSA) was consulted to collect data on any known graves in the area. Results are included in Section 6.3.

3.3 Public Consultation and Stakeholder Engagement:

Stakeholder engagement is a key component of any EIA process, it involves stakeholders interested in or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process undertaken by the EAP was to capture and address any issues raised by community members and other stakeholders. Results are included in Section 5 and the final EIA report.

3.4 Site Investigation

The aim of the site visit was to:

- a) survey the proposed Project area to understand the heritage character of the area and to record, photograph and describe sites of archaeological, historical or cultural interest;
- b) record GPS points of sites/areas identified as significant areas;
- c) determine the levels of significance of the various types of heritage resources recorded in the Project area.

Table 4: Site Investigation Details

	Site Investigation
Date	14 September 2023 and 30 January 2025
Season	Spring – The time of year and season had a limited effect on the results of the survey since the study area is characterised by areas with dense grass cover as well as areas with tree cover and pioneer bush species. The Project area was however sufficiently covered to understand the heritage character of the area (Figure 3.1).



Figure 3.1. Tracklog of the survey path in white.

3.5 Site Significance and Field Rating

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 Project 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 with cognisance of Section 3 of the NHRA:

- 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; and
- Potential to answer present research questions.

In addition to this criteria field ratings prescribed by SAHRA (2007), and acknowledged 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.

Table 5: Heritage significance and field ratings

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

3.6 Impact Assessment Methodology

The criteria below are used to establish the impact rating on sites:

- 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).

3.7 Assumptions and limitations of the study

- The authors acknowledge that the brief literature review is not exhaustive of the literature of the area.
- Due to the nature of heritage resources and pedestrian surveys, the possibility exists that some features or artefacts may not have been discovered/recorded, and the possible occurrence of graves and other cultural material cannot be excluded. This limitation is successfully mitigated with the implementation of a Chance Find Procedure (CFP) and monitoring of the study area by the Environmental Control Officer (ECO).
- This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys.
- Field data was recorded by handheld GPS and Mobile GPS applications. It must be noted that during the process of converting spatial data to final drawings and maps the accuracy of spatial data may be compromised. Printing or other forms of reproduction might also distort the spatial distribution in maps. Due care has been taken to preserve accuracy
- This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components will be highlighted through the public consultation process if relevant. This process is facilitated by the EAP and if not done this can be considered a significant limitation and as a potential Project risk. It is possible that new information could come to light in future, which might change the results of this Impact Assessment.

4 Description of Socio-Economic Environment

According to StatsSA and Census 2011, Rustenburg Local Municipality has a total population of 549 575 people, of whom 88,5% are black African, 9,4% are white, with the other population groups make up the remaining 2,1%. Of those aged 20 years and older, 5,4% have completed primary school, 36,2% have some secondary education, 31,1% have completed matric, and 8,9% have some form of higher education, while 5,4% of those aged 20 years and older have no form of schooling. 266 471 people are economically active (employed or unemployed but looking for work), and of these, 26,4% are unemployed. 34,7% of the 142 219 economically active youth (15 – 34 years) in the municipality are unemployed (statssa.gov.za)

5 Results of Public Consultation and Stakeholder Engagement:

In line with the NHRA, stakeholder engagement is a key component of any EA process, it involves stakeholders interested in or affected by the proposed development. At the time of writing no heritage concerns have been raised.

6 Contextualising the study area

6.1 Archaeological Background

6.1.1 Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contain sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. The three main phases can be divided as follows;

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

The ESA is represented in the area by the Wonderboom site on the southern slopes of the Magaliesberg north of Pretoria. This site is characterised by numerous cleavers, hand axes, cores and flakes (Mason 1958). The nearby Jubilee shelter has been excavated and provides a record from the Late Pleistocene to the 7th Century AD (Turner 1986), an extended cultural sequence with assemblages' characteristic of the Middle Stone Age, Early Later Stone Age and Later Stone Age including assemblages from the Oakhurst and Wilton industries (Wadley 1986). The Jubilee shelter provides evidence of hunter–gatherer occupation during three phases of agro pastoralist contact, beginning in 225 AD and characterised by cooperative contact, prior to the hunter-gatherers being either assimilated or dispersed to other areas (Wadley 1996).

6.1.2 The Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

- The Early Iron Age: Most of the first millennium AD.
- The Middle Iron Age: 10th to 13th centuries AD
- The Late Iron Age: 14th century to colonial period.

The Pilanesberg area has been utilised from the Early Iron Age people and an ongoing archaeological survey has been conducted in the Pilanesberg National Park from 1995. The Pilanesberg is also well known for extensive Late Iron Age stone-walled settlements associated with early Tswana occupation. Several sites have been recorded close to Sun City linked to early Tlokwa occupation. Towards the central and eastern sections of Pilanesberg near Mabele a Podi, the early 19th century capital of the Kgatla ba ga Kgafela have also been identified (Coetzee 2010). Although no Late Iron Age sites were recorded near Bakubung Lodge, they occur in the general region (Coetzee 2010). Research in the Pilanesberg has also uncovered and studied thirteen human burials of which seven were confirmed to be from the Late Iron Age period (Le Abbe et al 2007).

The Late Iron Age in the area is characterised by extensive stone walled sites (Mason 1986, Dreyer 1995) of the Sotho-Tswana (Pistorius 1992) and there are signs that the present-day Rustenburg is located in an area that used to be a large Late Iron Age (1000-1800) terrain. (Bergh 1999: 7)

Stonewalling as an indicator of occupation is the most visible and easily identifiable. Within the regional study area, two types are known to occur. These include Type N and Molokwane stonewalling types. Type N walling includes one or multiple cattle kraals in the centre of the settlement linked to outer walls. A perimeter wall surrounds the entire settlement and sometimes includes small stock enclosures. The houses were most likely 'beehive' structures. Molokwane stonewalled settlements resemble sunflowers when viewed from above. The individual households within the settlement surround the central cattle kraal with multiple arcs demarcating back courtyards and perimeter walls. The occupiers of these settlements constructed the houses and verandas using dagha, placing small stock enclosures between the front courtyards and central kraal (Huffman 2007, Hardwick 2018).

Since the beginning of the 19th century, there was a presence of Fokeng, Kwena and Tuang settlements in the present-day Rustenburg area. The Fokeng tribe had its settlement at Phokeng, to the northwest of Rustenburg, and were able to live there up until the time of the Difaqane, when Mzilikazi's Khumalo-Ndebeles drove all other black communities from the area. The Fokeng, under the authority of Nôgê, was one of the few groups that resisted Mzilikazi, and without success. (Bergh 1999: 10-11; 110-111) The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's. (Bergh 1999: 10) It came about in response to heightened competition for land and trade and caused population groups like gun carrying Griquas and Shaka's Zulus to attack other tribes. (Bergh 1999: 14; 116-119)

6.1.3 Historical Information

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720's. In 1829, Robert Scoon and McLuckie made a journey from Mzilikazi's Kraal, along the area directly to the north of Rustenburg to the north of Zeerust and finally down to Danielskuil. In the same year, Moffat and Archbell travelled from Mzilikazi's Kraal (to the north of Pretoria), through Rustenburg and all the way Zeerust and then to Kuruman in the southwest. In 1835, Dr Andrew Smith, a natural and medical scientist, travelled between Mzilikazi's kraal and Rustenburg, and finally much further to the north, almost up to Mahalapye. (Bergh 1999: 12-13)

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

As can be expected, the movement of whites into the northern provinces would have a significant impact on the black people who populated the land. This was also the case in the North West Province. Farms were surveyed in a large area, which included the present-day Rustenburg district, between 1839 and 1840. (Bergh 1999: 15) By 1860, the population of whites in the central Transvaal was already very dense and the administrative machinery of their leaders was firmly in place.

6.1.4 Anglo-Boer War

The Anglo-Boer War, which took place between 1899 and 1902 in South Africa, was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, and subsequently republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was; however, a clear statement of British war aims. (Du Preez 1977)

One battalion of British troops moved through Rustenburg between February and September 1900. This was the regiment of General Major R. S. S. Baden-Powell. The Boer war-hero General Jacobus Herculaa de la Rey (more commonly known as Koos de la Rey) also moved past Rustenburg on his route between Barberton and Lichtenburg. (Bergh 1999: 51)

Rustenburg was under siege on 14 June 1900, when Colonel Herbert Plumer accepted the surrender of the Rustenburg Field Cornet Piet Kruger. Kruger, on his part, had been unable to get the Burghers to put up any resistance against the British forces. The British camped near the old goal, but on strict order from General Baden-Powell that there were no demonstrations. On the same day, the demoralized Burghers handed 1000 rifles to the British authorities, and it is perhaps safe to assume that an equivalent number signed the oath of neutrality. (Wulfsohn 1992: 50-51)

6.2 Literature Review (SAHRIS)

Studies conducted in the general area that were consulted are listed in Table 6.

Table 6. Studies conducted in the greater area.

Author	Year	Project	Findings
Van der Walt, J.	2019	Heritage Baseline Sasol Rustenburg, North West Province	No sites
Van der Walt, J.	2018	Heritage Impact Assessment Rustenburg Fuel Filling Station	Structures
Kruger, N.	2015	Delron Environmental: Proposed Rustenburg Extension 30 Township Establishment on The Remaining Extent of Portion 1 Of the Farm Town And Townlands Of Rustenburg 272-Jq, Rustenburg Local Municipality, North West Province	No Sites
Pelser, A.J.	2012	A Report on A Heritage Impact Assessment for The Proposed Strumosa Solid Waste Transfer Station Near Rustenburg in The Northwest Province	No sites
Van der Walt, J.	2011	Archaeological Impact Assessment Ruighoek Chrome Mine Pilanesberg, North West Province	Numerous sites with Stone walling and ceramics
Huffman, T.N.	2005	The Archaeology of the Anglo Platinum Lease Area.	Stone Age occurrences and Iron Age sites, structures and graves.
Huffman, T.N. and Murimbika T.M.	2002	Archaeological study of the Boschfontein East Options, Rustenburg	MSA artefacts, Iron Age scatters

6.3 Google Earth and the Genealogical Society of South Africa (Graves and Burial Sites)

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 database of the Genealogical Society of South Africa indicated no known grave sites within the study area.

7 Heritage Baseline

7.1 Description of the Physical Environment

The vegetation of the Project area belongs to the Gold Reef Mountain Bushveld and Zeerust Thornveld of the Savanna Biome. The Gold Reef Mountain Bushveld is described as rocky hills and ridges often west-east trending with more dense woody vegetation often on the south-facing slopes associated with distinct floristic differences (e.g. preponderance of *Acacia caffra* on the southern slopes). Tree cover elsewhere is variable. Tree and shrub layers are often continuous. Herbaceous layer is dominated by grasses.

The Zeerust Thornveld is described as deciduous, open to dense short thorny woodland, dominated by *Acacia* species with herbaceous layer of mainly grasses on deep, high base-status and some clay soils on plains and lowlands, also between rocky ridges of Dwarsberg-Swarruggens Mountain Bushveld (Mucina and Rutherford 2006).

The proposed Project area consists of a powerline corridor about 7 km north west of Boshhoek about 4km west of the R565. The proposed line traverses an area characterised by thick bushveld vegetation. The farm is primarily used for the breeding of hunting animals and cattle.

The proposed line is located along the northern edge of a large rocky ridge line. The vegetation across this area is dense and consists of wooded vegetation of small trees as well as thick and overgrown grass. The proposed Project area is divided into multiple grazing camps with various gravel roads in the area.

The remnants of a large Iron Age site were identified on the northern foot of the rocky hill within the proposed corridor. The eastern half of the proposed Project area was generally cleared of tall growing vegetation. General site conditions are indicated in (Figure 7.1 to 7.4).



Figure 7.1. General site conditions in the study area.

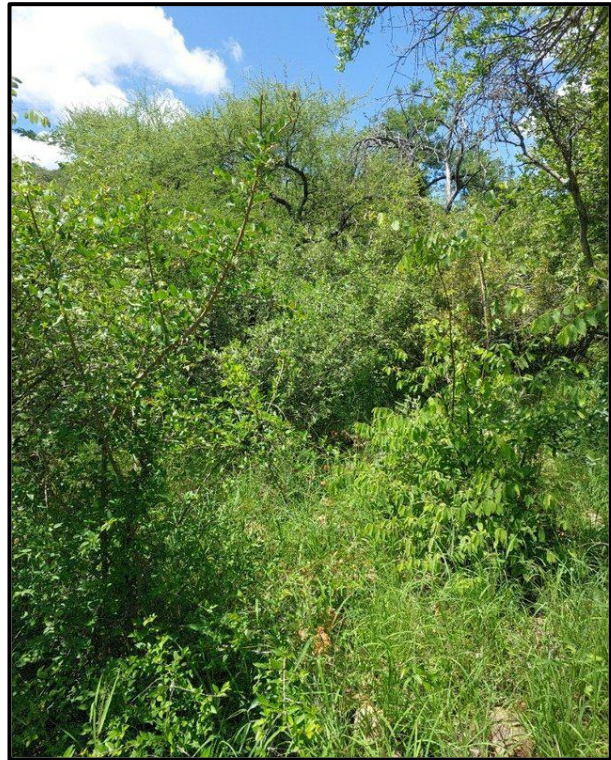


Figure 7.2. General view of vegetation cover in the study area.



Figure 7.3. Image showing the rocky terrain along the proposed Project area.



Figure 7.4. General overgrown site conditions within the northern corridor.

7.2 Heritage Resources

Two observation points were noted and recorded in the initial survey with the prefix RG, namely RG001 and RG002. In the subsequent layout a third feature, an LIA site was recorded namely RG101. The third survey also recorded an additional stone walled feature at RG010 and MSA scatters at RG011, RG012. General site distribution of the recorded observations in relation to the Project layout is spatially illustrated in Figure 7.5 and briefly described in Table 7. Selected features are illustrated in Figure 7.6 to 7.15.



Figure 7.5. Observation points in relation to the Onderstepoort Grid Corridor.

Table 7. Sites recorded in the study area.

Label	Longitude	Latitude	Description	Significance
RG001	27° 2'39.94"E	25°26'41.42"S	The site consists of a broken-down homestead with building rubble remaining at the site. The ruins are of modern origin.	Low Significance GP C
RG002	27° 3'6.82"E	25°26'26.24"S	Low density MSA scatter	Low Significance GP C
RG101	27° 2'7.87"E	25°25'51.11"S	An Iron Age site of medium significance and includes remnants of various packed stone foundations or the remnants of packed stone walling scattered across a wide area near the foot of a large hill. The site seems trampled due to grazing animals. The site contains some broken grinding stones along with the remains of the packed stone walling and measures approximately 170 by 300 m	Medium Significance GP B
RG010	27° 3'24.85"E	25°25'11.12"S	The remnants of stone walled structures	Low Significance GP C

Label	Longitude	Latitude	Description	Significance
RG011	27° 3'21.68"E	25°24'49.95"S	Low density MSA scatter of a few MSA artefacts scattered across a wide area: 3 x flakes 1 x blade 1 x thumbnail scraper	Low Significance GP C
RG012	27° 3'19.29"E	25°24'53.57"S	Low density MSA scatter: 5 x quartzite flakes 1 x Quartzite scraper.	Low Significance GP C



Figure 7.6. Building rubble at RG01.



Figure 7.7. Isolated artefacts at RG02.



Figure 7.8. General view of the surrounding environment at RG101 - Image showing the scattered stones of collapsed walling.



Figure 7.9. General view of the stone packed wall foundation at RG101.



Figure 7.10. Undiagnostic ceramics at RG101.



Figure 7.11. Broken upper grinding stones at RG101.

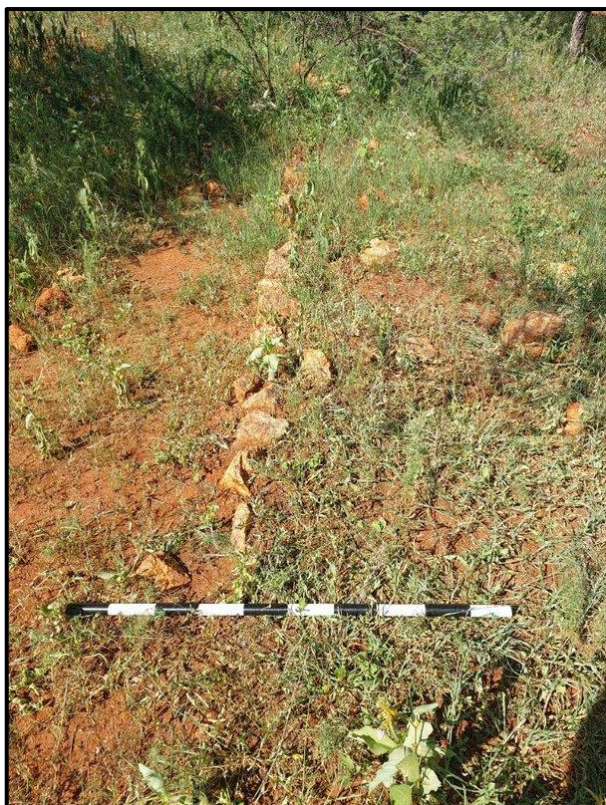


Figure 7.12. Linear structure remnants at RG010.

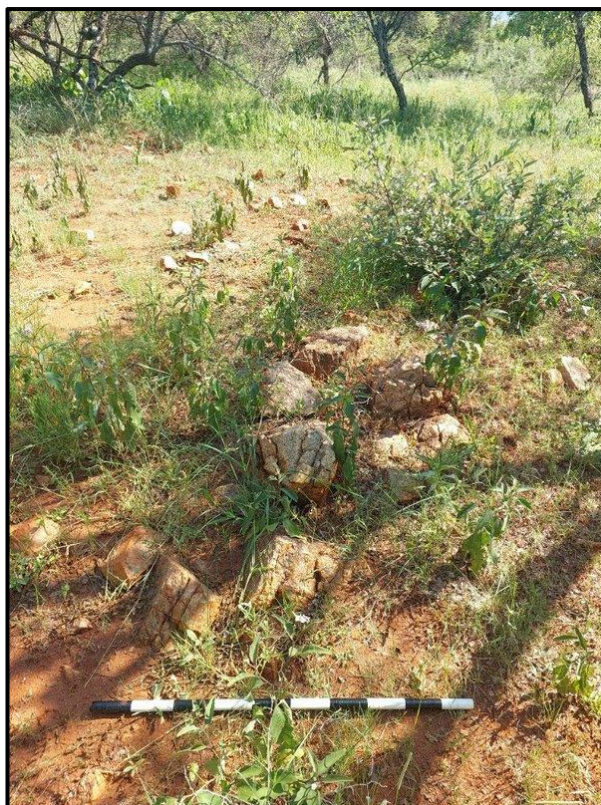


Figure 7.13. Structure remnants at RG010.



Figure 7.14. Three quartzite flakes, and one quartzite blade at RG011.



Figure 7.15. Five quartzite flakes and one quartzite scraper at RG012.

7.3 Cultural Landscape

The study area is in a rural setting and characterised by mining activities and an extensive archaeological layering dating from the Stone Age to Iron Age. These archaeological sites are focussed on and around focal points in the landscape. (Figure 7.16 to 7.19), it was not possible to determine the exact origin of the remnants of stone packed structures at RG010 as the structures may have been in ruins for many decades. The site does however pose the risk of associated graves.

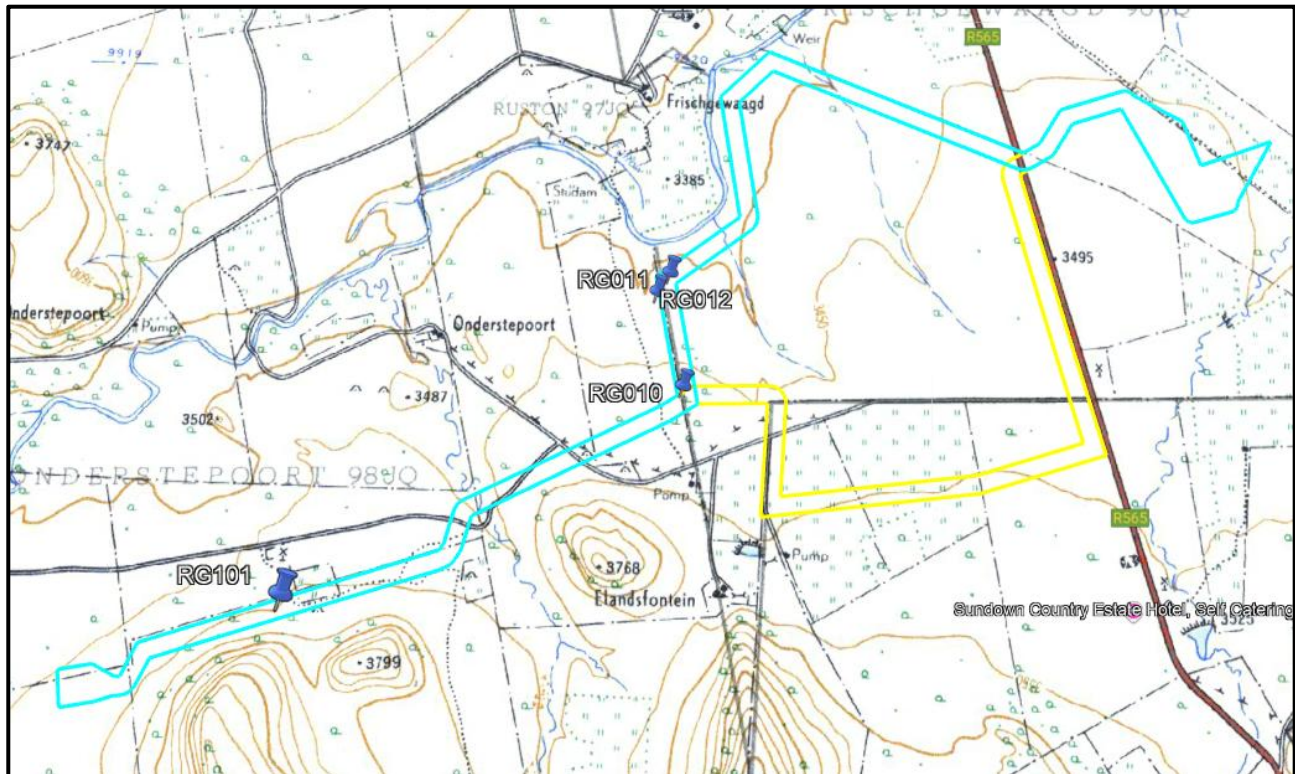


Figure 7.16. Extract of the 1963 Topographic map (1: 50 000) indicating no developments in the proposed corridor. Two huts are indicated within the corridors.

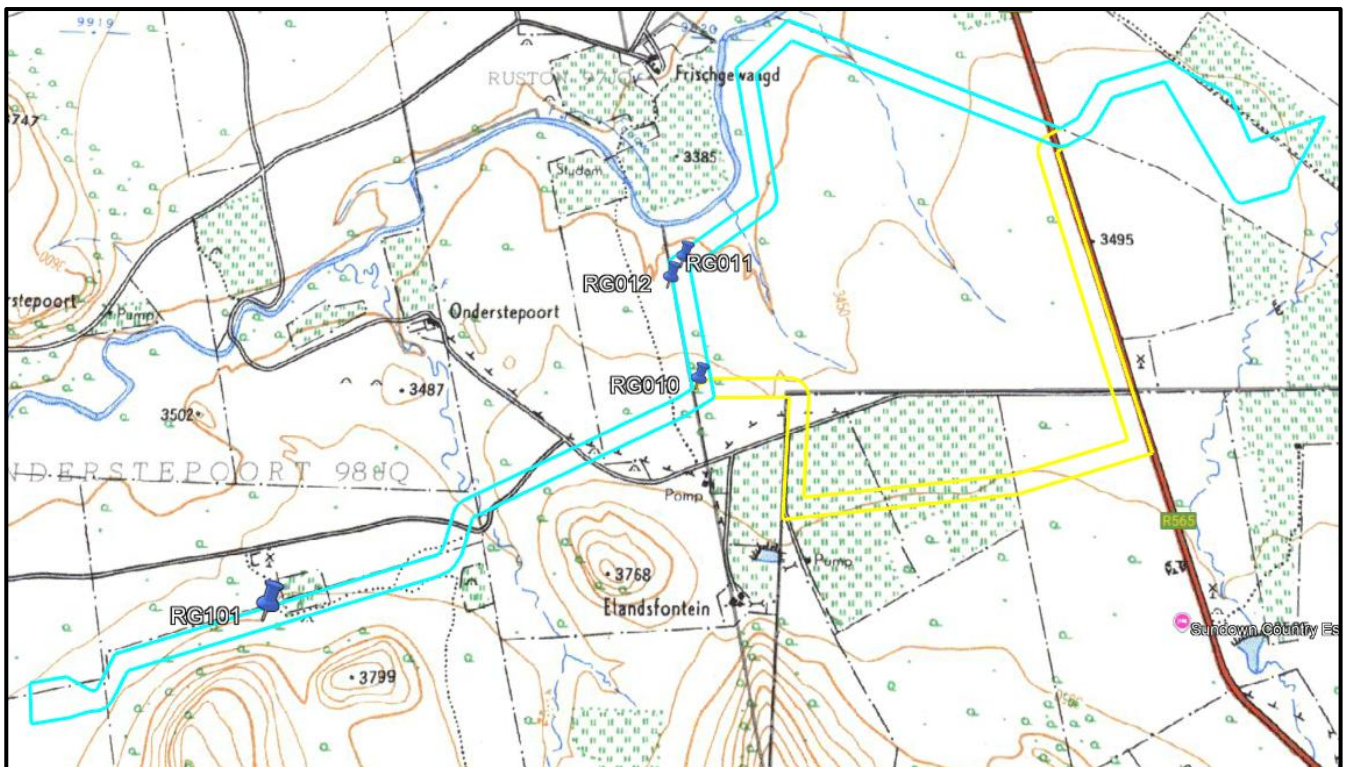


Figure 7.17. Extract of the 1979 Topographic map (1: 50 000) indicating no new developments in the Project area.

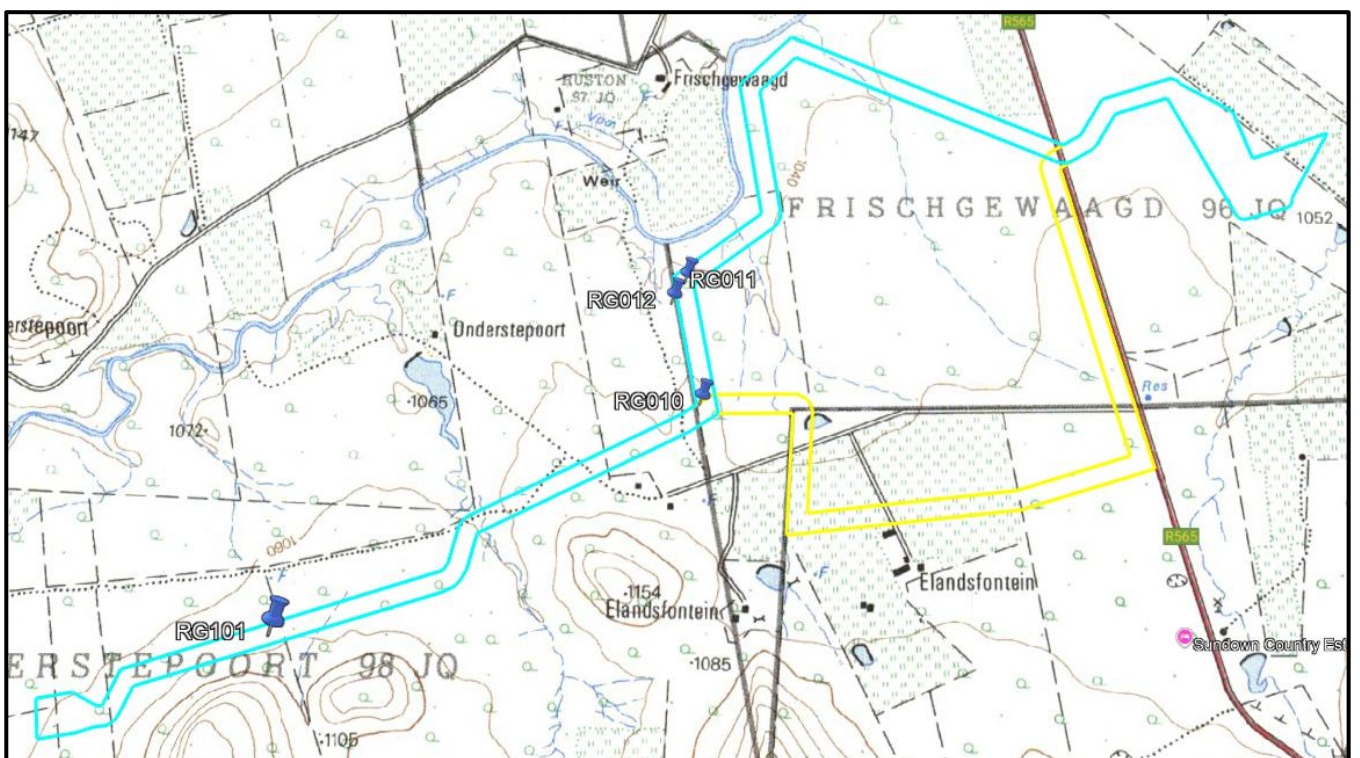


Figure 7.18. Extract of the 1982 Topographic map (1: 50 000) indicating cultivation in a large section of the southern corridor.

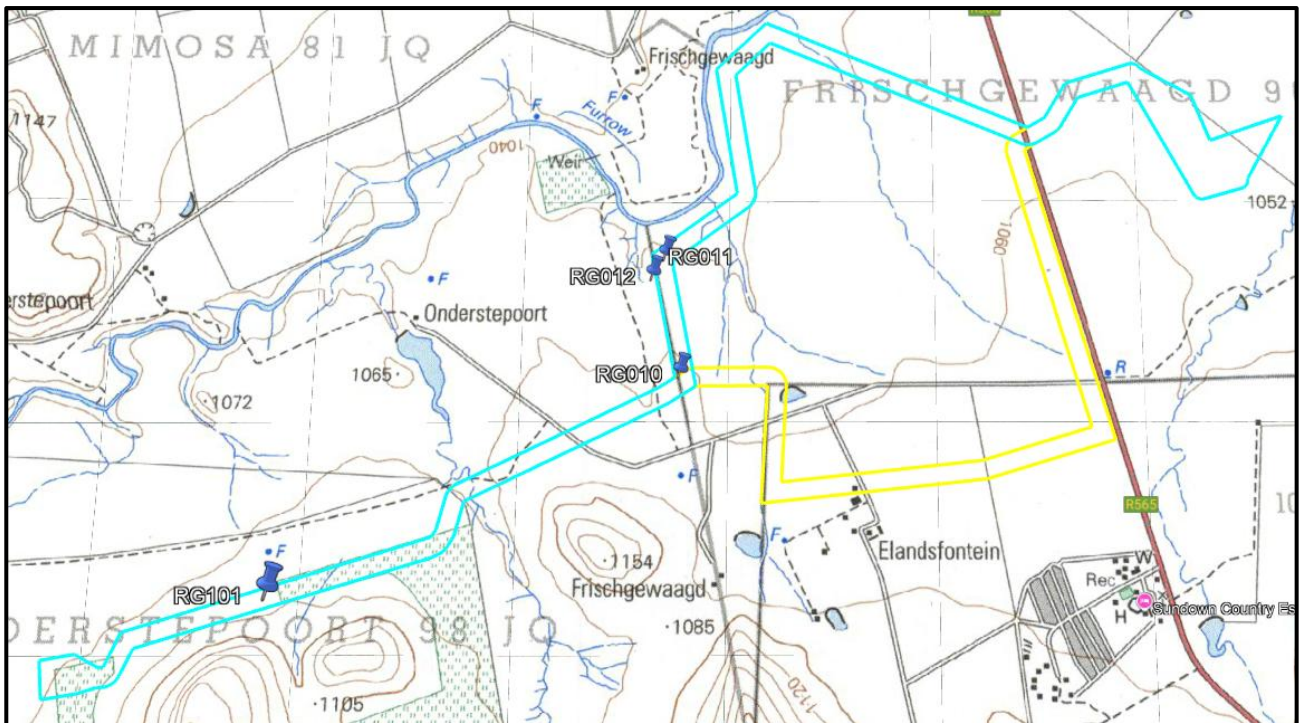
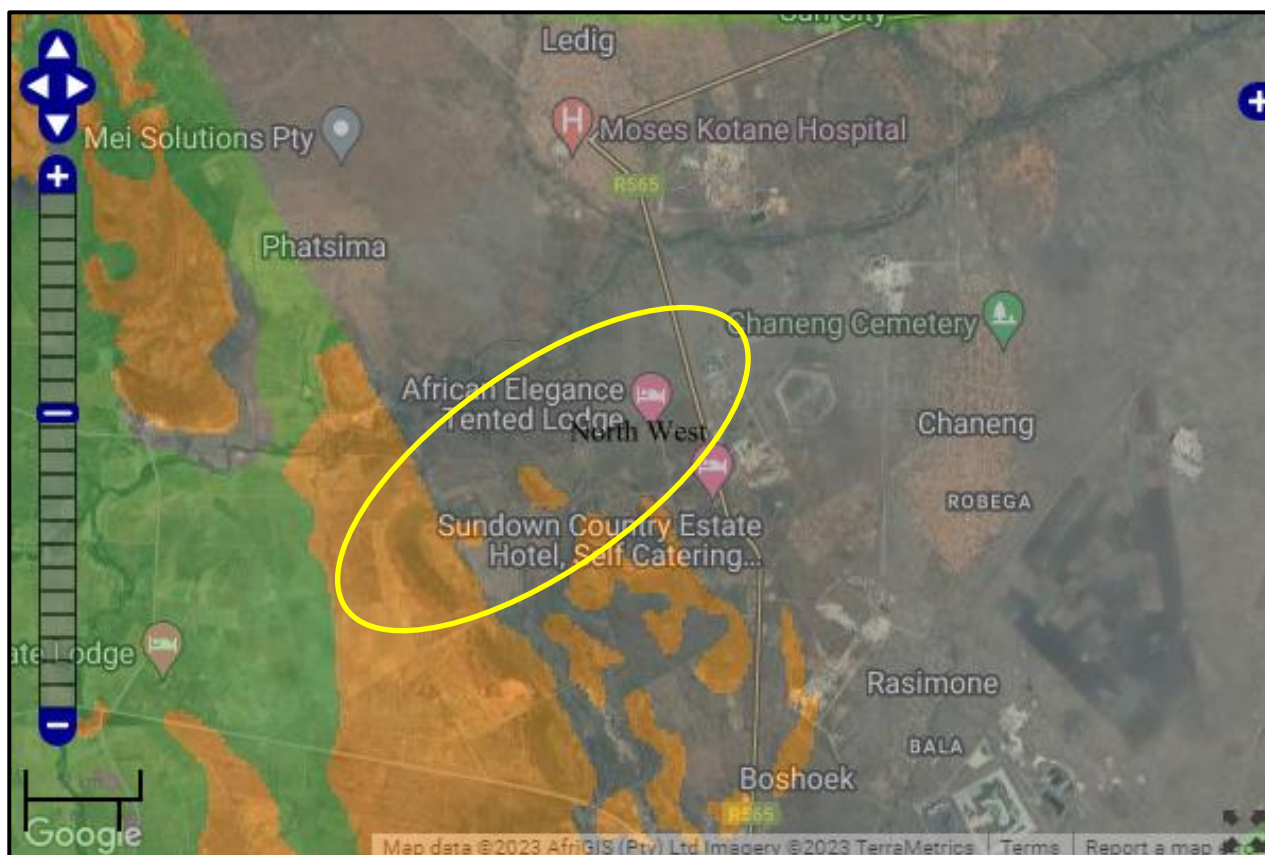


Figure 7.19. Extract of the 1996 Topographic map (1: 50 000) indicating no developments within the Project area.

7.4 Paleontological Heritage

According to the SAHRA palaeontological sensitivity map, the study area is indicated as insignificant/zero to high palaeontological sensitivity (Figure 7.20) and an independent study was commissioned for this Project (Bamford 2023; 2025). Bamford (2023; 2025) concluded that the Project lies in the Transvaal Basin of the Transvaal Supergroup where the intrusive rocks of the Rustenburg Layered Suite are also present. Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the overlying soils and sands of the Quaternary. There is a very small chance that trace fossils such as stromatolites or microbialites may occur in the dolomites or quartzites, respectively. None has been recorded from this area, nonetheless a Fossil Chance Find Protocol should be added to the EMPr.



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map

Figure 7.20. Paleontological sensitivity of the approximate study area (yellow polygon) as indicated on the SAHRA Palaeontological sensitivity map.

8 Assessment of impacts

8.1 Impacts on tangible heritage resources.

The main cause of impacts to heritage resources is physical disturbance of the cultural material itself and its context during removal of topsoil and vegetation as well as the excavations associated with the establishment of infrastructure. In terms of this Project the main source of impacts will happen during the clearing, levelling, and excavation activities attributed to the pre-construction and construction phase as well as additional human presence in the area.

On the current layout, the Iron Age site RG101 near the switching station will be impacted. As the site is of medium heritage significance it is preferable that the site be avoided or mitigated through a Phase 2 archaeological mitigation prior to applying for a destruction permit. If the features are avoided by all infrastructure and construction activities the site can be spanned by the powerline.

Low density MSA scatters RG011, RG012 will be impacted by the Northern Corridor but as the scatters are scattered to sparsely to be of significance apart from mentioning them in this report, the impact will be low. The structural remnants at RG010 will also be impacted by the Northern Corridor, and avoidance of the ruins would be preferable. If the features are avoided by all infrastructure and construction activities the site can be spanned by the powerline.

The broken-down homestead RG001 and MSA scatter RG002 are situated to the south of the current layout and will not be directly impacted.

Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. Mitigation measures as recommended in this report should be implemented during all phases of the Project. Impacts of the Project on heritage resources is expected to be low during all phases of the development if mitigation measures are followed.

8.1.1 Cumulative impacts

Cumulative impacts can be mitigated to an acceptable level with adherence of the recommendations in this report.

8.2 Impact Assessment Tables

Table 8. Impact assessment for the Iron Age site RG101.

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.		
	Without mitigation	With mitigation (Preservation/ excavation of site)
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Moderate (5)	Moderate (5)
Probability	Probable (3)	Improbable (2)
Significance	33 (Medium)	22 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	NA	NA
Mitigation:		
<ul style="list-style-type: none"> The Iron Age site should preferably be added to development plans and avoided with a 30m buffer zone. If avoidance is not possible, the site will require Phase 2 archaeological mitigation, prior to applying for a destruction permit. With avoidance of the site by all surface infrastructure and construction activities the site can be spanned; Monitoring of the Project area by the ECO during pre-construction and construction phases for chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project. 		
Residual Impacts:		
Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.		

Table 9. Impact assessment for the ruins RG010.

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.		
	Without mitigation	With mitigation (Preservation/ excavation of site)
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Moderate (5)	Moderate (5)
Probability	Probable (3)	Improbable (2)
Significance	33 (Medium)	22 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	NA	NA
Mitigation:		
<ul style="list-style-type: none"> Due to the risk of associated graves, avoidance of the site by surface infrastructure and construction activities is preferable, but the feature can be spanned by the powerline; Monitoring of the Project area by the ECO during pre-construction and construction phases for chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project. 		
Residual Impacts:		

Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.

Table 10. Impact assessment for the MSA scatters RG011, RG012.

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.		
	Without mitigation	With mitigation (Preservation/excavation of site)
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	24 (Low)	16 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	NA	NA
Mitigation:		
<ul style="list-style-type: none"> Monitoring of the Project area by the ECO during pre-construction and construction phases for chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project. 		
Residual Impacts:		
Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.		

9 Conclusion and recommendations

The proposed powerline traverses a landscape characterised by thick bushveld vegetation. The study area is primarily used for the breeding of hunting animals and cattle. The area near the switching station is located along the northern edge of a large rocky ridgeline.

During the initial survey, a broken-down homestead (RG001), and MSA scatter (RG002) were recorded. These two sites are however no longer within the impacted area and are situated south of the current layout. The subsequent survey recorded an Iron Age site (RG101) along the rocky ridge line. The most recent survey conducted in January 2025 recorded the remnants of stone-built structures (RG010) and two additional MSA scatters (RG011, RG012).

On the current layout, the Southern Corridor alternative is the preferred option due to the risk of graves associated with the ruins at RG010 within the Northern Corridor. The site should be avoided by all infrastructure (pylons) and construction activities but can be spanned. The Iron Age site RG101 will however require mitigation either through avoidance by all surface infrastructure with a 30m buffer zone or Phase 2 archaeological mitigation including mapping and recording if avoidance is not possible. The site can be spanned.

According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant to high palaeontological sensitivity. Bamford (2023; 2025) concluded that the project lies in the Transvaal Basin of the Transvaal Supergroup where the intrusive rocks of the Rustenburg Layered Suite are also present. Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the overlying soils and sands of the Quaternary. There is a very small chance that trace fossils such as stromatolites or microbialites may occur in the dolomites or quartzites, respectively. None has been recorded from this area, nonetheless a Fossil Chance Find Protocol should be added to the EMPr.

The impact to heritage resources can be mitigated to an acceptable level provided that the recommendations in this report are adhered to, based on the South African Heritage Resource Authority (SAHRA) 's approval.

9.1 Recommendations for condition of authorisation

The following recommendations for Environmental Authorisation apply and the Project may only proceed based on approval from SAHRA:

- The Iron Age site RG1010 should preferably be added to development plans and avoided by all infrastructure (pylons) and construction activities and a 30 m buffer zone but can be spanned by the powerline
 - If avoidance is not possible, the site will require Phase 2 mitigation through mapping, recording, and possible test excavations prior to application for the required destruction permits subject to all legal requirements;
- From a heritage perspective, the Southern Corridor is preferable due to the risk of graves associated with ruins RG010 which is situated within the Northern Corridor. If the features are avoided by all infrastructure and construction activities the site can be spanned by the powerline;
- Development activities must be confined to the approved development footprint only
- Monitoring of the Project area by the ECO during pre-construction and construction phases for heritage and palaeontological chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9.2.

9.2 Chance Find Procedure

9.2.1 Heritage Resources

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, 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 and therefore chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below and monitoring guidelines applicable to the Chance Find procedure is discussed below and monitoring guidelines for this procedure are provided in Section 9.5.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this Project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

9.2.2 Monitoring Programme for Palaeontology – to commence once the excavations / drilling activities begin.

1. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence.
2. When excavations begin the rocks and discard must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, fossils of plants, insects, bone or coalified material) should be put aside in a suitably protected place. This way the Project activities will not be interrupted.
3. Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones. This information will be built into the EMP's training and awareness plan and procedures.
4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
5. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this Project, should visit the site to inspect the selected material and check the dumps where feasible.
6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.

7. If no good fossil material is recovered, then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the Project has been completed and only if there are fossils.
8. If no fossils are found and the excavations have finished, then no further monitoring is required.

9.3 Reasoned Opinion

The overall impact of the Project with the recommended mitigation measures is acceptable and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the Project.

9.4 Potential risk

Potential risks to the proposed Project are the occurrence of intangible features and unrecorded cultural resources (of which graves, and subsurface cultural material are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation and possible layout changes. The stakeholder engagement process will assess intangible heritage resources further if this is listed as a concern.

9.5 Monitoring Requirements

Day to day monitoring can be conducted by the ECO. The ECO or other responsible persons should be trained along the following lines:

- *Induction training:*
 - Responsible staff identified by the developer should attend a short course on heritage management and identification of heritage resources.
 - Staff should also receive training on the CFP.
- *Site monitoring and watching brief:* As most heritage resources occur below surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are from pre-construction and construction activities. The ECO should monitor all such activities. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Table 11. Monitoring requirements for the Project

Heritage Monitoring					
Aspect	Area	Responsible for monitoring and measuring	Frequency	Proactive or reactive measurement	Method
Cultural Heritage Resource Chance Find	Entire Project area	ECO	Weekly (Pre construction and construction phase)	Proactively	<p>If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented:</p> <ol style="list-style-type: none"> 1. Cease all works immediately; 2. Report incident to the Sustainability Manager; 3. Contact an archaeologist to inspect the site; 4. Report incident to the competent authority; and 5. Employ reasonable mitigation measures in accordance with the requirements of the relevant authorities. <ul style="list-style-type: none"> • Only recommence operations once impacts have been mitigated.

9.6 Management Measures for inclusion in the EMPr

Table 12. Heritage Management Plan for EMPr implementation

Area	Mitigation measures	Phase	Timeframe	Responsible party for implementation	Target	Performance indicators (Monitoring tool)
General Project area	Monitoring of the Project area by the ECO during pre-construction and construction phases for chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project	Pre-Construction & Construction	Weekly	Applicant Construction Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 34, 35, 36 and 38 of NHRA	ECO Checklist/Report
General Project Area	Development activities must be confined to the approved development footprint only.	Construction	Construction	Applicant Construction Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	ECO Checklist/Report
RG101	The Iron Age site RG1010 should preferably be added to development plans and avoided by all infrastructure (pylons) and construction activities and a 30 m buffer zone but can be spanned by the powerline If avoidance is not possible, the site will require Phase 2 archaeological mitigation through mapping, recording, and possible test excavations adhering to all permit requirements, prior to applying for destruction permit. .	Pre-Construction	Pre-Construction	Applicant Construction Contractor Appointed archaeologist	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	ECO Checklist/Report
RG010	Due to the risk of graves associated with ruins, strict monitoring by the ECO for graves will be required. If the features are avoided by all infrastructure and construction activities, the site can be spanned by the powerline;	Construction	Construction	Applicant Construction Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	ECO Checklist/Report

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