

HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED LEANDRA GRAVEL MINE ON A PORTION OF PORTION 4 OF
THE REMAINING EXTENT OF THE FARM BRAKFORTEIN, MPUMALANGA PROVINCE

Type of development:

Mining Development

Client:

Greenmined Environmental

Environmental Impact Practitioner information:

Sonette Smit

E – mail:

Sonette.S@greenmined.co.za

Developer:

Inzalo Crushing and Aggregates (Pty) Ltd



Beyond
Heritage

Beyond Heritage

Private Bag X 1049

Suite 34

Modimolle

0510

Tel: 082 373 8491

Fax: 086 691 6461

E-Mail: jaco@heritageconsultants.co.za

Report Author:

Mr. J. van der Walt

Project Reference:

Project number 2162

Report date:

August 2021

APPROVAL PAGE

| | |
|-----------------------------------|---|
| Project Name | Leandra Quarry |
| Report Title | Heritage Impact Assessment for the proposed Leandra Gravel Mine On A Portion Of Portion 4 Of The Remaining Extent Of The Farm Brakfontein, Mpumalanga Province. |
| Authority Reference Number | TBC |
| Report Status | Final Report |
| Applicant Name | Inzalo Crushing and Aggregates (Pty) Ltd |

| Responsibility | Name | Qualifications and Certifications | Date |
|--------------------------------|------------------------------------|---|-------------|
| Fieldwork and reporting | Jaco van der Walt - Archaeologist | MA Archaeology ASAPA #159 APHP #114 | August 2021 |
| Fieldwork | Ruan van der Merwe - Archaeologist | BA Hons Archaeology | August 2021 |

DOCUMENT PROGRESS**Distribution List**

| Date | Report Reference Number | Document Distribution | Number of Copies |
|----------------|-------------------------|--------------------------|------------------|
| 13 August 2021 | 2162 | Greenmined Environmental | Electronic Copy |
| | | | |
| | | | |

Amendments on Document

| Date | Report Reference Number | Description of Amendment |
|------|-------------------------|--------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

INDEMNITY AND CONDITIONS RELATING TO THIS REPORT

The findings, results, observations, 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. Beyond Heritage reserves the right to modify aspects of the report including the recommendations if and when new information becomes available from ongoing research or further work in this field or pertaining to this investigation.

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

COPYRIGHT

Copyright on all documents, drawings and records, whether manually or electronically produced, which form part of the submission and any subsequent report or project document, shall vest in Beyond Heritage.

The client, on acceptance of any submission by Beyond Heritage and on condition that the client pays to Beyond Heritage the full price for the work as agreed, shall be entitled to use for its own benefit:

- The results of the project;
- The technology described in any report; and
- Recommendations delivered to the client.

Should the applicant wish to utilise any part of, or the entire report, for a project other than the subject project, permission must be obtained from Beyond Heritage to do so. This will ensure validation of the suitability and relevance of this report on an alternative project.

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 Section 12 |
| (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 and 7.1. |
| (cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change; | 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 10.1 |
| (l) Conditions for inclusion in the environmental authorisation | Section 10. 1. |
| (m) Monitoring requirements for inclusion in the EMPr or environmental authorisation | Section 10. 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 10.3 |
| (o) Description of any consultation process that was undertaken during the course of preparing the specialist report | Section 6 |
| (p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and | Refer to BAR report |
| (q) Any other information requested by the competent authority | N.A |

Executive Summary

Greenmined Environmental was appointed as the Environmental Assessment Practitioner (EAP) by Inzalo Crushing and Aggregates (Pty) Ltd to undertake the required Environmental Authorisation Process for the proposed Leandra Quarry. Beyond Heritage was appointed to conduct a Heritage Impact Assessment (HIA) for the project and the study area was assessed on desktop level and by a non-intrusive pedestrian field survey. Key findings of the assessment include:


- The surrounding area is characterised by an existing quarry and the study area has been disturbed by the development of a golf course in the 1980's;
- The study area is open, characterised by illegal dumping and has recently been partially burnt;
- The study area is of insignificant paleontological sensitivity and no heritage features (archaeological, built environment or graves) of significance was recorded during the survey.

The project is in line with surrounding land use and the impact to heritage resources are low. The project can commence provided that the recommendations in this report are adhered to, based on the South African Heritage Resource Authority (SAHRA) 's approval.

Recommendations:

- Implementation of a chance find procedure for the project.

Declaration of Independence

| | |
|------------------------------------|---|
| Specialist Name | Jaco van der Walt |
| Declaration of Independence | <p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> • I act as the 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 24F of the Act. |
| Signature |  |
| Date | 13/08/2021 |

a) Expertise of the specialist

Jaco van der Walt has been practising as a CRM archaeologist for 15 years. He obtained an MA degree in Archaeology from the University of the Witwatersrand focussing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focussing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is an accredited member of ASAPA (#159) and have conducted more than 500 impact assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, KZN as well as he Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC Zambia, Guinea and Tanzania. Through this, he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

TABLE OF CONTENTS

| | |
|---|-----------|
| REPORT OUTLINE | 4 |
| EXECUTIVE SUMMARY | 5 |
| DECLARATION OF INDEPENDENCE | 6 |
| A) EXPERTISE OF THE SPECIALIST..... | 6 |
| ABBREVIATIONS | 10 |
| GLOSSARY | 10 |
| 1 INTRODUCTION AND TERMS OF REFERENCE: | 11 |
| 1.1 TERMS OF REFERENCE..... | 11 |
| 1.2 PROJECT DESCRIPTION | 12 |
| 1.3 ALTERNATIVES | 12 |
| 2 LEGISLATIVE REQUIREMENTS | 16 |
| 3 METHODOLOGY | 17 |
| 3.1 LITERATURE REVIEW..... | 17 |
| 3.2 GENEALOGICAL SOCIETY AND GOOGLE EARTH MONUMENTS..... | 17 |
| 3.3 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:..... | 17 |
| 3.4 SITE INVESTIGATION..... | 18 |
| 3.5 SITE SIGNIFICANCE AND FIELD RATING..... | 20 |
| 3.6 IMPACT ASSESSMENT METHODOLOGY..... | 21 |
| 3.7 LIMITATIONS AND CONSTRAINTS OF THE STUDY | 22 |
| 4 DESCRIPTION OF SOCIO-ECONOMIC ENVIRONMENT | 22 |
| 5 RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT: | 22 |
| 6 LITERATURE / BACKGROUND STUDY: | 22 |
| 6.1 LITERATURE REVIEW (SAHRIS) | 22 |
| 6.2. BACKGROUND TO THE GENERAL AREA | 23 |
| 6.2 GRAVES AND BURIAL SITES..... | 27 |
| 7 DESCRIPTION OF THE PHYSICAL ENVIRONMENT | 27 |
| 8 FINDINGS OF THE SURVEY | 28 |
| 8.1 PALEONTOLOGICAL HERITAGE | 29 |
| 9 POTENTIAL IMPACT | 30 |
| 10 CONCLUSION AND RECOMMENDATIONS | 31 |

| | | |
|-----------|--|-----------|
| 10.1 | RECOMMENDATIONS FOR CONDITION OF AUTHORISATION..... | 31 |
| 10.2 | CHANCE FIND PROCEDURES | 31 |
| 10.3 | REASONED OPINION | 32 |
| 10.4 | POTENTIAL RISK | 32 |
| 10.5 | MONITORING REQUIREMENTS | 33 |
| 10.6 | MANAGEMENT MEASURES FOR INCLUSION IN THE EMPPr | 35 |
| 10.7 | KNOWLEDGE GAPS | 36 |
| 11 | REFERENCES..... | 37 |

LIST OF FIGURES

| | | |
|-------------|--|----|
| FIGURE 1.1. | REGIONAL SETTING (1: 250 000 TOPOGRAPHICAL MAP)..... | 13 |
| FIGURE 1.2. | LOCAL SETTING OF THE PROJECT | 14 |
| FIGURE 1.3. | AERIAL IMAGE OF THE DEVELOPMENT FOOTPRINT..... | 15 |
| FIGURE 3.1: | TRACKLOG OF THE SURVEY IN GREEN..... | 19 |
| FIGURE 6.1: | MOVEMENT OF BANTU SPEAKING FARMERS (HUFFMAN 2007)..... | 24 |
| FIGURE 6.2. | 1965 TOPOGRAPHIC MAP OF THE STUDY AREA. ASIDE FROM A LANDING STRIP IN THE SOUTH NO DEVELOPMENTS ARE VISIBLE. | 25 |
| FIGURE 6.3. | 1984 TOPOGRAPHIC MAP OF THE STUDY AREA – GREENS OF A GOLF COURSE ARE INDICATED AS WELL AS THE LANDING STRIP, NOW INDICATED TO THE WEST OF THE STUDY AREA AND A RECREATIONAL AREA TO THE SOUTH. | 26 |
| FIGURE 6.4. | 1995 TOPOGRAPHICAL MAP OF THE STUDY AREA. A PORTION IS DEVELOPED AS A GOLF COURSE WITH SOME EXCAVATIONS VISIBLE TO THE NORTH EAST OF THE STUDY AREA..... | 27 |
| FIGURE 7.1. | OPEN AREA THAT HAS BEEN PARTIALLY BURNT | 28 |
| FIGURE 7.2. | DUMPING IN THE STUDY AREA. | 28 |
| FIGURE 7.3. | GENERAL SITE CONDITIONS – DUMPED BUILDING RUBBLE..... | 28 |
| FIGURE 7.4. | ADJACENT QUARRY..... | 28 |
| FIGURE 8.1. | PALEONTOLOGICAL SENSITIVITY OF THE STUDY AREA AS INDICATED ON THE SAHRA PALAEOLOGICAL SENSITIVITY MAP.. | 29 |

LIST OF TABLES

| | |
|---|----|
| TABLE 1. SPECIALIST REPORT REQUIREMENTS..... | 4 |
| TABLE 2: PROJECT DESCRIPTION | 12 |
| TABLE 3: INFRASTRUCTURE AND PROJECT ACTIVITIES | 12 |
| TABLE 4: SITE INVESTIGATION DETAILS | 18 |
| TABLE 5. HERITAGE SIGNIFICANCE AND FIELD RATINGS..... | 21 |
| TABLE 6. CRM REPORTS CONSULTED FOR THE STUDY..... | 23 |
| TABLE 7. IMPACT ASSESSMENT OF THE PROPOSED PROJECT..... | 30 |
| TABLE 8. MONITORING REQUIREMENTS FOR THE PROJECT..... | 33 |
| TABLE 9. HERITAGE MANAGEMENT PLAN FOR EMPR IMPLEMENTATION | 35 |

ABBREVIATIONS

| |
|---|
| ASAPA: Association of South African Professional Archaeologists |
| BGG Burial Ground and Graves |
| BIA: Basic Impact Assessment |
| CFPs: Chance Find Procedures |
| CMP: Conservation Management Plan |
| CRR: Comments and Response Report |
| CRM: Cultural Resource Management |
| DEA: Department of Environmental Affairs |
| EA: Environmental Authorisation |
| EAP: Environmental Assessment Practitioner |
| ECO: Environmental Control Officer |
| EIA: Environmental Impact Assessment* |
| EIA: Early Iron Age* |
| EIA Practitioner: Environmental Impact 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 |
| 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)

Early Stone Age (~ 2.6 million to 250 000 years ago)

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

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

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 Introduction and Terms of Reference:

Beyond Heritage was appointed to conduct a HIA for the proposed mining permit for the mining of aggregate stone / gravel (dolerite) (hereinafter referred to as “gravel”) on a portion of Portion 4 of the Remaining Extent of the Farm Brakfontein No 310 IR magisterial district of Highveld Ridge of Mpumalanga Province (Figure 1-1 to 1-4). The report forms part of the Basic Assessment (BA) and Environmental Management Programme Report (EMPr) for the development.

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999). 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, no heritage resources were recorded. General site conditions and features on sites were recorded by means of photographs, GPS locations and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a commenting authority under section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all environmental documents, compiled in support of an Environmental Authorisation application as defined by NEMA EIA Regulations section 40 (1) and (2), to be submitted to SAHRA for commenting. 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).

1.1 Terms of Reference

Field study

Conduct a field study to: (a) locate, identify, 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 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 ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

1.2 Project Description

Inzalo Crushing and Aggregates (Pty) Ltd applied for environmental authorisation (EA) and a mining permit for the mining of gravel. Project components and the location is outlined under Table 2 and 3.

Table 2: Project Description

| | |
|---|--|
| Project area | 4,9 hectares on a portion of Portion 4 of the Remaining Extent of the Farm Brakfontein No 310 IR magisterial district of Highveld Ridge of Mpumalanga Province |
| Magisterial District | Magisterial district of Highveld Ridge |
| Central co-ordinate of the development | 26°21'48.98"S 28°54'31.23"E |
| Topographic Map Number | 2628 BD |

Table 3: Infrastructure and project activities

| | |
|----------------------------|---|
| Type of development | Mining Permit |
| Size of development | 4,9 hecatres |
| Project Components | The mining method will make use of blasting to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries. |

1.3 Alternatives

Site Alternative 1 (Preferred and Only Site Alternative):

Site Alternative 1 (S1) (Preferred Alternative and only site alternative): The Applicant, applied for a mining permit for the mining of aggregate / gravel, 4.9 ha on a portion of Portion 4 of the Remaining Extent of the Farm Brakfontein No 310 IR magisterial district of Highveld Ridge of Mpumalanga Province. The proposed mining footprint will be 4.9 ha and will be developed over a disturbed area of the farm previously used for mining. Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from and existing quarry, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative

Site Alternative 2:

Site Alternative 2 (S2) was assessed for the proposed mining but found not environmentally and practically suitable. The earmarked area is also a greenfield site that will have a higher visual impact to be disturbed for the quarry to be established. Site alternative 1, was deemed the only site alternative as this is an area previously used for the mining of gravel from and existing quarry, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative.

No-go Alternative:

The no-go alternative entails no change to the status quo and is therefore a real alternative that needs to be considered. The aggregate / gravel to be mined will be sold to the building, road rehabilitation/maintenance and associated construction industry, if however, the no-go alternative is implemented the Applicant could not utilise the mineral resource on this property and the construction industry of Leandra will not benefit from diversification of gravel sources which will escalating product costs.

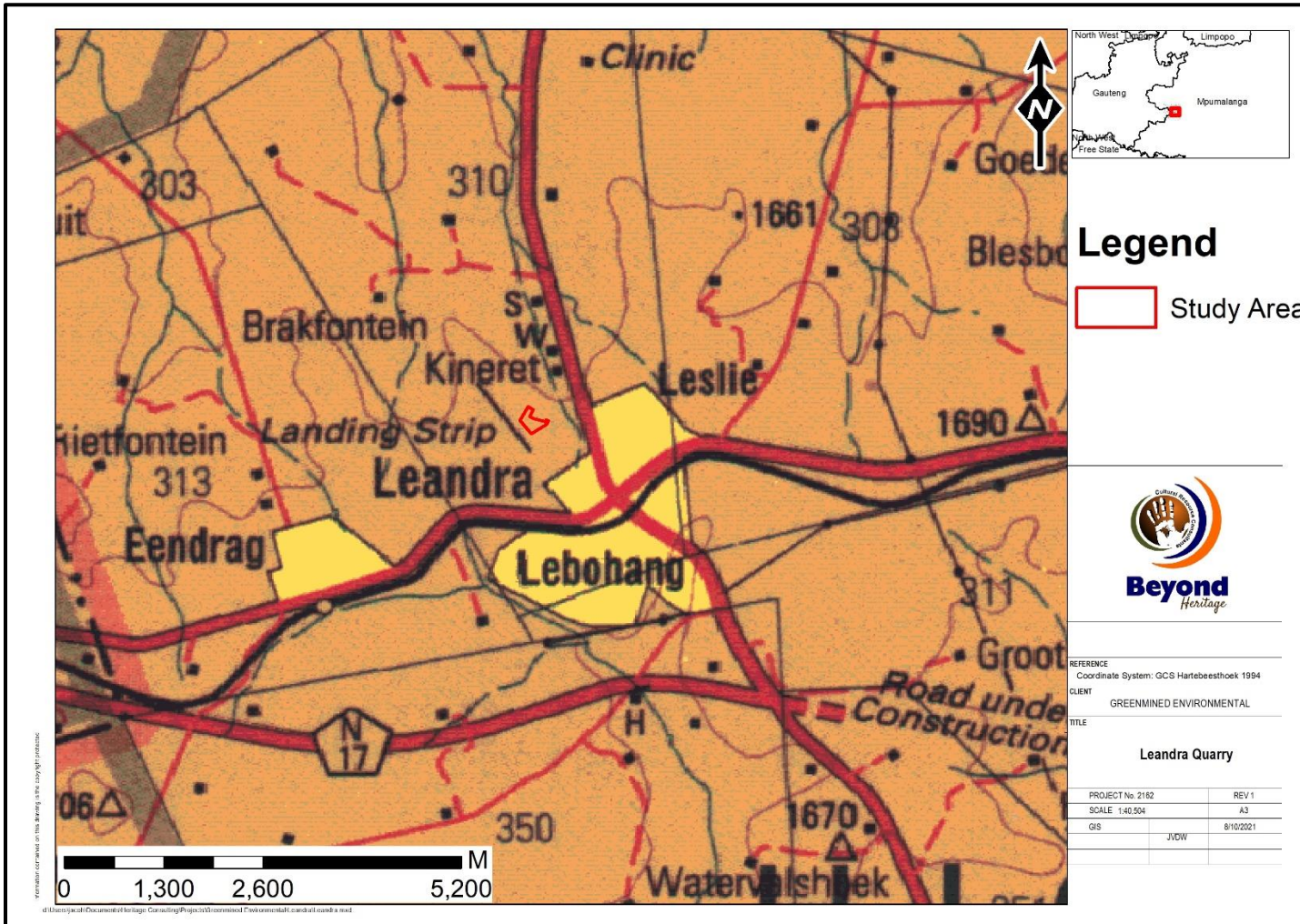


Figure 1.1. Regional setting (1: 250 000 topographical map).

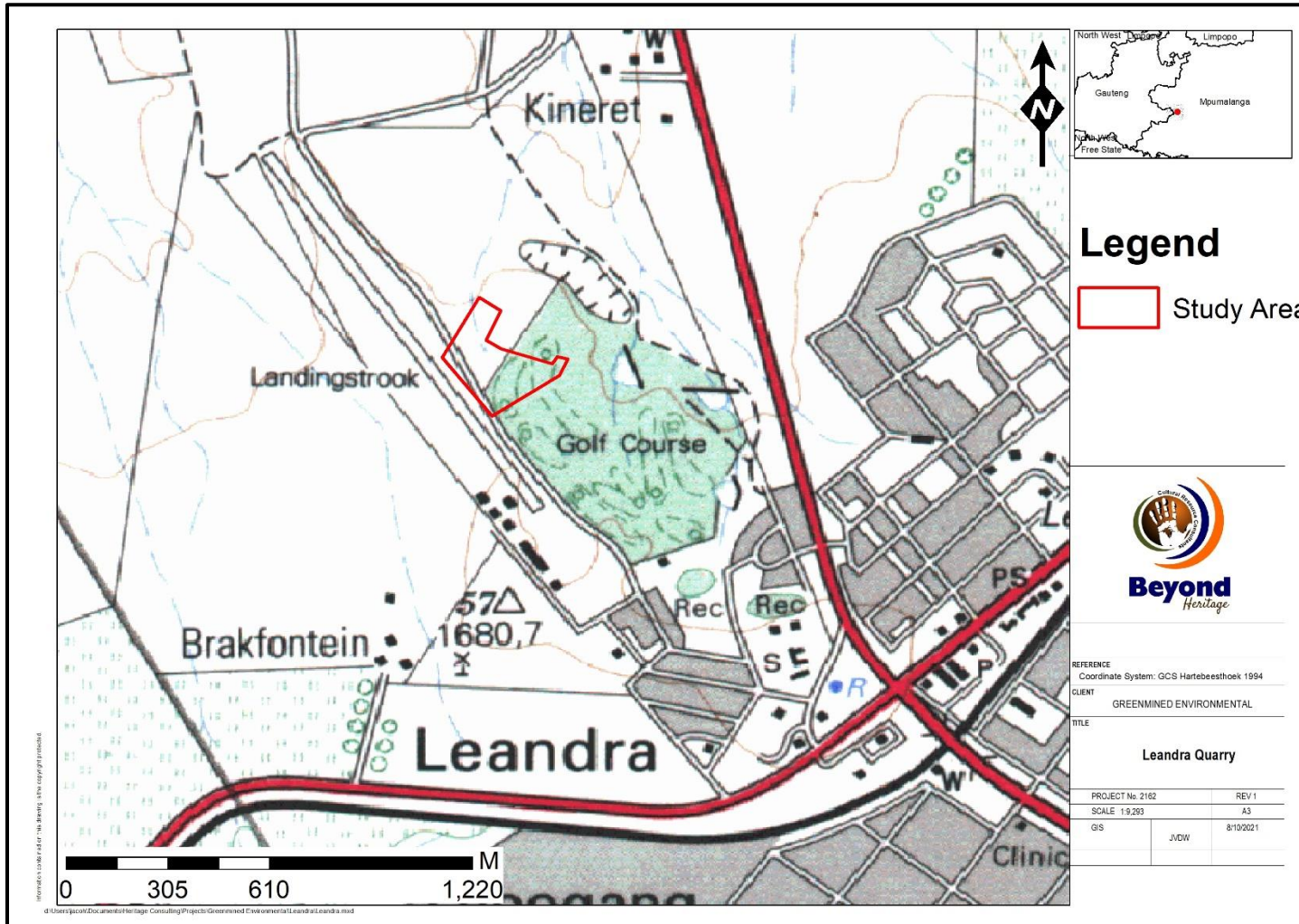


Figure 1.2. Local Setting of the project



Figure 1.3. Aerial image of the development footprint.

2 Legislative Requirements

The HIA, as a specialist sub-section of 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)
- Mineral and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 - Section 39(3)(b)(iii)

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;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management of these impacts.

The HIA should be submitted, as part of the impact assessment report or EMPr, to the PHRA if established in the province or to 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 in duplicate 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.

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 HIA's 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. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

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

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

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

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

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare. Authorisation for exhumation and 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 Section 24 of Act 65 of 1983 (Human Tissues Act).

3 METHODOLOGY

3.1 Literature Review

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).

3.2 Genealogical Society and Google Earth Monuments

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the fieldwork phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

3.3 Public Consultation and Stakeholder Engagement:

Stakeholder engagement is a key component of any EA 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 was to capture and address any issues raised by community members and other stakeholders during key stakeholder and public meetings. The process involved:

- Placement of advertisements and site notices
- Stakeholder notification (through the dissemination of information and meeting invitations);
- Stakeholder meetings undertaken with I&APs;
- Authority Consultation
- The compilation of Basic Assessment Report (BAR).

3.4 Site Investigation

The aim of the site visit was to:

- survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;
- record GPS points of sites/areas identified as significant areas;
- 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 | 9 July 2021 |
| Season | Winter – There was moderate grass cover across the area and the site is partially burnt with no trees or thickets. The study area was sufficiently covered to understand the heritage character of the area (Figure 3-1). |

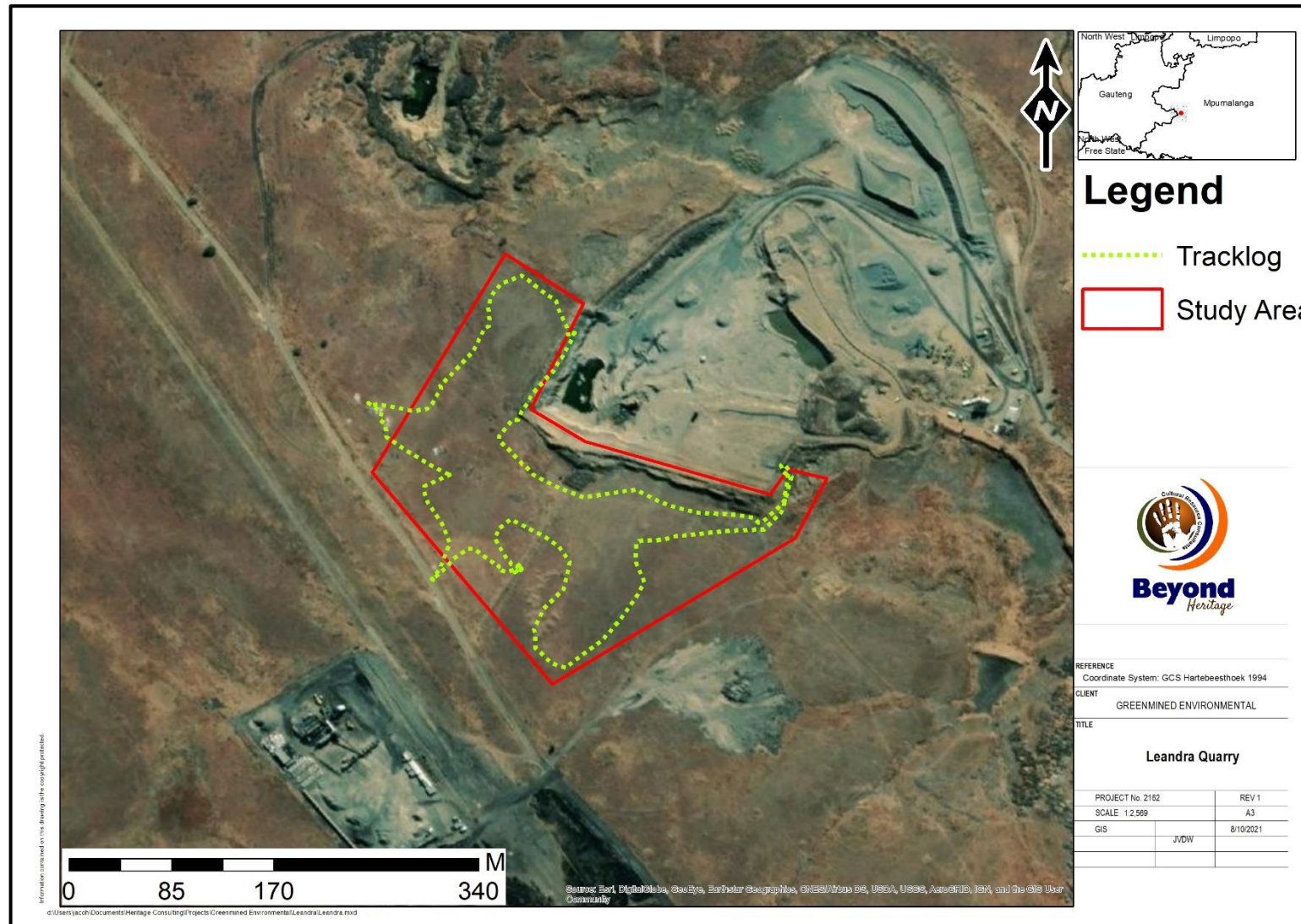


Figure 3.1: Tracklog of the survey in green.

3.5 Site Significance and Field Rating

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.

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 (2006), 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 10 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 Limitations and Constraints of the study

The authors acknowledge that the brief literature review is not exhaustive on 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. Similarly, the depth of cultural deposits and the extent of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. 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

Mpumalanga has a youthful population with approximately 64% of the population consisting of economically active people (15 to 34 years of age). This provides significant human resources for future economic growth and sustainability. The project will promote infrastructure and create employment opportunities.

5 Results of Public Consultation and Stakeholder Engagement:

5.1.1 Stakeholder Identification

Adjacent landowners and the public at large were informed of the proposed activity as part of the BA process. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process. Mr Hendrik van der Merwe (from the Govan Mbeki Municipality) raised a query regarding 15 old graves situated on portion 4 of the farm Brakfontein 310-IR. The graves are located at the following coordinates S26°21.394'; E028°54.192'. The graves are located 800 m to the northwest of the site and no impact is expected by the project.

6 Literature / Background Study:

6.1 Literature Review (SAHRIS)

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

Few sites are known for the area. The sites recorded consist mostly of graves and late Iron Age sites. The following CRM assessments (Table 6) were consulted for this report:

Table 6. CRM reports consulted for the study.

| Author | Year | Project | Findings |
|---------------------|------|--|--|
| Kusel, U. | 2011 | Cultural Heritage Resources Impact Assessment for Portion 29 Of The Farm Goedehoop 308 - IR Govan Mbeki Local Municipality Mpumalanga Province | No sites |
| Van Schalkwyk, J.A. | 2000 | A survey of cultural resources on the farm Winterhoek 314 IR Nigel District, Gauteng | No sites apart from farmsteads in the surrounding area. |
| Pistorius, J.C.C. | 2016 | Phase I Heritage Impact Assessment (HIA) study for the proposed Kipower 400kv Loop-In and Loop-Out transmission lines to connect the Kipower Independent Power Station with the national grid on the eastern highveld in the Mpumalanga Province | Historical sites and graves and graveyards. |
| Smeyatsky, I. | 2018 | Heritage Impact Assessment Leslie Coal Mine Project | Living heritage, historical sites, Graves, Stone Age artefacts |

6.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated in the study area.

6.2. Background to the general area

The archaeology of the area can be divided in three main periods namely the Stone Age, Iron Age and Historical period.

6.1.2 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 contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

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

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

Known sites in the larger area include rock paintings associated with the Khoi San, that are found in numerous rock shelters throughout Eastern Mpumalanga (Bornman, 1995; Schoonraad in Barnard, 1975; Delius, 2007). These include areas such as Witbank, Ermelo, Barberton, Nelspruit, White River, Lydenburg and Ohrigstad. Few Stone Age sites of significance occur in the province, the closest is the Late Stone Age site at Fort Troje, a small shelter close to Cullinan (Bergh 1999: 4). Due to the lack of shelters in the study area it is assumed that no sites of significance occurred here.

6.1.3 Iron Age and historical period

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell, 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. 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.

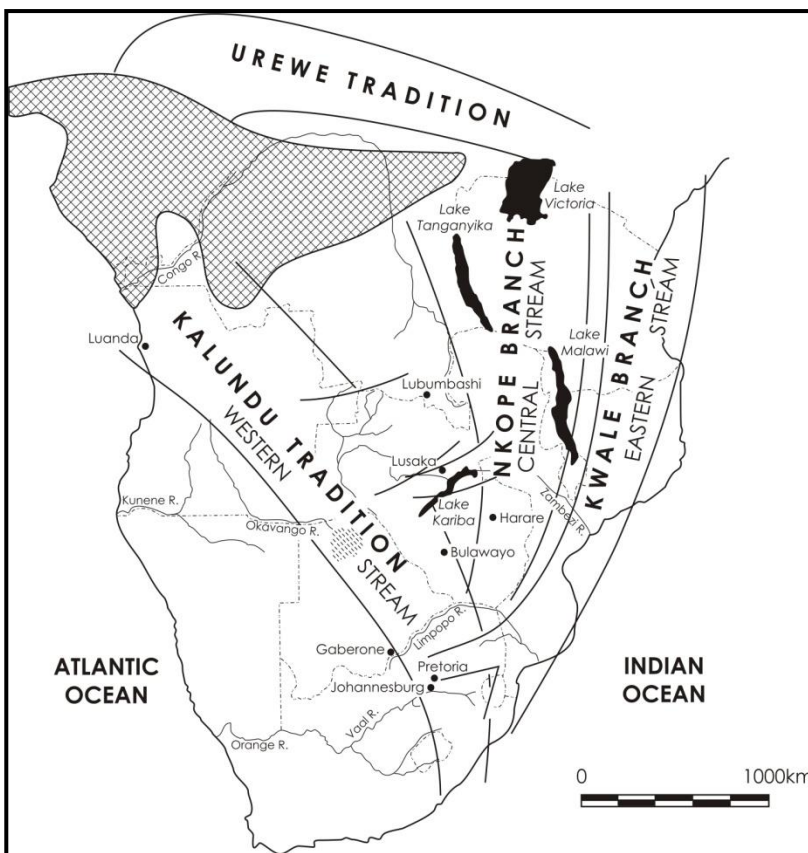


Figure 6.1: Movement of Bantu speaking farmers (Huffman 2007).

No Sites dating to the Early or Middle Iron Age have been recorded or is expected for the study area. The same goes for the Later Iron Age period where the study area is situated outside the known distribution of Late Iron Age settlements in Mpumalanga. This phase of the Iron Age (AD 1600-1800's) is represented by various tribes including Ndebele, Swazi, BaKoni, Pedi marked by extensive stonewalled settlements found throughout the Mpumalanga escarpment. If any sites occurred in the study area surface evidence of these sites would have been obliterated during the development of Leandra. The closest published Late Iron Age settlement sites are found in and around Pretoria and the Cullinan area (Bergh 1999: 6-7).

6.1.4 Cultural Landscape

The area has been subjected to limited development from prior to 1965 and successive historical topographic maps indicate the changes in the study area and surrounds (Figure 6.2 to Figure 6.4). From the images the only noteworthy developments are a landing strip in the 1960's followed by a golf course from the 1980's onwards. More recently the area to the east was quarried.

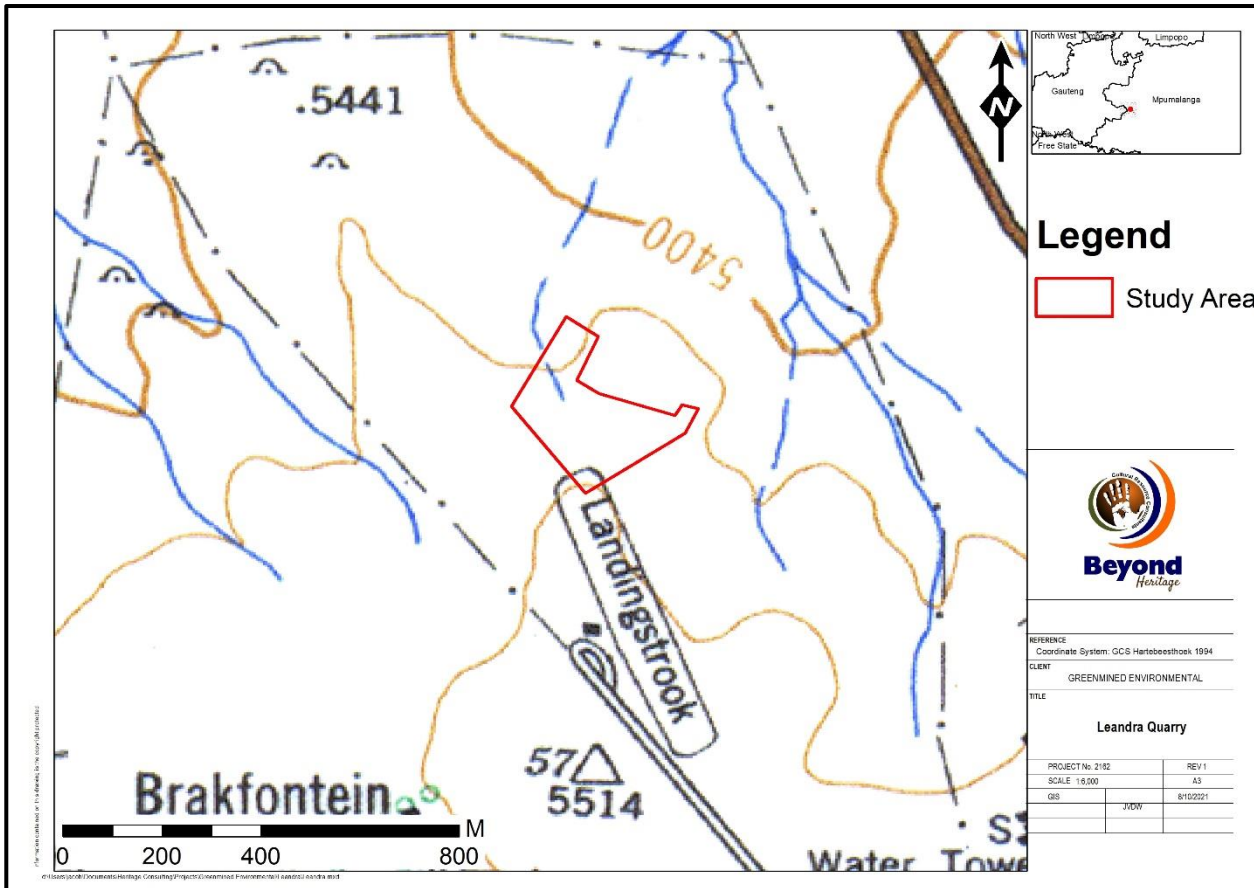


Figure 6.2. 1965 Topographic map of the study area. Aside from a landing strip in the south no developments are visible.

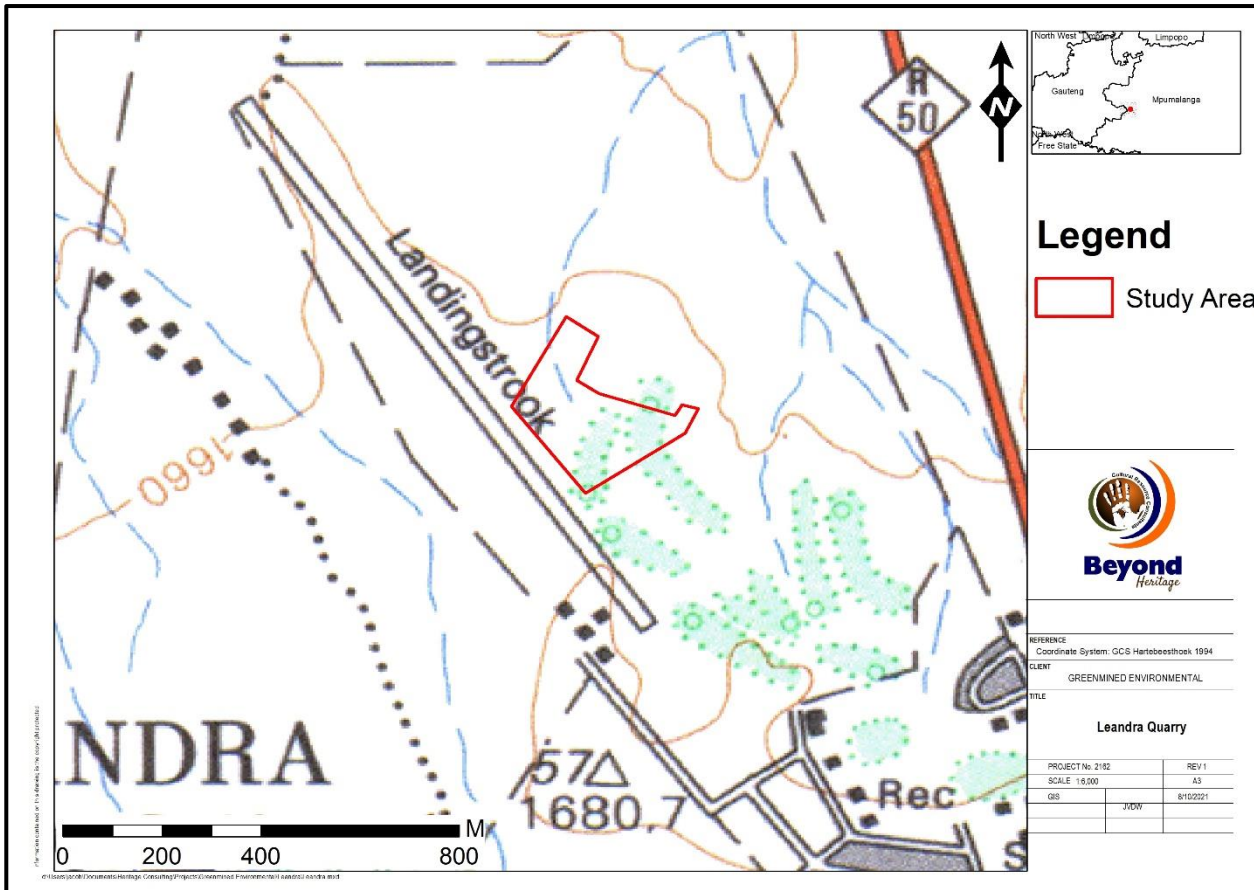


Figure 6.3. 1984 Topographic map of the study area – greens of a golf course are indicated as well as the landing strip, now indicated to the west of the study area and a recreational area to the south.

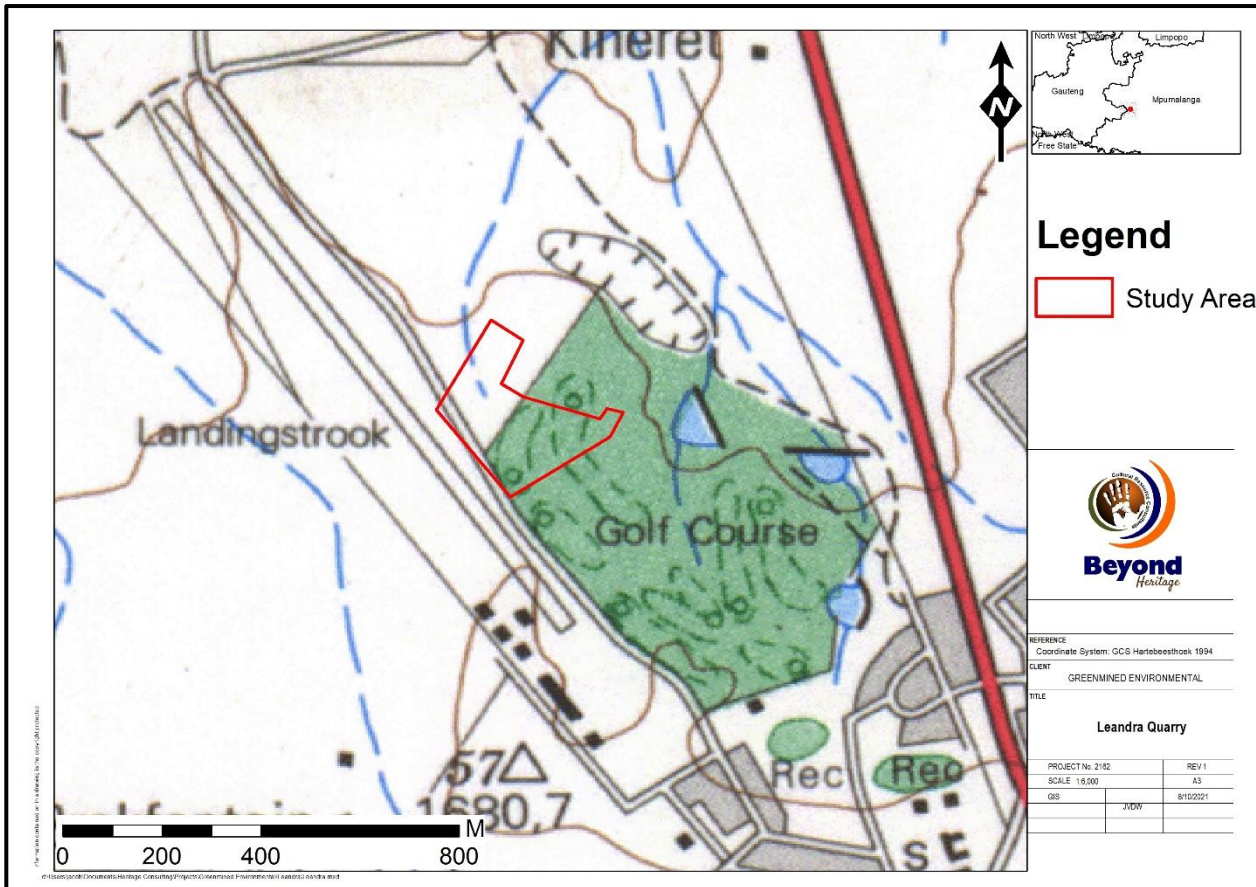


Figure 6.4. 1995 Topographical map of the study area. A portion is developed as a golf course with some excavations visible to the north east of the study area.

6.2 Graves and Burial Sites

No known graves are indicated on databases consulted but graves and cemeteries are widely distributed across the landscape and can be expected anywhere.

7 Description of the Physical Environment

The study area is a consist of an open field with moderate grass cover that has been partially burnt (Figure 7.1). There is some illegal dumping within the study area (Figure 7.2 and 7.3). No large trees or thickets are located within the area. The surrounding area is rural characterised by an existing quarry to the northeast (Figure 7.4).



Figure 7.1. Open area that has been partially burnt



Figure 7.2. Dumping in the study area.



Figure 7.3. Dumped building rubble.



Figure 7.4. Adjacent quarry.

8 Findings of the Survey

It is important to note that only the development footprint was surveyed over 1 day. The study area is flat without focal points like natural pans or rocky outcrops that would have attracted human occupation in antiquity. Previous disturbances relating to the golf course and existing mining operations are evident and during the site visit no evidence of significant heritage resources were noted.

8.1 Paleontological Heritage

According to the paleontological sensitivity of the study area based on the SAHRA Paleontological map no further studies are required (Figure 8.1).



| 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 8.1. Paleontological sensitivity of the study area as indicated on the SAHRA Palaeontological sensitivity map.

9 Potential Impact

No significant resources were noted in the project area and no adverse impact to heritage resources is expected. 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 (Table 7).

9.1.1 Pre-Construction phase

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of infrastructure. These activities can have a negative and irreversible impact on heritage features if any occur. Impacts include destruction or partial destruction of non-renewable heritage resources.

9.1.2 Construction Phase

During this phase, the impacts and effects are similar in nature but more extensive than the pre-construction phase. Potential impacts include destruction or partial destruction of non-renewable heritage resources.

9.1.3 Operation Phase

Impacts and effects during open pit mining operations include excavations. Potential impacts include destruction or partial destruction of non-renewable heritage resources.

9.1.4 Impact Assessment for the Project

Table 7. Impact assessment of the proposed project.

| | | |
|---|---------------------------|---|
| 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 (2) | Local (2) |
| Duration | Permanent (5) | Permanent (5) |
| Magnitude | Minor (2) | Minor (2) |
| Probability | Improbable (2) | Improbable (2) |
| Significance | 18 (Low) | 18 (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: Implementation of a chance find procedure for the project. | | |
| Cumulative impacts: The proposed project will have a low cumulative impact as no known heritage resources will be adversely affected. | | |
| 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. | | |

10 Conclusion and recommendations

The study area is altered due to the development of a golf course, roads and an adjacent quarry, that would have obliterated surface indicators of heritage resources if any ever occurred in the study area. The study area is flat without focal points like natural pans or rocky outcrops that would have attracted human occupation in antiquity and is considered to be of low heritage potential. This was confirmed during the site visit when no heritage resources of significance were noted.

The impact of the proposed project on heritage resources low and it is recommended that the proposed project can commence on the condition that the following recommendations (Section 10.1) are implemented as part of the EMP and based on approval from SAHRA:

10.1 Recommendations for condition of authorisation

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

Recommendations:

- Implementation of a chance find procedure for the project (as outlined in Section 10.2).

10.2 Chance Find Procedures

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.

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.

10.3 Reasoned Opinion

The overall impact of the project is considered to be low 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.

10.4 Potential risk

Potential risks to the proposed project are the occurrence of intangible features and unrecorded cultural resources (of which graves are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation, as well as additional layout changes.

10.5 Monitoring Requirements

Ideally, site monitoring should be conducted by an experienced archaeologist or heritage specialist. Day to day monitoring can be conducted by the Environmental Control Officers (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.
- *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 the initial soil removal and subsequent earthworks during construction. The ECO should monitor all such activities daily. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Table 8. Monitoring requirements for the project

| Heritage Monitoring | | | | | |
|--------------------------------------|---------------------|--|--|-----------------------------------|---|
| Aspect | Area | Responsible for monitoring and measuring | Frequency | Proactive or reactive measurement | Method |
| Clearing activities and construction | Entire project area | ECO | Weekly (Pre construction and construction phase) | Proactively | <ul style="list-style-type: none"> • If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented: <ol style="list-style-type: none"> 1. Cease all works immediately; 2. Report incident to the Sustainability Manager; 3. Contact an archaeologist/ palaeontologist 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. |

| Heritage Monitoring | | | | | |
|---------------------|------|--|-----------|-----------------------------------|--|
| Aspect | Area | Responsible for monitoring and measuring | Frequency | Proactive or reactive measurement | Method |
| | | | | | <ul style="list-style-type: none">• Only recommence operations once impacts have been mitigated. |

10.6 Management Measures for inclusion in the EMPr
Table 9. Heritage Management Plan for EMPr implementation

| Area | Mitigation measures | Phase | Timeframe | Responsible party for implementation | Target | Performance indicators (monitoring tool) |
|-----------------------------|--|-----------------------------------|------------------------|--------------------------------------|--|--|
| General project area | Implement chance find procedures in case possible heritage finds are uncovered | Pre Construction and construction | Throughout the project | Applicant EAP | Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA | ECO Checklist/Report |

10.7 KNOWLEDGE GAPS

Due to the subsurface nature of heritage resources, the possibility of discovery of heritage resources during the construction phase cannot be excluded. This limitation is successfully mitigated with the implementation of a chance find procedure.

11 References

- Archaeological Database Wits University 2009
- Barnard, C. 1975. Die Transvaalse Laeveld. Komee van 'n Kontrei.
- Bornman, H. 1995. Pioneers of the Lowveld.
- Bonner, P. 1978. Factions and Fissions: Transvaal/ Swazi politics in the mid-nineteenth century. *Journal of African History* 19 (2), p. 226.
- Bornman, H. (red.) 1979. Nelspruit: 75 in '80. Stadsraad van Nelspruit.
- Delius, P. 2007. Mpumalanga History and Heritage. University of KwaZulu-Natal Press.*
- Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.* Edited by J. S. Bergh. 1999. Pretoria: J. L. van Schaik Uitgewers.
- Kusel, U. 2011. Cultural Heritage Resources Impact Assessment for Portion 29 Of The Farm Goedehoop 308 - IR Govan Mbeki Local Municipality Mpumalanga Province
National Heritage Resources Act NHRA of 1999 (Act 25 of 1999)
- Pistorius, J.C.C. 2016. Phase I Heritage Impact Assessment (HIA) study for the proposed Kipower 400kv Loop-In and Loop-Out transmission lines to connect the Kipower Independent Power Station with the national grid on the eastern highveld in the Mpumalanga Province
SAHRA Report Mapping Project Version 1.0, 2009
- Smeyatsky, I. 2018. Heritage Impact Assessment Leslie Coal Mine Project
South African Heritage Information System (SAHRIS)
- Van Schalkwyk, J.A. 2000 A survey of cultural resources on the farm Winterhoek 314 IR Nigel District, Gauteng
- Wits Archaeological Database (2009)