

HERITAGE MANAGEMENT PLAN

FOR THE VENETIA LIMPOPO NATURE RESERVE (VLNR) LODGE, LIMPOPO PROVINCE

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Disclaimer

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 a survey and heritage significance assessment conducted by Van der Walt (2020) prior to Beyond Heritage being appointed for the Heritage Management Plan (HMP) compilation.

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ACRONYMS AND ABBREVIATIONS

| |
|---|
| AIA: Archaeological Impact Assessment |
| APM: Archaeological and Paleontological Sites and Meteorites |
| ASAPA: Association of South African Professional Archaeologists |
| BIA: Basic Impact Assessment |
| DHMP: Development Heritage Management Plan |
| CFP: Chance Find Protocol |
| CRM: Cultural Resource Management |
| ECO: Environmental Control Officer |
| EIA: Environmental Impact Assessment* |
| EIA: Early Iron Age* |
| EIA Practitioner: Environmental Impact Assessment Practitioner |
| EMP: Environmental Management Plan |
| EMPr: Environmental Management Programme |
| ESA: Early Stone Age |
| GPS: Global Positioning System |
| GRP: Grave Relocation Plan |
| HIA: Heritage Impact Assessment |
| HMP: Heritage Management Plan |
| HS: Health and Safety |
| IAP: Interested and Affected Parties |
| IFP: International Finance Corporation |
| LIA: Late Iron Age |
| LSA: Late Stone Age |
| MCLWHS: Mapungubwe Cultural Landscape World Heritage Site |
| MEC: Member of the Executive Council |
| MIA: Middle Iron Age |
| MPRDA: Mineral and Petroleum Resources Development Act |
| MSA: Middle Stone Age |
| NEMA: National Environmental Management Act |

| |
|--|
| NHRA: National Heritage Resources Act |
| OUV: Outstanding Universal Value |
| PIA: Palaeontological Impact Assessment |
| PHRA: Provincial Heritage Resource Agency |
| SADC: Southern African Development Community |
| SAHRA: South African Heritage Resources Agency |
| SAPS: South African Police Services |
| SWOT: Strengths, Weaknesses, Opportunities and Threats |
| VLNR: Venetia Limpopo Nature Reserve |
| WHS: World Heritage Site |

Executive Summary

De Beers Consolidated Mines (Pty) Limited (De Beers) is the owner of the Venetia Limpopo Nature Reserve (VLNR), located near Alldays in the Limpopo Province. De Beers would like to develop a 12-room lodge on the reserve to house Tier 1 management employees of De Beers visiting Venetia Mine. The proposed VLNR Lodge is located on Lizzulea 62 MS Portion 0 in the Vhembe District Municipal area, Limpopo Province. A Heritage Impact assessment (HIA) was conducted for the proposed development (Van der Walt 2020) that recorded the following heritage resources and sensitivities:

- Iron Age Iron Age/farming community sites dating to the Leokwe *facies* (1010 – 1160 AD);
- Stone Age lithics, mostly Later Stone Age (LSA) and to a lesser extent Middle Stone Age (MSA) artefacts;
- The study area is located within the Mapungubwe World Heritage Site (WHS) buffer zone but will not negatively impact on the Outstanding Universal Value (OUV) of the site.
- The HIA included the assessment of the paleontological component of the study area and the area is indicated as very sensitive on the SAHRIS paleontological map. An independent field-based Paleontological Impact Assessment (PIA) was conducted by Bamford (2020). During the field survey no body fossils were recorded, only isolated rock fragments with trace fossils.

The South African Heritage Resources Agency (SAHRA) issued Final Comment for the project having no objections to the proposed lodge development on condition that the following is adhered to:

- An archaeologist must be present to undertake monitoring of construction activities for the storm water management system and the lodge units. A report of the monitoring must be submitted to the case.
- There must be a 30m buffer zone around the following sites: Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, and 178 to prevent any accidental damage to them.
- A HMP to aid in long term conservation efforts for the sites located near the VLNR must be developed by a suitably qualified archaeologist. The report must be submitted to SAHRA for review.
- A section 35(4) permit application in terms of National Heritage Resources Act (NHRA) and Chapter IV NHRA Regulation for the mitigation of sites (Site 2229AD 208 & 2229AD 209) must be submitted to SAHRA.
- The Chance Finds Fossil Procedures must be included in the Environmental Management Programme (EMPr).
- In the event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30 m must be established, and a palaeontologist called in to inspect the finds. The palaeontologist must obtain a section 35(4) permit in terms of NHRA and Chapter IV NHRA Regulations, before any fossils are collected.

- If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer.

This document is compiled in adherence to the condition of the development of a HMP by SAHRA as stipulated above.

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1. INTRODUCTION

1.1 Document Objective

The primary objective of this document is to define the management requirements in an implementable HMP to comply with Section 38(3)(g) of the NHRA. The HMP aims to ensure the management and/or mitigation measures encapsulated in the HMP at a minimum maintain the cultural significance of the identified heritage resources and greater cultural landscape in the area.

1.2 Purpose

The purpose of the HMP is to collate all the preceding steps (HIA, PIA and subsequent assessments) into a single management document to:

- Summarise the findings of the impact assessments;
- Proactive identification of potential risks to heritage resources from Project related activities;
- Defining the required management measures to ensure the potential risks or impacts to cultural resources in the project area is assessed, prioritised, and controlled to a level that is acceptable to the various management structures while maintaining the cultural significance of the recorded heritage sites.

1.3 Scope

To define practical management and mitigation measures, informed by the South African regulatory framework and international best practice standards, that retain and complement the cultural significance of heritage resources throughout the life of the Project.

1.4. Principles and legal framework

The principles of this document are informed by the national South African legislative framework, specifically SAHRA Site Management Plans: Guidelines for the Development of Plans for the Management of Heritage Sites or Places (2006) and draft Development Heritage Management Plan (DHMP) Guidelines for Archaeological, Palaeontological and Meteorites Heritage Resources (2017). The legal framework that guided the principles of this document is outlined in Table 1.

Table 1. Legal guidelines considered.

| Applicable guidelines considered | Reference where applied |
|--|---|
| <p><u>South African Heritage Resources Agency (SAHRA) Archaeology, Palaeontology and Meteorites (APM) Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports (2007)</u></p> <p>The guidelines provide the minimum standards that must be adhered to for the compilation of a HIA Report that will feed into the HMP.</p> | <p>The HIA (Van der Walt 2020) complies with the minimum standards as defined by Chapter II of the SAHRA Archaeological and Palaeontological Sites and meteorites (APM) Guidelines (2007)</p> |

| Applicable guidelines considered | Reference where applied |
|--|---|
| <p>The minimum requirements for inclusion in the heritage assessment as follows:</p> <ul style="list-style-type: none"> ➤ Background information on the Project; ➤ Background information on the cultural baseline; ➤ Description of the properties or affected area; ➤ Description of identified sites or resources; ➤ Recommended field rating of the identified sites to comply with Section 38 of the NHRA; ➤ A statement of Cultural Significance in terms of Section 3(3) of the NHRA; and ➤ Recommendations for mitigation or management of identified heritage resources. | |
| <p>Development of an HMP as provided for in Section 47 (3) of the National Heritage Resources Act No 25 of 1999 (NHRA)</p> | <p>Compilation of a HMP for the VLNR was commissioned in August 2021 by Alta van Dyk Environmental Consultants on behalf of the developer De Beers Consolidated Mines (Pty) Limited (De Beers) to comply with the SAHRA comments.</p> |
| <p><u>South African Heritage Resources Agency (SAHRA) Site Management Plan Guidelines (2006)</u></p> <p>In these guidelines SAHRA proposes that all management plans should include at least the following basics:</p> <ul style="list-style-type: none"> ➤ Statement of site significance (including values); ➤ Site description, including environmental setting; ➤ History of the site; ➤ Stakeholders; ➤ Legal framework and management context; ➤ Present and past uses of the site; ➤ Site condition and history of conservation; | <p>The HMP was compiled taking cognisance of these guidelines where applicable.</p> |

| Applicable guidelines considered | Reference where applied |
|---|--|
| <ul style="list-style-type: none"> ➤ Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis; ➤ Guiding principles; ➤ Visitor management; ➤ Objectives and strategies; ➤ Action plan; ➤ Objectives, strategies, and action plan should cover the management of the site, site presentation, interpretation, safety, education and research, marketing, and site conservation; ➤ Plans / alterations approvals system – process of getting approvals for changes, approvals committees, delegations, responsibilities etc ➤ Monitoring and evaluation; ➤ Documentation of implementation and monitoring <p>This is provided for in section 47 of the National Heritage Resources Act No 25 of 1999 (NHRA)</p> | |
| <p><u>South African Heritage Resources Agency (SAHRA) Development Heritage Site Management Plan Guidelines for Archaeological, Palaeontological and Meteorites Heritage Resources (2017)</u></p> <p>These proposed guidelines only pertain to development applications under the jurisdiction of SAHRA and are only applicable to archaeological, palaeontological and meteorite resources as defined in section 2(ii), and 2(xxv) and 2(xxxi) of the National Heritage Resources Act, Act 25 of 1999 (NHRA).</p> <p>These plans should include the following:</p> <ul style="list-style-type: none"> ➤ Description of development including project details, locations, authorised activities, phases of development and the Environmental Authorisation (EA) conditions; ➤ SAHRA Comment/Decision; ➤ Legal framework; | <p>The HMP was compiled taking cognisance of the proposed SAHRA 2017 guidelines.</p> |

| Applicable guidelines considered | Reference where applied |
|---|-------------------------|
| <ul style="list-style-type: none"> ➤ Objectives, impacts to heritage resources and potential risks to heritage resources; ➤ SWOT Analysis; ➤ Outcomes and aim of the HMP; ➤ Actions to be followed per phase per activity; ➤ Procedure for compliance monitoring, timeframes, and responsible individuals; ➤ Description of heritage resources including significance, pictures, map of resources, mitigation and/or monitoring requirements; ➤ Monitoring and reporting procedures. | |

2. BACKGROUND TO THE PROJECT

An HIA (Van der Walt 2020) was conducted for the proposed VLNR Lodge project. The report was submitted to SAHRA (Case number 16066) and the SAHRA issued an Interim Comment dated 5/05/2021 requesting environmental documents and an amendment of the HIA to assess alternatives to the access road. However, SAHRA then noted that the BAR addresses the road alternatives and states that the current road is the most feasible. The SAHRA provided final comment on the 02/06/2021 approving the project with several conditions outlined below:

- An archaeologist must be present to undertake monitoring of construction activities for the storm water management system and the lodge units. A report of the monitoring must be submitted to the case.
- There must be a 30m buffer zone around sites Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, and 178 to prevent any accidental damage to them.
- A HMP to aid in long term conservation efforts for the sites located near the VLNR Lodge must be developed by a suitably qualified archaeologist. The report must be submitted to SAHRA for review.
- A section 35(4) permit application in terms of NHRA and Chapter IV NHRA Regulation for the mitigation of sites (Site 2229AD 208 & 2229AD 209) must be submitted to SAHRA.
- The Chance Finds Fossil Procedures must be included in the EMPr..
 - In the event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30 m must be established, and a palaeontologist called in to inspect the finds. The palaeontologist must obtain a section 35(4) permit in terms of NHRA and Chapter IV NHRA Regulations, before any fossils are collected.

- If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). You may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/Phillip Hine 021 202 8654).
- If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and/or the police find them to be heritage graves, then mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow (Thingahangwi Tshivase/Mimi Seetelo 072 802 1251).

This document fulfils the condition of the development of a HMP and must be submitted to the SAHRA for review by the Environmental Assessment Practitioner (EAP). The HMP is a tool to ensure the continued protection or implementation of recommended mitigation measures for the heritage resources identified in the HIA and to aid in the long-term conservation efforts for the sites located near the VLNR Lodge. The construction of the lodge and associated infrastructure could have an irreversible impact on heritage resources found within the project area. It is therefore important that the HMP include the development of management plans/actions that will minimise and avoid negative changes/impacts to heritage resources and enhance the positive.

2.1 Location

The site is located on the farm Lizzulea 62 MS in the Vhembe District Municipal area, Limpopo Province. The study area is located to the south of the Limpopo floodplain on a small sandstone hill providing vistas of the surrounding landscape. Lizzulea dam is to the south of the hill and flat Mopane Bushveld around the hill.

The prevailing vegetation type and landscape features of the larger area form part of the Musina Mopane Bushveld. It is described as undulating plains to very irregular plains with some hills. The area is characterised by open woodland to moderately closed shrubveld, dominated by *Colophospermum mopane* on clayey bottomlands and *Combretum apiculatum* on hills. Where basalt occurs, the area is dominated by *Colophospermum mopane* and *Terminalia prunoides*. On areas with deep sandy soils, moderately open savannah is dominated by *Colophospermum mopane*, *T. sericea*, *Grewia flava* and *Combretum apiculatum* (Mucina & Rutherford, 2006).

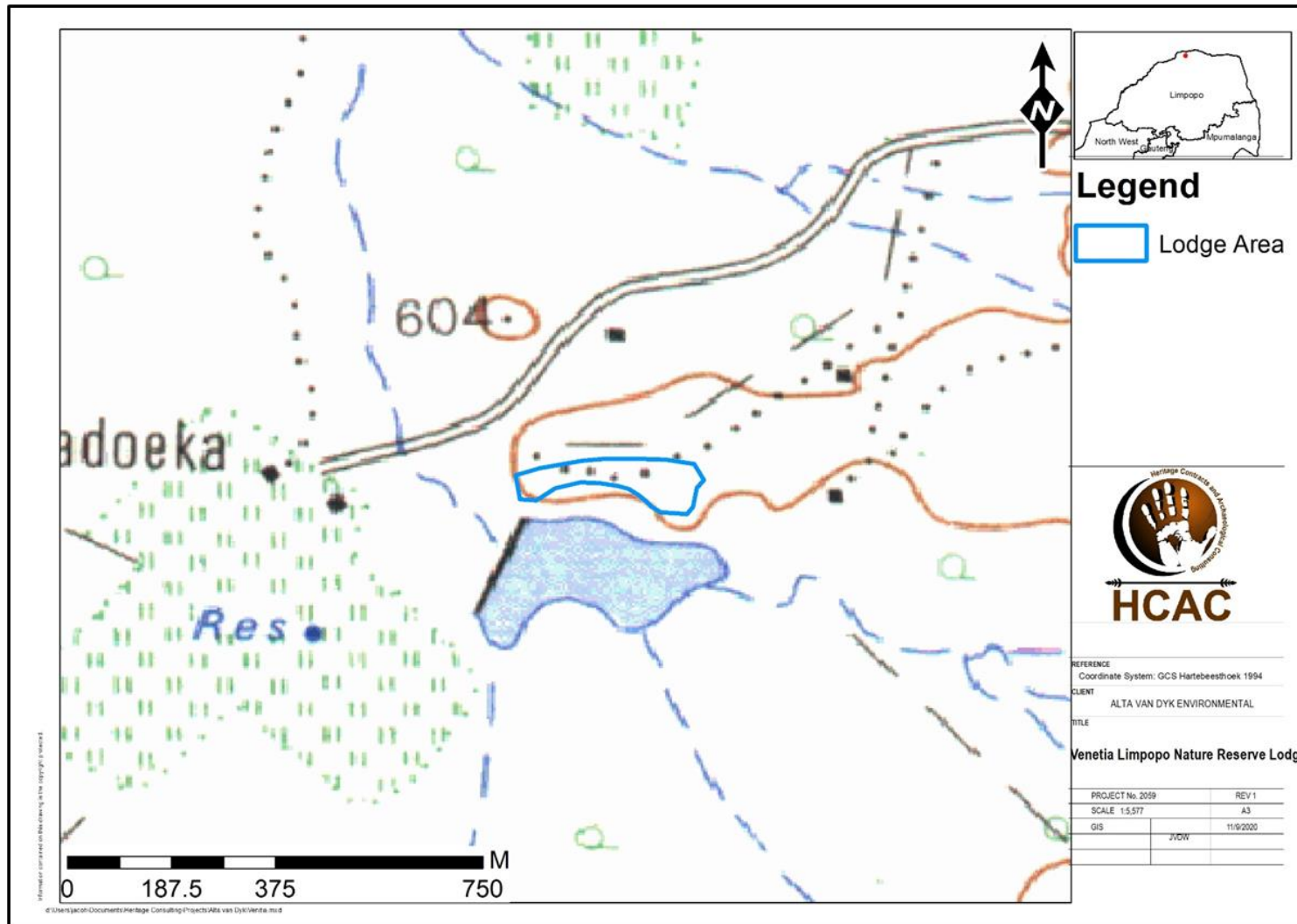


Figure 1. Local setting of the project. Map obtained from the HIA (Van der Walt 2020).

2.2. Nature of the development

The proposed VLNR Lodge will include the following:

- Gravel access road (existing access road to be utilised)
- 12 rooms (24 people maximum)
- Central building (kitchen and dining area)
- Swimming pool and Lapa
- Storeroom
- Electrical boundary fence
- Potable water storage (ABECO tank)
- 12 carport parking bay
- Reception and administrative office
- General waste storage facility
- Sewerage package plant
- Staff quarters and locker room to accommodate a maximum of 4 staff members
- Bird hide

Access

Access to the lodge will be via an existing gravel road that runs from the VLNR's Luna Gate from the D1559 district road, running on the eastern side of the VLNR. No additional roads will be created. General maintenance on existing roads will be required and will form part of the development. This includes general grading and stormwater management

Energy and lights

The Lodge will make use of both Eskom electricity and solar panel systems. A new 11kV or 22kV overhead line will be constructed from the existing Eskom line approximately 1.5 km northeast of the proposed VLNR Lodge development. To minimise visual impact, it is proposed to install and underground cable to a ground mounted transformer. The proposed line does not trigger any additional listed activities. It is proposed to install a grid tied solar photovoltaic installation without batter backup to provide additional power for fridges, lighting and reducing required load from the supply authority during daytime.

Water

The lodge's estimated water use will be 150 L/person/day. Assuming a maximum number of people of 26, it is calculated that the maximum quantity of potable water required is 1 423.5m³/a, or 3.9m³/day. The potable water will be sourced from a recently drilled borehole.

Sewage

It is proposed to construct a 10Kℓ package plant for the treatment of sewage generated at the lodge. The main process used in the package plant is a standard activated sludge system, where the biochemical oxygen demand is broken down using air and bacteria, which grow in this medium. The bacteria grow naturally, and no additional bio-chemicals have to be added in the process. Effluent will align with water quality limits as specified in the National Water Act. The treated effluent will be used to irrigate natural vegetation around the Lodge. Sludge will be stored in the anaerobic zone and will be removed by an external services provider every 2 – 3 months if inflow remains at high levels. In practice sewage inflow will vary and duration for sludge generation will be lengthy.

General waste

General waste generated on site at the accommodation facility will be segregated at source and will be removed frequently off-site by an approved waste management contractor. Household and solid waste collection is centralised at a location alongside the kitchen area where waste containers are provided. Waste from bedrooms will be deposited by occupants of the rooms into municipal type refuse bins which are conveniently located at all bedroom clusters and refuse collection and disposal will be done by facilities management staff. An external service provider will service and empty the containers and dispose of the waste at an approved municipal waste disposal site.

The lay out of the lodge has been revised after the completion of the HIA, taking cognisance of the identified heritage resources and required buffers, and is indicated in Figure 2.

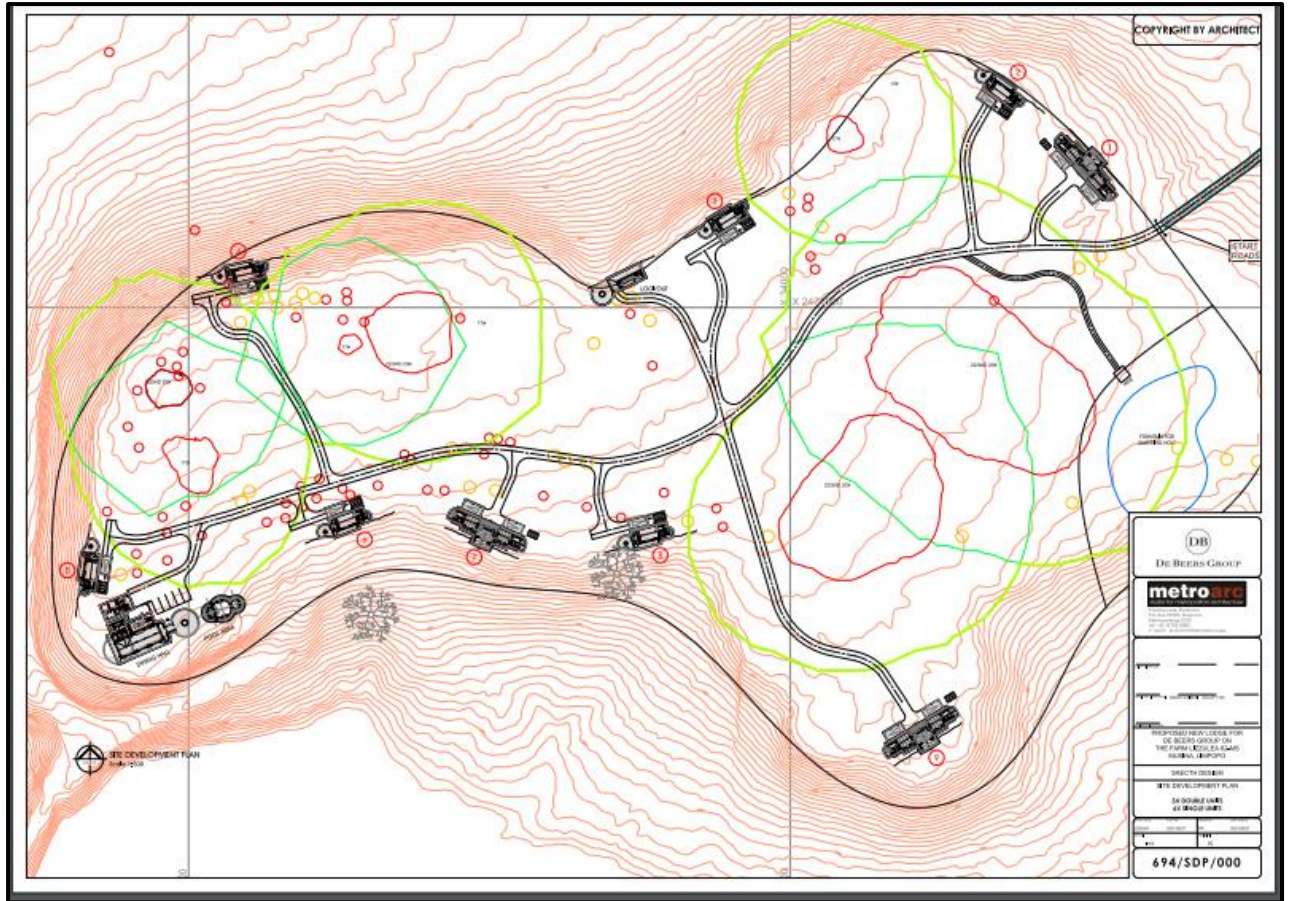


Figure 2. VLNR Lodge updated lay-out as provided by the client. Red polygons indicate recorded heritage sites.

3. PROJECT SCOPE

Beyond Heritage was appointed to develop a HMP for the VLNR Lodge to ensure the ongoing protection of non-renewable heritage resources. The construction of the lodge and associated infrastructure will have an impact on the heritage resources found within the project area. It is therefore important that the HMP includes the development of management plans that will minimise and avoid negative changes/impacts to heritage resources and enhance the positive.

3.1. Aims of the HMP

The overall purpose of the HMP for the VLNR Lodge is:

- To provide a framework for ensuring a balance between legislative requirements, development and economic opportunities and non-renewable heritage resources in the project area;
- Ensuring long term protection of the heritage resources and the heritage record of the area through conservation, management, and maintenance of heritage resources;
- To provide a framework for the long-term monitoring of heritage resources in the project area;
- To provide a dynamic plan for heritage conservation that aligns with any potential changes in activities

3.2 Goals and objectives of the HMP

3.2.1. Goals

The goals of the HMP for the project are to ensure the following:

- Increased general heritage awareness at the VLNR Lodge Development.
- The long-term conservation of heritage resources and the archaeological record of the area through an open and transparent process.
- A balanced approach between development, conservation, and utilization.
- Easy, clear guidelines on cost effective maintenance and management of heritage resources in the project area.

3.2.2. Objectives

The objectives of the HMP for the project include:

- To ensure the conservation of the various heritage resources in a sustainable manner.
- To define management responsibilities for the identified heritage resources.
- To provide clear management actions for the different sites and chance finds.
- To provide a management framework to monitor and define the success of the HMP.

4. DATA INTERPRETATION: ASSESSMENT OF SIGNIFICANCE

4.1 Significance of Sites

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 VLNR Lodge the project footprint was surveyed during the 2020 HIA. 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 that will be impacted on. The following criteria were used to establish site significance:

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

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

- Its importance in/to the community, or pattern of South Africa's history;
- Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- Its importance in exhibiting 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.

4.2. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and acknowledged by Association of South African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report. Field ratings assist the responsible heritage resources authority to grade heritage resources into national (Grade I), provincial (Grade II) or local (Grade III) categories and are required under Chapter II Section 7(J) of the SAHRA Minimum Standards.

| 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 |

Table 2. Determined heritage significance of Recorded sites

| Resource | LABEL | Description | Significance |
|---|---------------------------------|---|--------------|
| Bosbokpoort and Clarens Formations | Paleontological features | Only trace fossils of invertebrate burrows and rhizoliths were found on rock fragments, Clarens Formation red beds were also found. | Very High |
| LSA Sites | 172 | Grey area (possibly ash) no diagnostic ceramics, various LSA artefacts. Possibly the southern extent of Site 2229AD 295 | Medium |
| | 2229AD 295 | Grey area (possibly ash) no diagnostic ceramics. various LSA artefacts. | Medium |
| | 174 | Grey area (possibly ash) no diagnostic ceramics. various LSA artefacts. | Medium |
| | 177 | Grey area (possibly ash) no diagnostic ceramics. few LSA artefacts. | Medium |
| LSA/ Iron Age Sites | 2229AD 296 | Grey area (possibly ash) with TK2 pottery and few LSA artefacts. | Medium |
| | 176 | Bone and Ostrich Eggshell (OES) fragments, tang of spear or arrow. | Medium |
| Iron Age | 178 | Stone enclosure. | Medium |
| | 2229AD 208 | Iron Age - Leokwe site with vitrified dung | Medium |
| | 2229AD 209 | Leokwe site with vitrified dung | Medium |

4.3 Heritage context of the greater area and SWOT Analysis

4.3.1. Background to the Venetia Mine and Cultural Landscape

The following information was provided by the client: *Diamond-bearing gravels were discovered as early as 1903 close to the Limpopo River, 35km north-east of the present mine. De Beers Group began a sampling programme in 1969 to locate the source of these alluvial diamonds. Viable kimberlite pipes were discovered in 1980. Work on the mine started in 1990, Venetia mine opened in 1992 and full production was achieved in 1993.*

The Vhembe/Dongola National Park was declared on 09 April 1998 (GN 490 in GG 18814). The Mapungubwe Cultural Landscape (MCL) was gazetted as a national heritage site by the South African Heritage Resources Agency (SAHRA) in December 2001. The MCL was inscribed on the United Nations Education, Scientific and Cultural Organization's (UNESCO) World Heritage List in 2003. In Government Notice No. 71 of 30 January 2009 (GN 31832) the then Minister Marthinus van Schalkwyk declared the MCL as a World Heritage Site in terms of the World Heritage Convention Act (Act 49 of 1999) and delegated specified powers of management to SANParks. The Park name was changed to Mapungubwe National Park (MPNP) on 30 July 2004 (GN 900 in GG 26602). The Park also forms the core of the Vhembe Biosphere Reserve. At international level, close liaison is required with the UNESCO World Heritage Centre and the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA) involving Botswana, Zimbabwe, and South Africa. The core area of the World heritage site comprises 28,168.66 ha. Various privately owned properties make up the buffer zone, which, added to the core, comprises some 100,000 ha.

Venetia Mine is located approximately 22km south of the Mapungubwe National Park. In 2014 the Unesco committee approved a new boundary and buffer zone for Mapungubwe in response to the past concerns regarding the impacts of mining on the site. The Venetia Mining Rights Area have been removed from the 2009 proclaimed boundary as per the 2014 revised buffer zone. Venetia Mine is surrounded by the VLNR that was established in 1991. The gazetted buffer zone surrounding the core of the Mapungubwe Cultural Landscape World Heritage Site (MCLWHS) extended to approximately 20 km from the core at the Mapungubwe Hill.

Since the listing of Mapungubwe as a World Heritage Site in 2003, the management authorities have always ensured co-existence between responsible diamond mining at Venetia, located on the periphery of the buffer zone, but with operational assets such as boreholes, pump stations and water storage dam located within the core of the WHS. The large section of the buffer zone falls in the De Beers VLNR whose objectives include maintaining the integrity and authenticity of the cultural landscape through continuous monitoring and impact assessments in the VLNR and areas affected by the Venetia Mine water provision assets. De Beers has had a long-term role in managing mining and sustainable conservation in the region. The VLNR, which surrounds the Venetia Mine, has created a viable buffer between the mined area and the biophysical and cultural resources conservation area. The reserve, which now forms part of the MCLWHS buffer zone, has always added extra protection to cultural heritage sites around the core of the listed property.

4.3.2. Cultural landscape in relation to the World Heritage Site of Mapungubwe

The World Heritage site of Mapungubwe is located approximately 13km to the north of the development and the proposed lodge is located within the buffer zone. The Mapungubwe Cultural Landscape is comprised of:

- Remains of palaces – (Mapungubwe period);
- Archaeological remains testifying to Mapungubwe's growth 900-1200 AD (Zhizo, Leopard's Kopje);
- Remains of early settlement: Stone Age & Iron Age & rock art;
- 'Natural' landscape surrounding the built remains;
- Intangible heritage: Mapungubwe Hill associated with sacredness, beliefs, customs, and traditions of local communities;
- Living heritage: continuing traditions and associations such as rain making, and participation by local communities in reburial ceremonies;
- Landscape sharing and interaction between farmers and hunter-gatherers.

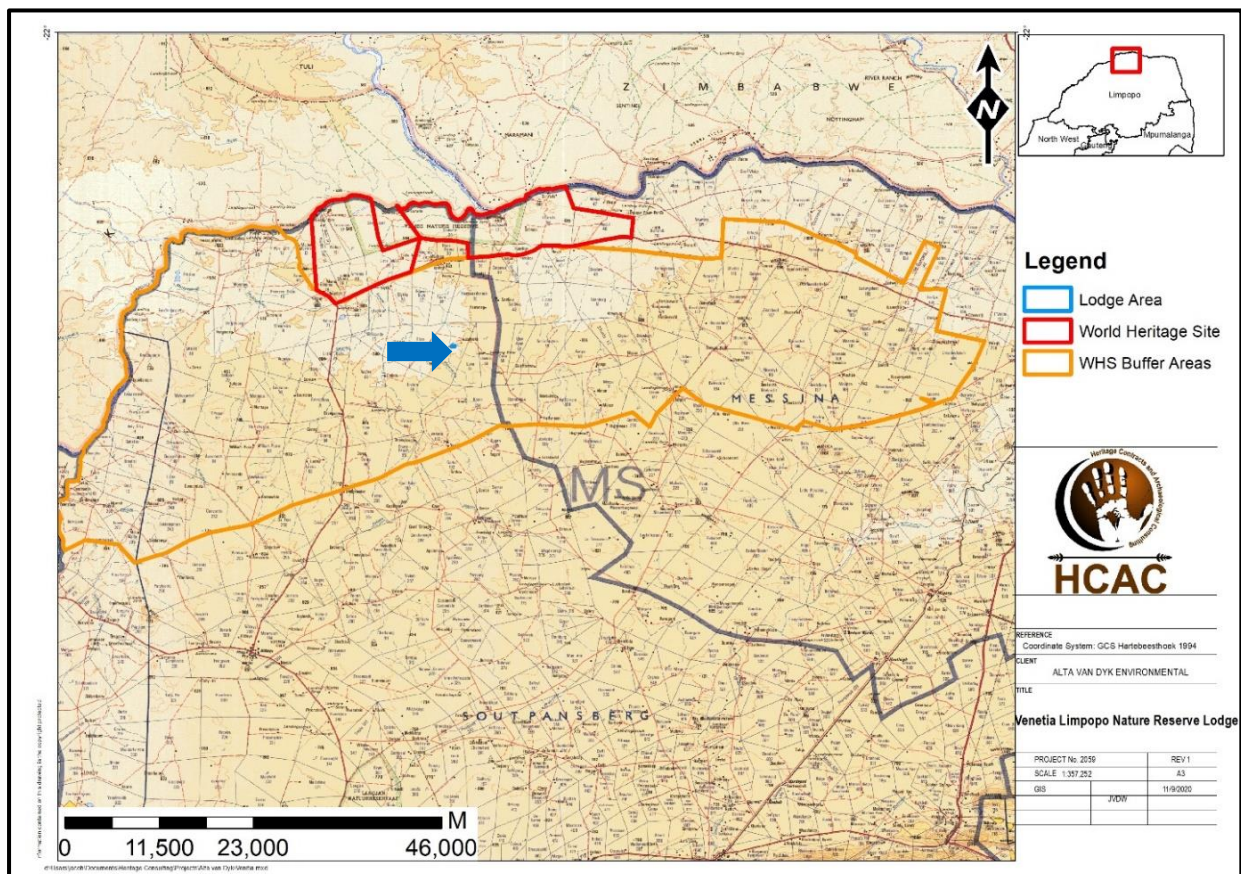


Figure 3. Study area in relation to the WHS of Mapungubwe and buffer zone. Map obtained from the HIA (Van der Walt 2020).

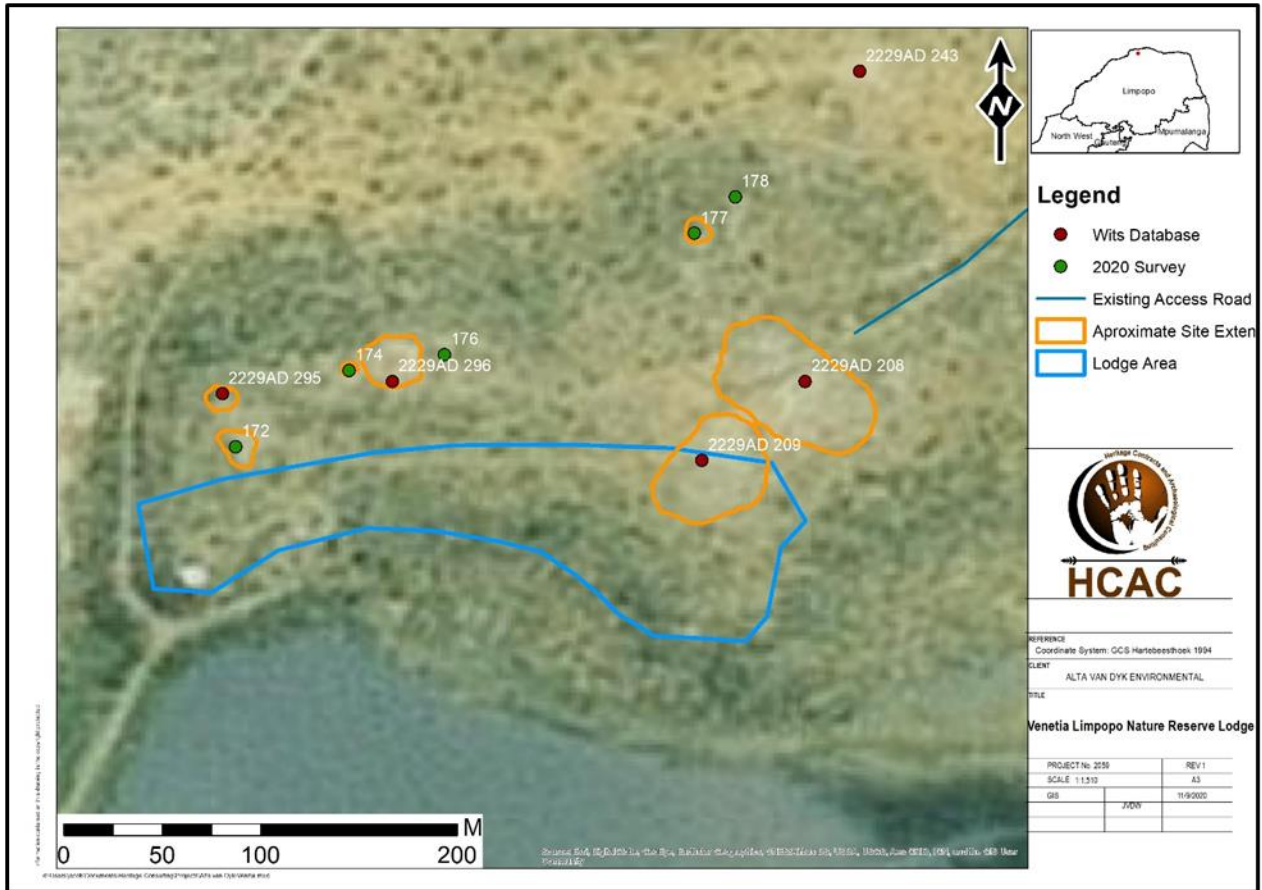


Figure 4: Heritage sites located in relation to the initial development area. Map obtained from the HIA (Van der Walt 2020).

4.4 SWOT Analysis of Sites

This chapter details a situational analysis of the VLNR Lodge project as relevant to heritage resource management that informs the guiding principles of the HMP. The guiding principles form the foundation to develop specific and achievable objectives, targets, and strategies in line with the EMPr.

A situational analysis of the Project was undertaken by means of SWOT (Strengths, Weaknesses, Opportunities, and Threats) for the known heritage resources. The SWOT Analysis identified:

- Current strengths of the Project as relevant to the cultural resources of the project area;
- Current weaknesses of the Project as relevant to the cultural resources of the project area;
- Opportunities associated with the cultural resources of the project area; and
- Threats to the preservation and mitigation of heritage resources in the Project area.

The outcomes of the SWOT Analysis (Table 3) informed the development of guiding principles for the HMP and are discussed below in section 4.5.

Table 3. Project SWOT Analysis

| | |
|--|--|
| <p>Strengths</p> <ul style="list-style-type: none"> ➤ The sites have been recorded providing information for updating the heritage record of the area. ➤ Heritage resources are formally protected by the NHRA, their management further informed by international best practice. ➤ Tangible heritage resources are known within the larger study area. ➤ Newly recorded heritage resources contribute to the understanding of the cultural landscape. ➤ OUV of the larger cultural landscape is recognized. ➤ The completed HIA provides reasonable and feasible management and mitigation recommendations approved by SAHRA. | <p>Weaknesses</p> <ul style="list-style-type: none"> ➤ The known heritage resources within the site-specific study area do not represent an exhaustive list of heritage resources that may be present. ➤ It is difficult to determine site extent due to the subsurface nature of cultural resources. ➤ Stone Age and Iron Age scatters might not be correctly identified, especially by the untrained eye, and sites might be damaged or destroyed during construction. |
| <p>Opportunities</p> <ul style="list-style-type: none"> ➤ Through mitigation more information will be yielded on Iron Age heritage in the project area. ➤ The sites contribute to the archaeological record of the area. ➤ By educating employees and contractors further sites might be identified. ➤ This project presents an opportunity to enhance heritage awareness both for employees, construction teams and visitors. ➤ Management of cultural heritage as a finite resource will ensure the accessibility to these resources for future generations. ➤ Implementation of recommended mitigation and management measures will reduce the intensity of the limited identified impacts and can promote the enhancement of the attributed Cultural Significance of the landscape. | <p>Threats</p> <ul style="list-style-type: none"> ➤ Palaeontological and archaeological resources commonly occur at sub-surface levels, therefore, may not have been previously identified and could be accidentally destroyed. ➤ Heritage resources could be indirectly impacted on by the development. ➤ Lack of awareness and damage to the site by uninformed staff and independent contractors. ➤ Heritage Sites might contain unmarked graves. ➤ Heritage resources can be unknowingly destroyed. ➤ Ineffective co-operation, participation, and communication between the management structures. |

4.5. Guiding Principles

The guiding principles for this HMP are:

- Acknowledge that the project does not occur in isolation and planning must ensure synergy with the surrounding landscape;
- Recognize the mandate for the conservation of the various heritage resources in a sustainable manner based on South African national regulatory framework and best practice standards;
- Ensure the long-term maintenance of the integrity of the cultural landscape and sense-of-place;
- Adhere to the acceptable limits of acceptable change to heritage resources and cultural landscapes;
- Accommodate strategic, flexible, and dynamic planning procedures.

5. SITE DEFINITION

The study area is in the highly significant Mapungubwe Cultural Landscape, shaped by the occupation of people as early as the Middle Stone Age (MSA) until recent times. It is known for the occurrence of Stone Aged lithics, and the remains of Farming Community settlement sites that relate to the Mapungubwe Cultural Landscape.

Several Iron Age sites are on record at the University of Johannesburg (Wits) database as well as the SAHRIS database surrounding the study area. During the HIA, sites from these databases in proximity to the study area was revisited and a few additional sites and features were recorded, these include Iron Age find spots, Stone Age lithics and a stone walled enclosure. Iron Age/farming community sites dating to the Leokwe facies (1010 – 1160 AD) occur within but mostly adjacent to the study area with a TK2 Iron Age site (1200 – 1250 AD) also located outside of the development footprint. Small grey patches (possibly ash from middens) are found along the northern edge of the hill often with LSA lithics. Based on the current surface observations the relationship between the LSA material and middens is not clear. These sites are all well preserved with minimal impact to the Leokwe sites (2229AD 208 & 2229AD 209) from the existing access road.

The HIA (Van der Walt 2020) recorded nine sites by using a handheld GPS and documented through photographs and notes (Figure 5). The sites were recorded by a single point (co-ordinates), but it must be kept in mind that the extent of the sites can be much larger than indicated on the site distribution maps. Below is an extract of the site descriptions (Van der Walt 2020):

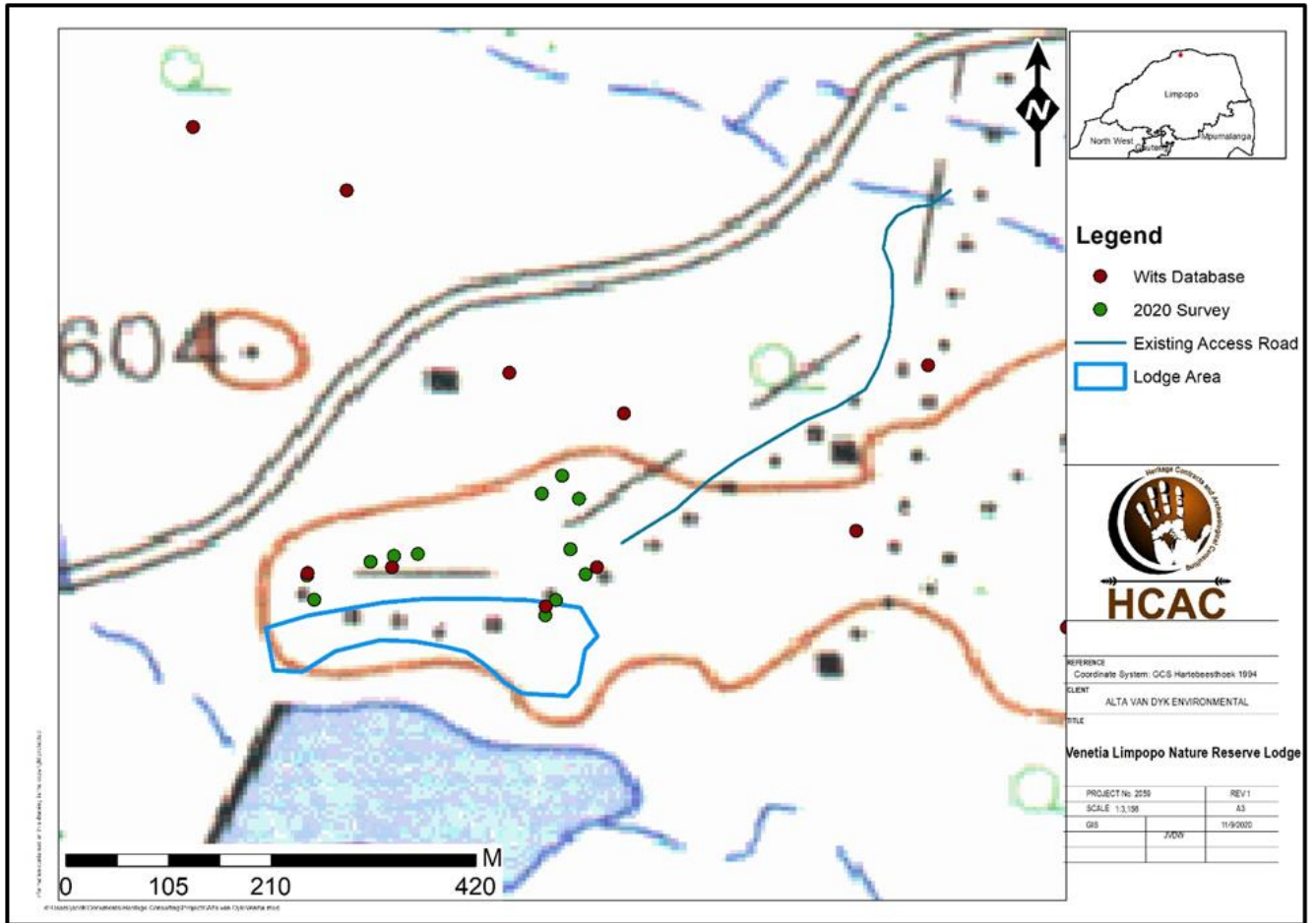


Figure 5. Site distribution map indicating sites recorded during the survey. Map obtained from the HIA (Van der Walt 2020).

5.1. Waypoint 172 & Site 2229AD 295

The site is marked by grey deposit (possibly ash), approximately 13 meters in diameter on the edge of the hill overlooking the surrounding area (Figure 6 and 7). Artefacts are limited to a few undecorated ceramics and LSA lithics on Crypto Crystalline Silica (CCS) with one MSA piece. LSA artefacts occur at an approximate ratio of 2 artefacts per m² and consist of flakes, chips, and chunks (Figure 8). Only two formal pieces were recorded consisting of a broken MSA point probably reutilised during the LSA and backed blade (Figure 9). Site extends to edge of the hill to Site 2229AD 295 that is marked by a similar frequency of tools but on Hornfells (Figure 10).



Figure 6. View of the surrounding area from Waypoint 172.



Figure 7. Ashy area at Waypoint 172.



Figure 8. Dorsal and ventral views of lithics illustrating the range of raw material used at Waypoint 172.



Figure 9. MSA broken point on the left and LSA backed blade on the right. Recorded at Waypoint 172.



Figure 10. Stone Age lithics and range of raw material at Site 2229 AD 295.

Heritage Significance

This site is *in-situ* contributing to the significance of the site. The site is part of a cluster of small grey patches and of **Medium significance**.

Field Rating – GP A

5.2. Waypoint 174

This site is also marked by a small grey patch measuring approximately 10 meters in diameter (Figure 11). No ceramics were recorded here but several possibly LSA flakes (artefact ratio of 1 artefact per 2m²) were noted mostly on hornfels, although a few CCS flakes do occur.

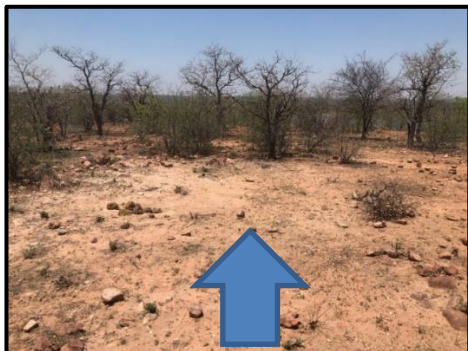


Figure 11. Small ashy patch at Waypoint 174



Figure 12. Lithics on Hornfels at Waypoint 174

Heritage Significance

This site is *in-situ* contributing to the significance of the site. The site is part of a cluster of small grey patches and of **Medium significance**.

Field Rating – GP A

5.3. Site 2229AD 296

Another site marked by a grey ash patch measuring approximately 13 meter in diameter (Figure 13 & 14). Fewer artefacts are noted here although some undiagnostic ceramics were recorded here. Some bone fragments, ostrich eggshell fragments (Figure 17) and a few Stone Age lithics (Figure 17) were recorded. At 22° 20' 34.3573" S, 29° 19' 44.6593" E a tang for spear or arrow (Figure 18) were noted. At least one grain bin foundation (Figure 15) was recorded, the site was previously identified by Wits as a TK2 site.



Figure 13. Site 2229AD 296 viewed from the north.



Figure 14. Site 2229AD 296 viewed from the south.



Figure 15. Possible grain bin foundation.



Figure 16. Bone and ostrich eggshell fragments.



Figure 17. Stone Age flakes.



Figure 18. Undecorated ceramics and iron tang for spear or arrow.

Heritage Significance

This site is *in-situ* contributing to the significance of the site. The site is part of a cluster of small grey patches and of **Medium significance**.

Field Rating – GP A

5.4. Waypoint 177

This is yet another grey patch marking less than 6 meters in diameter with almost no surface artefacts.

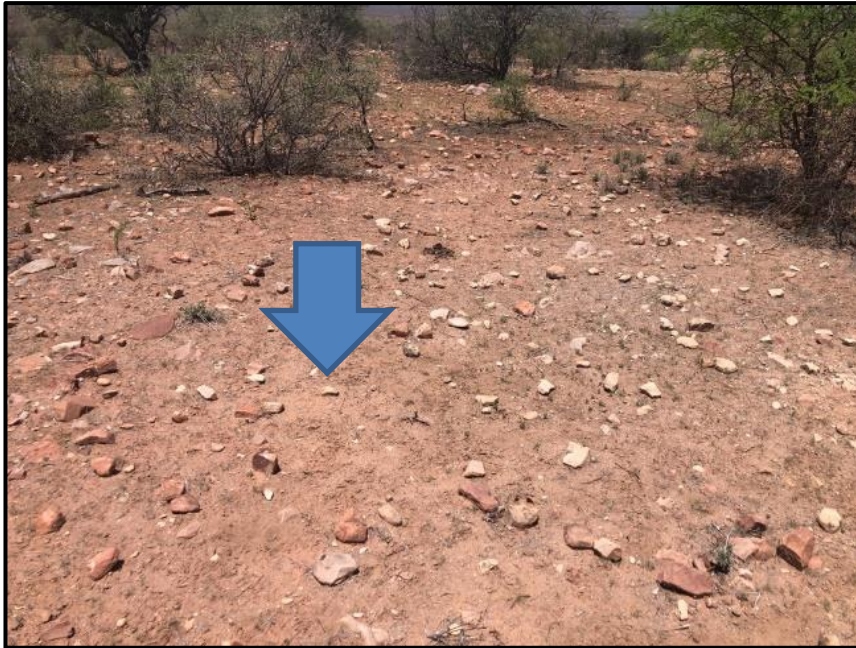


Figure 19. Grey patch at Waypoint 177 viewed from the south.

Heritage Significance

This site is *in-situ* contributing to the significance of the site. The site is part of a cluster of small grey patches and of **Medium significance**.

Field Rating – GP A

5.5. Waypoint 178

Stone enclosure with collapsed walls with an inside diameter of approximately 2.5 meter with a north facing entrance (Figure 20 & 22). An upper grinding stone was noted on the wall (Figure 23) with bone, shell, and undecorated ceramics (Figure 23) on the inside of the enclosure.



Figure 20. Stone enclosure with entrance (blue arrow) facing north at Waypoint 178.



Figure 21. Upper grinding stone on wall at Waypoint 178.



Figure 22. Enclosure viewed from the west at Waypoint 178.



Figure 23. Undecorated ceramics inside enclosure at Waypoint 178.

Heritage Significance

This site is *in-situ* contributing to the significance of the site and is of **Medium significance**.

Field Rating – GP A

5.6. Site 2229AD 208 & 2229AD 209

This is the location of two Leokwe sites previously recorded by Wits. The sites are marked by vitrified dung deposits, ceramics, and grain bin stands (Figure 24 to 28). An existing dirt road cuts through the sites and will also be used as access road to the lodge (Figure 27).



Figure 24. Site 2229AD 208 & site 2229AD 209 viewed from the north.



Figure 25: Grain bin stand at 2229AD 208

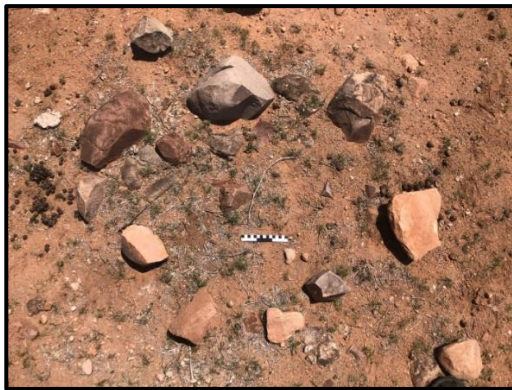


Figure 26: Grain bin stand at 2229AD 208.



Figure 27: Undecorated ceramics at 2229AD 209.



Figure 28: Vitrified dung at 2229AD 209



Figure 29: Existing access road cutting through vitrified dung deposits marking site 2229AD 208 on the right and site 2229AD 209 on the left.

Heritage Significance

This site is *in-situ* with several features visible contributing to the significance of the site and is of **Medium significance**.

Field Rating – GP A

5.7. Paleontological Significance

Based on the SAHRA Paleontological Sensitivity map the area is very high significance (Figure 30). An independent Palaeontological study was conducted by Marion Bamford Bamford (2020) and indicated that the proposed site lies on the potentially fossil-rich sediments of the Karoo Supergroup, Tuli Basin formations, namely the Bosbokpoort and Clarens Formations, so a site visit was conducted. Only trace fossils of invertebrate burrows and rhizoliths were found on rock fragments, i.e., not *in situ*, but this indicates their presence nearby. Clarens Formation red beds were found around the following coordinates 22° 20' 37.70" S and 29° 19' 42.00" E (Figure 31), and this area should be avoided for any development if possible.



| 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 paleontological studies are required however a protocol for finds is required |
| GREY | INSIGNIFICANT/ZERO | No paleontological 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 30. Paleontological Sensitivity of the approximate study area (blue polygon) is indicated as very high.

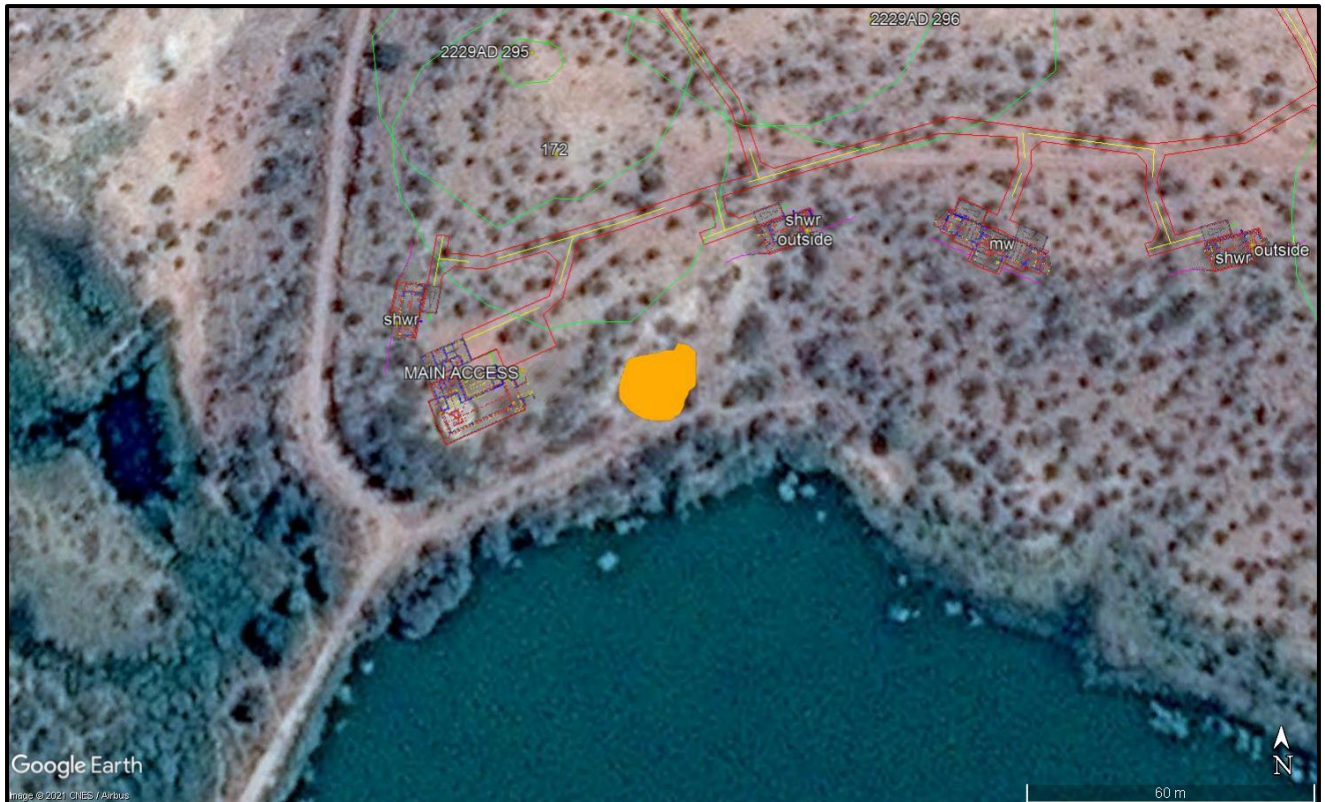


Figure 31. Area to be avoided where trace fossils were noted.

5.8. Cultural Landscape

The layered cultural landscape of the Mapungubwe area has many facets and projects such as this one highlights the multiple components that form part of human history in the area. The site attests to occupation from the Stone Age through to Farming community settlement and the surrounding land use to a continuation of agricultural and associated activities in modern times. Through synergy and balancing the valuable contribution of our understanding of the heritage of the area as well as the scientific contribution of the study of recorded heritage sites and the importance of projects that create employment and economic prosperity in the area, projects such as these enhance the cultural landscape.

6. HERITAGE MANAGEMENT ACTIONS

In accordance with the guiding principles and cultural heritage objectives discussed in Chapter 3 & 4, this chapter details the required preservation/management mechanism applicable to the Project. To develop appropriate and feasible management actions, resources protected by the NHRA is outlined in Section 6.1, responsible parties to implement the HMP is discussed under Section 6.2 and in Section 6.4 and identified impacts or risks to known cultural heritage resources are considered under Section 6.3. The consequent preservation of cultural resources through specific management actions are discussed in Section 6.4 and 6.5 and include:

- Project-related mitigation measures;
- Preventative protection measures;
- Monitoring requirements; and

44

- Chance Find procedures for the project

6.1. Heritage Awareness

It is important to ensure that all employees, contractors, and visitors at the VLNR Lodge are aware of the applicable heritage legislation and what heritage resources are. It is recommended that this is communicated during induction training for employees and contractors as well as through notices placed in strategic places, highlighting the South African Heritage Resources Act (Act 25 of 1999) where the following applies:

Structures

34. (1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Archaeology, palaeontology, and meteorites

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

(e) destroy, damage, excavate, alter, deface, or otherwise disturb any archaeological or palaeontological site or any meteorite;

(f) destroy, damage, excavate, remove from its original position, collect, or own any archaeological or palaeontological material or object or any meteorite;

(g) trade in, sell for private gain, export, or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(h) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects or use such equipment for the recovery of meteorites.

36. Burial grounds and graves

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

(d) destroy, damage, alter, exhume, or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(e) destroy, damage, alter, exhume, remove from its original position, or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(f) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

6.2. Management Structure

SAHRA is the competent authority responsible for the regulation of the HMP in terms of the national legislative framework. This HMP should be submitted to the SAHRA in accordance with the scope and procedures contained herein. The developers of the VLNR Lodge are ultimately responsible for managing heritage resources in the project area in a legally compliant and socially responsible manner. Generally, the environmental team or Environmental Control Officer (ECO) take responsibility for the day-to-day management and monitoring of heritage resources or appoint a suitably qualified person to do so. The responsible party must ensure that all actions and planned development that might have an impact (indirectly or directly) on heritage resources are subject to the requirements and guidelines in this HMP.

It is recommended that a project archaeologist is appointed on a consultancy basis to work together with the environmental management team and development management team to ensure that heritage resources are managed and monitored as per legal requirements. The project archaeologist will be responsible for training the ECO in heritage related matters as well as to supply the client with induction training material for contractors where needed. The project archaeologist together with the ECO will also be responsible for monitoring of heritage resources through implementation of the HMP. This will also provide the client with a valuable communication channel, who will be the first contact person in all heritage related matters and the contact person for the chance find procedure. It is recommended that the client should compile a heritage register of all identified sites in the project area with management actions taken.

The heritage management team should address heritage concerns with regular feedback and the evaluation of predetermined goals (monitoring of resources, evaluation of heritage concerns during construction processes, mitigation progress, project timing etc.).

The following parties will have roles and responsibilities in the implementation of this HMP.

- Applicant (De Beers);
- Construction Contractor;
- Lodge Operator; and
- VLNR Reserve Manager
- Project Archaeologist
- ECO

The roles and responsibilities of each party are described in the sections below.

6.3. Identified impacts to cultural resources

Current and future risks to cultural heritage resources for the project were assessed in both the PIA and HIA using the impact assessment methodology provided by the Environmental Assessment Practitioner. The results are represented below.

Table 4. Impacts to heritage resources (Van der Walt 2020 and Bamford 2020).

| POTENTIAL ENVIRONMENTAL IMPACT | ACTIVITY | ENVIRONMENTAL BEFORE MITIGATION | | | | | | | | SIGNIFICANCE | Status | ENVIRONMENTAL AFTER MITIGATION | | | | | | | | SIGNIFICANCE |
|--------------------------------|--|---------------------------------|----------|---------------|---------------------------------|---------------|-------------|-------|--------------------|--------------|--------|--------------------------------|----------|---------------|---------------------------------|---------------|-------------|-----------------|--------------------|--------------|
| | | Magnitude | Duration | Spatial scale | Irreplaceable loss of resources | Reversibility | Probability | TOTAL | Significance Score | | | Magnitude | Duration | Spatial scale | Irreplaceable loss of resources | Reversibility | Probability | TOTAL | Significance score | |
| Archaeological Resources | Construction of the VLNR Lodge and associated infrastructure | 4 | 5 | 3 | 5 | 5 | 3 | 66 | M | Negative | 4 | 5 | 3 | 0 | 0 | 3 | 36 | L | | |
| Paleontological Resources | Construction of the VLNR Lodge and associated infrastructure | 6 | 5 | 1 | 3 | 5 | 3 | 60 | M | Negative | 0 | 2 | 1 | 1 | 0 | 0 | 0 | Positive impact | | |

Possible sources of impact to the recorded resources includes the following project activities.

Table 5. Sources of impact to heritage resources based on the current lay out.

| Source of impact | Receptor | Impact |
|---|--|---|
| Construction of the Lodge | Site 2229AD 208, 2229AD 209, Site 172, Site 174, Site 176, Site 177 as well as Site 2229 295 and 2229 296. | Accidental destruction or partial destruction of heritage resources. Impacts are irreversible and heritage resources are not replaceable. |
| Construction of Access Roads | Site 2229AD 208, 2229AD 209, Site 172, Site 174, Site 176, Site 177 as well as Site 2229 295 and 2229 296. | Accidental destruction or partial destruction of heritage resources. Impacts are irreversible and heritage resources are not replaceable. |
| Upgrade of Existing roads | Site 2229AD 208 and 2229AD 209 | Destruction of known heritage sites. |
| Construction of Stormwater infrastructure | Site 2229AD 208 and 2229AD 209. The possibility of subsurface heritage features cannot be excluded. | Accidental destruction or partial destruction of heritage resources. |
| Laydown areas | Site 2229AD 208, 2229AD 209, Site 172, Site 174, Site 176, Site 177 as well as Site 2229 295 and 2229 296. | Accidental destruction or partial destruction of heritage resources. |
| Construction of electrical fence | Site 172,174, 176, 177, 178 and 2229AD 208, 2229AD 209. | Accidental destruction or partial destruction of heritage resources |
| Subsurface infrastructure including water pipes, electrical infrastructure, and sewerage infrastructure. | Site 2229AD 208, 2229AD 209, Site 172, Site 174, Site 176, Site 177 as well as Site 2229 295 and 2229 296. | Accidental destruction or partial destruction of heritage resources, especially due to the subsurface nature of heritage resources. |
| Erosion | All recorded heritage resources. | Displacement and destruction of heritage resources. |
| Increase of people in the project area | All recorded heritage resources. | Collection of surface artefacts. |

In terms of the day-to-day management of heritage resources in the project area the framework detailed in Table 6 is suggested. It should be noted that recorded archaeological resources were of medium significance and the paleontological significance is also indicated as medium (Bamford 2020):

Table 6. Heritage Management Framework

| Heritage Resources | Management Actions | Monitoring Requirements |
|--|--|--|
| High and Medium high significant sites (e.g., paleontological features) | These areas should be avoided by development activities and demarcated to limit access and create and increase awareness of the sites. Future developments in these areas should be limited and if development cannot be avoided in these areas, the development will be subject to SAHRA approval and the correct permit application procedure. | The sites should be inspected regularly by the ECO and monthly by the project archaeologist/ palaeontologist (during the construction phase) whose recommendations should be included in the annual review of the HMP. |
| Medium Significant sites (e.g., Stone Age and Iron Age Sites) | These sites should be demarcated and avoided with a 30 m buffer following the SAHRA comments. It is important that employees are educated on the importance of heritage resources and where these sites are located on development plans. | The sites should be inspected regularly by the ECO and monthly by the project archaeologist (during the construction phase) whose recommendations should be included in the annual review of the HMP. |
| Low Significant Sites and general Project area | Chance finds procedures apply to these areas. | The ECO will manage and monitor earthworks in these areas. |

6.4. Specific Management Actions

Preventative protection measures as defined in Table 7 aims to prevent degradation of the identified heritage sites from the potential risks outlined above during the life of the Project. The preventative protection measures comply with the following standards:

- The National Heritage Resources Act, 1999 (Act No. 25 of 1999)
- Regulations to the National Heritage Resources Act (GN R 548)
- South African Heritage Resources Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports
- International Finance Corporation Performance Standards 8: Cultural Heritage

Table 7. Preventative Protection Measures

| Activity | Phase | Aspect | Management and Mitigation Requirements | Time Period for Implementation | Responsible |
|----------------------------------|--------------|---------------|--|--|---|
| Construction of the Lodge | Construction | Palaeontology | Clarens Formation red beds should be avoided for any development if possible. Implement the Chance Find Protocol (CFP) as a condition of authorisation for implementation throughout the life of the Project | Pre-construction and Construction | Construction Contractor Project Archaeologist VLNR Reserve Manager ECO |
| | | Archaeology | The recorded sites Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, 178, should be retained <i>in situ</i> with a 30 m buffer following the SAHRA comments. These sites should be demarcated, indicated on development plans and staff should be trained on their heritage significance. A Monitoring report undertaken by a suitably qualified and accredited archaeologist must be completed during earth moving activities to record all material cultural remains that may be exposed and to then apply for the relevant permits. | | |
| Construction of new access roads | Construction | Palaeontology | Clarens Formation red beds should be avoided for any development if possible. Implement the Chance Find Protocol as a condition of authorisation for implementation throughout the life of the Project | Pre-construction, Construction and Operation | Construction Contractor; Project Archaeologist/ Palaeontologist VLNR Reserve Manager ECO |
| | | Archaeology | No new roads should be constructed, and only existing roads used. Thereby avoiding the recorded sites Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, 178, with a 30 m buffer following SARA comments. These sites should be demarcated, indicated on development plans and staff should be trained on their heritage significance. A Once of monitoring report undertaken by a suitably qualified and accredited archaeologist must be completed during earth moving activities to record (activities should be monitored daily during construction) all material cultural remains that may be exposed. | | |
| Upgrade of existing roads | Construction | Palaeontology | Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | Pre-construction, Construction and Operation | Construction Contractor; Project Archaeologist/ Palaeontologist VLNR Reserve Manager ECO |
| | | Archaeology | 2229AD 208 and 2229AD 209 must be recorded in detail, this may include <i>inter alia</i> mapping and test excavations subject to the approval of a Section 35 Permit. Upgrading of these roads must be done in a manner not to disturb the subsurface deposits and should be done with the required permit approval from SAHRA. Earthworks must be monitored by the project archaeologist. An archaeologist must be present during construction to undertake monitoring of construction activities for the storm water management system and the upgrade of the access road. A report of the monitoring must be submitted to the case on SAHRIS. Also refer to Stormwater Infrastructure below. | | |
| Stormwater infrastructure. | Construction | Palaeontology | Clarens Formation red beds should be avoided for any development if possible. Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | Pre-construction and Construction Operation | Construction Contractor; VLNR Reserve Manager ECO Project Archaeologist If required Palaeontologist |
| | | Archaeology | 2229AD 208 and 2229AD 209 must be recorded in detail, this may include <i>inter alia</i> mapping and test excavations subject to the approval of a Section 35 Permit. This will be determined after the stormwater management plan has been reviewed. An archaeologist must be present to undertake monitoring of construction activities for the storm water management system and the lodge units. A report of the monitoring must be submitted to the case on SAHRIS. | | |
| Laydown areas | Construction | Palaeontology | Clarens Formation red beds should be avoided for any development if possible. Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | Pre-construction Operation Construction | Construction Contractor; VLNR Reserve Manager ECO Project Archaeologist |

| Activity | Phase | Aspect | Management and Mitigation Requirements | Time Period for Implementation | Responsible |
|---|--------------------|---------------|---|--|---|
| | | Archaeology | All construction staff should be trained on heritage features and the avoidance of the identified features. The recorded sites Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, 178, should be retained <i>in situ</i> with a 30 m buffer. These sites should be demarcated, indicated on development plans and staff should be trained on their heritage significance. | | If required Palaeontologist |
| Construction of electrical fence. | Construction | Palaeontology | Clarens Formation red beds should be avoided for any development if possible. Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | Construction | Construction Contractor VLNR Reserve Manager ECO Project Archaeologist If required Palaeontologist |
| | | Archaeology | The recorded sites Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, 178, should be retained <i>in situ</i> with a 30 m buffer. If this is not possible the client should submit a technical motivation to SAHRA to apply for a relaxation of the buffer zone. These sites should be demarcated, indicated on development plans and staff should be trained on their heritage significance. Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | | |
| Infrastructure including water pipes, electrical infrastructure, and sewerage infrastructure. | Construction | Palaeontology | Clarens Formation red beds should be avoided for any development if possible. Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | Pre-construction and Construction Operation | Construction Contractor; VLNR Reserve Manager ECO Project Archaeologist If required Palaeontologist |
| | | Archaeology | The recorded sites Waypoint 172, 2229AD 295, Waypoint 174, 2229AD 296, Waypoint 176, 177, 178, should be retained <i>in situ</i> with a 30 m buffer. These sites should be demarcated, indicated on development plans and staff should be trained on their heritage significance. Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | | |
| | | Visual | To minimise visual impact, it is proposed to install these underground where possible. | | |
| Erosion | All project phases | Palaeontology | Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | Pre-construction Operation Construction | Construction Contractor If required Palaeontologist Project Archaeologist Lodge Operator; and VLNR Reserve Manager ECO |
| | | Archaeology | Erosion Mitigation measures as indicated in the EMPr should be implemented for the project (Van Rooy 2020). Monitoring to be conducted by the ECO on an ongoing basis. An annual monitoring report undertaken by a suitably qualified and accredited archaeologist must be completed to record current site conditions at recorded heritage resources. The results must be submitted to SAHRA for noting. | Pre-construction, Operation Construction, | |
| Visitor Management | Construction | Palaeontology | Implement the CFP as a condition of authorisation for implementation throughout the life of the Project | All phases | VLNR Reserve Manager Lodge Operator |
| | | Archaeology | Place notices to educate visitors on heritage resources and inform visitors that it is a criminal offence to collect archaeological artefacts from the area and to inform visitors to stay within the demarcated walkways. This should be enforced by VLNR staff, who should make sure that visitors do not traverse heritage sites. | | |

6.5. Monitoring

Most monitoring activities will be required throughout the construction phase of the Project. Where required, external technical specialists must be appointed to comply with the requirements of the HMP. These requirements must be reviewed in line with any project changes, altered where necessary, and requirements withdrawn where no longer relevant. Construction activities pose the greatest threat to tangible heritage resources within the cultural landscape.

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 as well as the identified resources.
- *Site monitoring and Monitoring report:* 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 in this management plan.

Monitoring will be conducted pro-actively and reported on in line with SAHRA requirements. Monitoring requirements for the project are summarized in Table 8 and should be implemented together with the specific management actions in Section 6.4. The Monitoring plan for the project should be revised upon completion of the project and with approval from SAHRA..

Table 8. Monitoring requirements for the VLNR Lodge

| Activity | Sensitivity | Responsible | Requirements | Timeline |
|---|-------------|--|---|---|
| Construction activities in relation to paleontological sensitivities | Very high | ECO | Guide construction to avoid possible impacts to chance finds Record and assess identified chance finds Implement requirements of NHRA and NHRA Regulations Compile Monitoring Report for submission to SAHRA | Ongoing during construction phase If required Ongoing Quarterly |
| | | VLNR Construction Site Supervisor | Implement Chance Find Procedure | Ongoing |
| Construction activities in relation to defined archaeological sensitivities | Moderate | Construction Contractor; Project Archaeologist VLNR Reserve Manager ECO | On-site inspection Guide construction to avoid possible impacts to chance finds Record and assess identified chance finds Archaeologist to compile a monitoring plan before construction starts that will detail the roles and responsibilities during monitoring of construction activities. Monitoring of earthworks Archaeologist to compile Monitoring Report for submission to SAHRA. | Monthly Site Inspection Ongoing during construction phase If required Ongoing In line with SAHRA comments |
| | | Construction Contractor; Lodge Operator; and VLNR Reserve Manager ECO | Monitoring of earthworks and Implement Chance Find Procedure | Ongoing |
| | Low | | | |
| | Very low | | | |
| Negligible | | | | |

6.6. Cultural Landscape

The VLNR has created a viable conservation buffer through the establishment of the reserve that contribute to the preservation of cultural resources in the area. The reserve, which now forms part of the MCLWHS buffer zone, has always added extra protection to cultural heritage sites around the core of the listed property and the construction of the Lodge will not have a high negative impact on this.

6.7. Chance Find Procedure and Procedure for Reporting.

This procedure applies to 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 relating to heritage resources.

The term 'heritage resource' includes structures, archaeology, palaeontology, meteors, and public monuments as per the South African National Heritage Resources Act (Act No. 25 of 1999) (NHRA) Sections 34, 35, and 37.

Procedures specific to burial grounds and graves as defined under NHRA Section 36 will be discussed separately as these require the implementation of separate criteria for Chance Find procedures.

Chance Find Procedures

The following procedural guidelines must be considered if previously unknown heritage resources or burial grounds and graves are exposed or found during the life of the project.

Initial Identification and/or Exposure (Chance Find)

If during the construction, operations, or closure phases of this project, any person employed by the mine, one of its subsidiaries, contractors and subcontractors, or service provider, find any artefact of cultural significance, this person must cease work at the site of the find. They must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.

The initial procedure when such sites are found aim to avoid any further damage. If during the construction, operations or closure phases of this project, any person employed by the mine, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance the following steps and reporting structure must be followed in both instances:

- The person or group (identifier) who identified or exposed the heritage resource or burial ground must cease all activity in the immediate vicinity of the site;
- The identifier must immediately inform the senior on-site Manager of the discovery;
- The senior on-site Manager must make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area and ensure that the site is secured and control access;
- The senior on-site Manager will inform the ECO and Health and Safety (HS) officer of the chance find and its immediate impact on operations. The ECO will then contact the project archaeologist.

Chance Find Procedures: Heritage Resources

If previously unidentified heritage resources are identified and/or exposed during construction or operation of the Project, the following steps must be implemented after those outlined above:

- The project archaeologist must be notified of the discovery;
- The project archaeologist will visit the site for a field-based assessment of the finds and appropriate mitigation measures will then be presented to the client;
- Should the specialist conclude that the find is a heritage resource protected in terms of the NHRA (1999) Sections 34, 35, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), the project archaeologist will notify the South African Heritage Resources Agency (SAHRA).

Chance Find Procedures: Burials and Graves

If previously unidentified burial grounds and graves are identified and/or exposed during construction or operation of the Project, the following steps must be implemented after those outlined above:

- The project archaeologist must immediately be notified of the discovery to take the required further steps:
 - The local South African Police Service (SAPS) will be notified on behalf of the developer;
 - The project archaeologist will inspect the exposed burial and determine in consultation with the SAPS if any additional graves may exist in the vicinity as well as the temporal context of the remains, i.e.:
 - forensic
 - authentic burial grave (informal or older than 60 years, NHRA (1999) Section 36); or
 - archaeological (older than 100 years, NHRA (1999) Section 38);
- Should the specialist conclude that the find is a heritage resource protected in terms of the NHRA (1999) Section 36 and NHRA (1999) Regulations (Regulation 38, 39, 40), the project archaeologist will notify SAHRA;
- SAHRA/LIHRA may require that an identification of interested parties, consultation and /or grave relocation take place;
- Consultation must take place in terms of NHRA (1999) Regulations 39, 40, 42; and 5. Grave relocation must take place in terms of NHRA (1999) Regulations 34.

Chance find protocol and Monitoring Program for Palaeontology – to commence once the construction activities begin.

The following procedure is only required if fossils are seen on the surface and when excavations/drilling commence.

1. When excavations begin the rocks must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the construction activities will not be interrupted.

2. Photographs of similar fossil plants must be provided to the developer to assist in recognizing the fossil plants in the shales and mudstones (for example see Figures 8-10). This information should be built into the EMP's training and awareness plan and procedures.
3. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
4. If there is any possible fossil material found by the developer/environmental officer/miners then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible.
5. 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.
6. 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.
7. If no fossils are found and the excavations have finished, then no further is required.

The Chance Find Procedures presented in this document serve as international best practice policy for the accidental discovery of heritage resources and burial grounds and graves. Based on the definitions provided within this document and the proposed lines of communication, VLNR will be able to mitigate the accidental discovery of heritage resources and burial grounds and graves throughout the various phases of the project.

The project archaeologist will be available to assist with the recommendation of mitigations for the accidental discovery of heritage resources and burial grounds and graves.

7. THE WAY FORWARD

Implementation of the HMP will ensure that the VLNR Lodge project conserves heritage resources that will remain *in situ* within the development area and that could potentially be impacted on by long-term, and cumulative impacts caused by the development activities in the different phases of the project. By implementing the mitigation measures in this report damage to sites will be minimised and where required resources will be recorded and mitigated, ensuring that the archaeological record of the area benefits from the project. Ongoing monitoring of the project will ensure that future finds are recorded and managed in an appropriate manner to protect the integrity of the resources. The HMP should be implemented together with the EMP for the project.

The HMP should be viewed as a dynamic document that should be revised upon completion of the project. The HMP should be submitted and approved by the developer and SAHRA prior to construction.

8 REFERENCES

- Bamford, M. 2020. Palaeontological Impact Assessment for the proposed VLNR Lodge near Mapungubwe, Limpopo Province. Unpublished report prepared for HCAC.
- Van der Walt, J. 2020. Heritage Impact Assessment for the proposed VLNR Lodge, Limpopo Province. Unpublished report for Alta van Dyk Environmental Consultants.
- Van Rooy, S. 2021. De Beers Consolidated Mines (Pty) Limited Venetia Limpopo Nature Reserve Lodge Final Environmental Management Programme

Appendix A

Permit application checklist

Permit Supporting Documents:

| Requirement | Responsible Party |
|--|--------------------------|
| Confirmation of Appointment | Developer |
| Landowners Permission Letter | Developer |
| Motivation for destruction/ alteration of sites | Developer |
| Confirmation that material would be curated (Museum) | BEYOND HERITAGE |
| Proof of payment | BEYOND HERITAGE |