HERITAGE IMPACT ASSESSMENT

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

FOR THE OLIFANTSNEK VODACOM MAST IN THE NORTH WEST PROVINCE

Type of development:

Vodacom Mast

Client:

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Project Reference:
HCAC Project number 2129
Report date:
May 2021

APPROVAL PAGE

Project Name	Olifantsnek Vodacom Mast
Report Title	Heritage Impact Assessment for the Proposed Olifantsnek Vodacom Mast, North West Province.
Authority Reference Number	TBC
Report Status	Final Report
Applicant Name	Vodacom

	Name	Qualifications and Certifications	Date
Archaeologist	Jaco van der Walt	MA Archaeology ASAPA #159 APHP #114	May 2021

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Amendments on Document

Date	Report Reference Number	Description of Amendment

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REPORT OUTLINE

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

Table 1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	*Declaration of Independence*
(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 9
(k) Mitigation measures for inclusion in the EMPr	Section 10.1
(I) 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	Section 13

Executive Summary

Vodacom appointed Tekplan Environmental Consultants as the Environmental Assessment Practitioner (EAP) to conduct a Basic Assessment Report (BAR) process to obtain Environmental Authorisation (EA) for the proposed Olifantsnek Vodacom Mast. The mast with a footprint of 144 m² is located on Portion 77 of the farm Commissiesdrift 327 JQ, Bojanala District Municipality, North West Province. HCAC was appointed to conduct a Heritage Impact Assessment (HIA) for the project to assess possible impacts to heritage resources by the construction of the mast and the study area was assessed on desktop level and by a non-intrusive field survey. Key findings of the assessment include:

- The study area has been fallow for a number of years and no economic activity occurs in the study area.
- A visual and physical inspection of the proposed site recorded no structures older than 60 years or archaeological finds of significance.
- Based on the South African Heritage Resources Information Services (SAHRIS) Palaeontological map the area is of high paleontological sensitivity and an independent study was conducted for this aspect (Bamford 2021). The study concluded that a Fossil Chance Find Protocol should form part of the EMPr for the project.

No significant heritage resources will be affected by the development and the impact of the project on heritage resources are low. The project can commence based on the implementation of the recommendations in this report and the approval of SAHRA.

Recommendations:

- Implementation of a chance find procedure for the project.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	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: • 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	24/05/2021

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 and Tanzania. Through this, he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

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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
DEFF: Department of Environment, Forestry and Fisheries
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:

HCAC was appointed to conduct a HIA for the proposed Olifantsnek Vodacom Mast located on Portion 77 of the farm Commissiesdrift 327 JQ, North West (Figure 1-1 to 1-4). The report forms part of 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

The project consists of a proposed Vodacom mast development described in Table 2 and 3.

Table 2: Project Description

Farm and portions	Ptn 77 of the farm Commissiesdrift 327 JQ, North West
Magisterial District	Bojanala District Municipality
Central co-ordinate of the development	25° 47’ 06,2” S 27° 14’ 23,9” E

Table 3: Infrastructure and project activities

Type of development	Vodacom Mast
Size of development	144 m²
Project Components	The project consists of a 55m lattice mast 12m x 12m surrounded by steel palisade fence

1.3 Alternatives

No alternatives were provided to be assessed although the extent of the area assessed allows for siting of the development to minimise impacts to heritage resources.

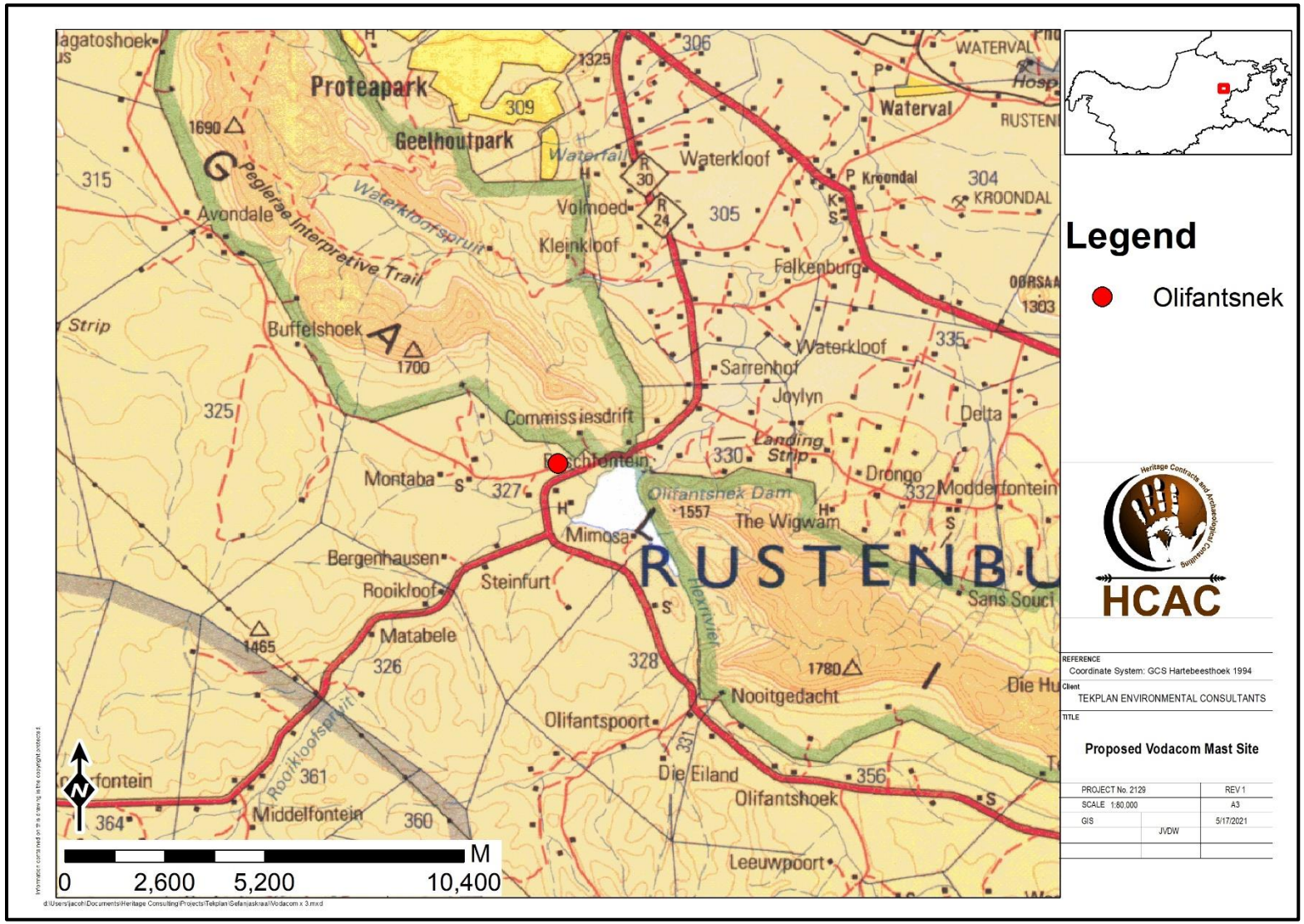

Figure 1-1. Regional setting (1: 250 000 topographical map).

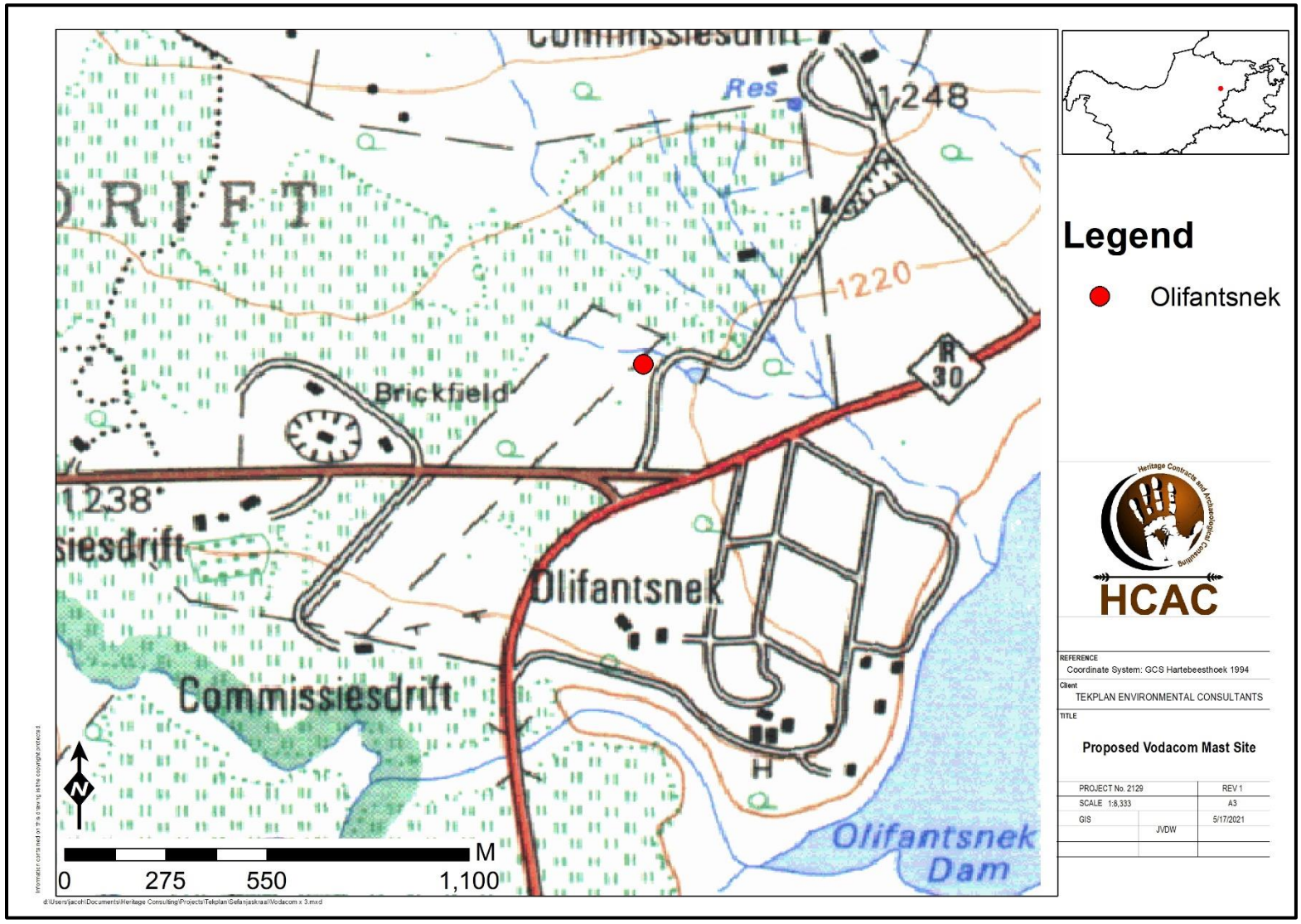

Figure 1-2: Local setting (1:50 000 topographical map).

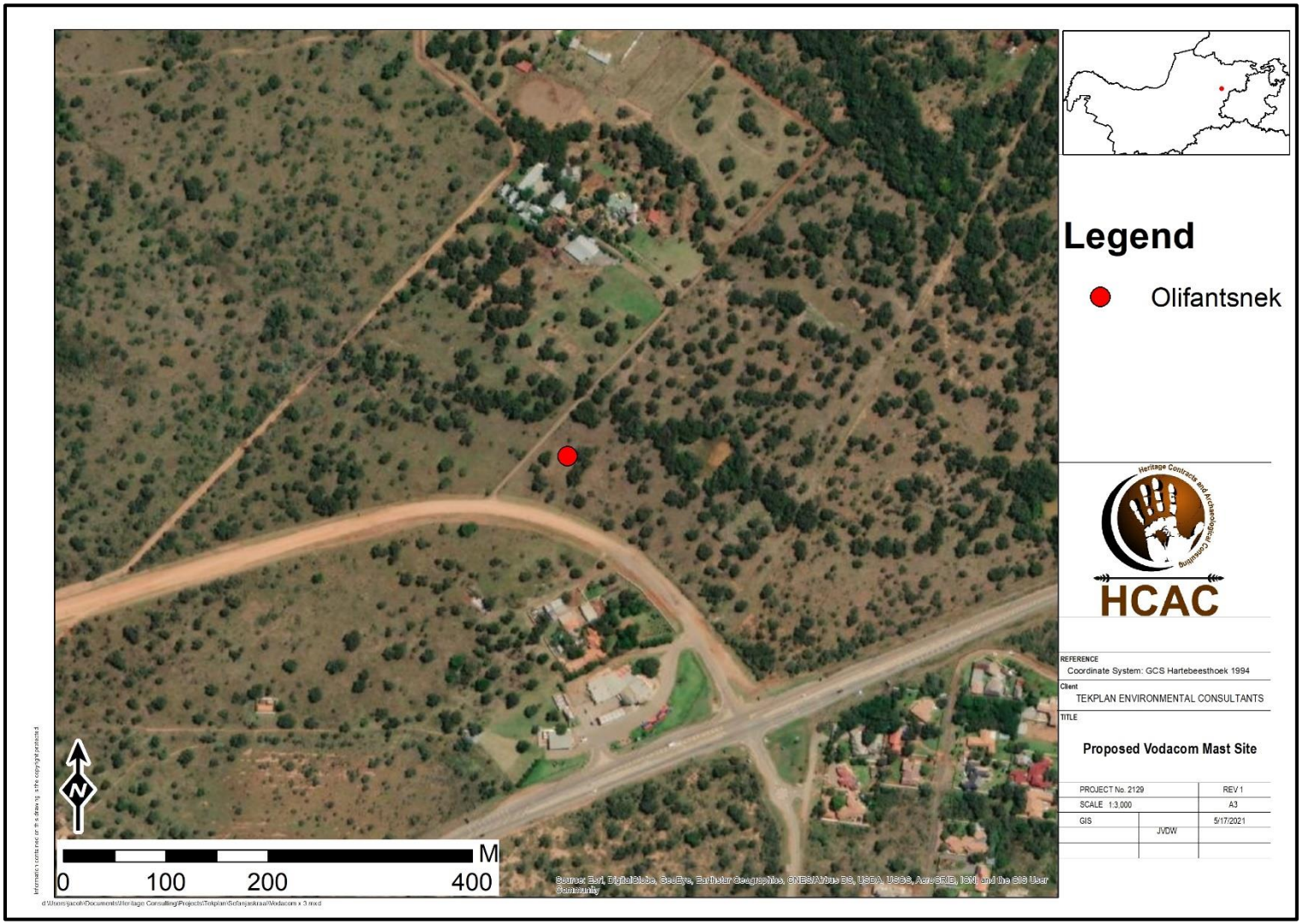

Figure 1-3. Aerial image of the development footprint.

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 EIA process, it involves stakeholders interested in, or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process 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 survey was to:

a) survey the proposed project area to 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 recorded in the project area.

Table 4: Site Investigation Details

	Site Investigation
Date	12 May 2021
Season	Summer- Archaeological visibility was high and the area was sufficiently covered to understand the heritage character of the study area (Figure 3-1).

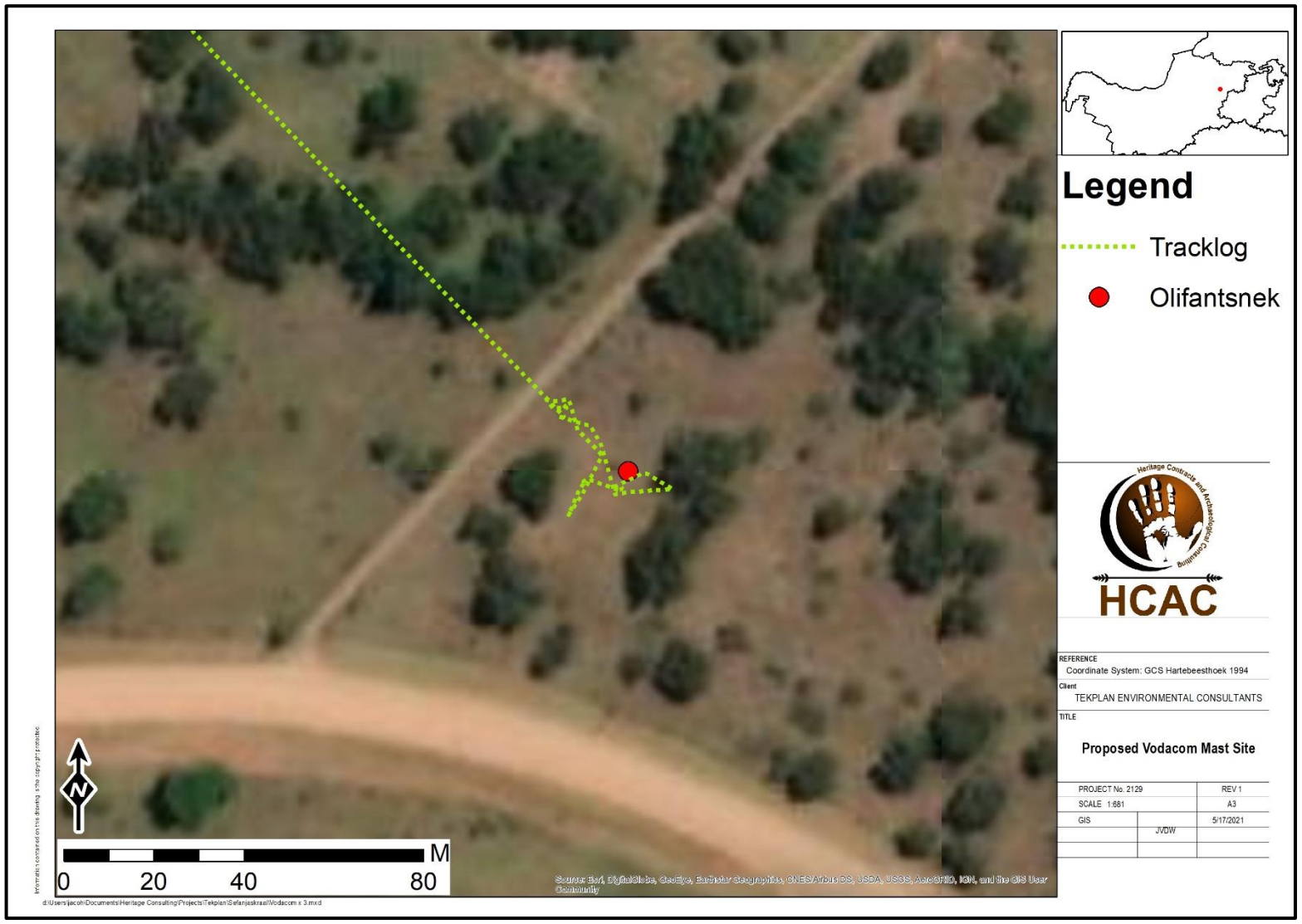

Figure 3-1: Tracklog of the survey in green.

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

According to the IDP for the Bojanala Platinum District Municipality the population is 1,6 million people and the municipality covers 18 333 kilometers. The main industrial towns within the District are Rustenburg and Brits. Most of the other areas are predominately rural. Well-known tourist attractions include Sun City, Pilanesberg Game Park and the Hartebeespoortdam. Mining plays an important role in the local economy with two of the world's largest platinum producing mines found in the District. Other minerals found in the District include tin, chrome, granite, lead and slate. An estimated value of more than 50% of employment comes from the Mining Sector. This estimate was based on Standardised data (Quantec Research, 2008). Finance & Business Services, Wholesale & Retail Trade, Transport, Communication and Community, Personal and Other Services also play an important role in the district.

For the 2001 to 2004 period Bojanala DM (5%) experienced a higher average annual GDP growth rate compared to both South Africa (3.3%) and the North West Province (3.2%).

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.

6 Literature / Background Study:

6.1 Literature Review (SAHRIS)

The following CRM reports were consulted for this report as outlined in Table 6. Indicating the range of heritage resources that occur in the region.

Table 6. Studies consulted for the project

Author	Year	Project	Findings
Van Schalkwyk, J.A. & Pelser, A.J.	1997	A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg.	Stone Age sites and Iron Age stone walling
Pistorius, J.C.C.	2002a	A Heritage Impact Assessment for Eskom's New Proposed 88 kV Powerline From the Middelkraal Substation to the Big Horn/Wonderkoppies Power Stations on the Farm Elandsdrif 467 JQ and Middelkraal 466 JQ Near Marikana and Mooinooi in the North West Province.	Late Iron Age Sites and graves
Pistorius, J.C.C.	2002b	A Cultural Heritage Impact Assessment for the Proposed Salene Mining Area near Marikana in the Central Bankeveld in the North-West Province.	Iron Age sites and graveyards
Pistorius, J.C.C.	2002	A Cultural Heritage Impact Assessment for Portions of the farm Modderfontein 322 JQ on the northern foot of the Magaliesburg in the Rustenburg District of the North West Province.	Historical Structure
Van Vollenhoven, A. C.	2008	A report on a heritage impact assessment for the proposed development of Waterval Portion 8 in Rustenburg, North West Province	Historical structures,
Van der Walt, J.	2017	Heritage Impact Assessment Overvaal Trust PV Facility	No sites
Van Vollenhoven, A. C.	2019	Letter for HIA exemption request: proposed expansion of Kgaswane Country Lodge on Portions 21 and 85 Of The Farm Boschfontein 330 JQ, Rustenburg, North West Province	No sites

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

6.2.1 Archaeology of the area

The archaeological record for the greater study area consists of the Stone Age and Iron Age.

6.2.1.1 Stone Age

The Stone Age is divided in the Early; Middle and Late Stone Age. It refers to the earliest people of South Africa who mainly relied on stone for their tools.

Earlier Stone Age: The period from ± 2.5 million yrs. - ± 250 000 yrs. ago. Acheulean stone tools are dominant. No Acheulean sites are on record near the study area, but isolated finds may be possible, however, isolated finds have little value. Therefore, the project is unlikely to disturb a site of significance.

Middle Stone Age: The Middle Stone Age includes various lithic industries in SA dating from ± 250 000 yrs. – 25 000 yrs. before present. This period is first associated with archaic *Homo sapiens* and later *Homo sapiens sapiens*. Material culture includes stone tools with prepared platforms and stone tools attached to handles.

Later Stone Age: The period from ± 25 000-yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with *Homo sapiens sapiens*. Material culture from this period includes: microlithic stone tools; ostrich eggshell beads and rock art. Sites located in the open are usually poorly preserved and therefore have less value than sites in caves or rock shelters.

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

6.2.1.2 The Iron Age

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

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

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. No Sites dating to the Iron Age have been recorded for the study area.
There are however signs that the present-day Rustenburg is located in an area that used to be a large Late Iron Age (1000-1800) terrain. (Bergh 1999: 7)

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

The Broederstroom Early Iron Age site to the east of the study area is characterised by around 250 years of occupation by iron and copper producers (Mason, 1981) and provided evidence on the role of cattle and the central cattle pattern in spatial arrangement of Early Iron Age sites (Huffman 1993). The copper smelting sites (Middle Iron Age) at Uitkomst and Ifafa from the 15th/16th Centuries were described by Mason (1962). The Late Iron Age in the area is characterised by extensive stone walled sites (Mason, 1986; Dreyer, 1995) of the Sotho-Tswana (Pistorius 1992). Rock engravings from the Magaliesberg include depictions of animals, shields, animal pens and settlements and are attributed to the Tswana people who occupied the area (Mason, 1986; Maggs, 1995).

6.3 Historical Information

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

6.3.1 Anglo-Boer War

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

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

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

6.3.2 Cultural Landscape

Historical maps and aerial photography were sourced and examined to determine how the landscape changed over time. Historical maps of the area are available from the 1968's, showing the area to be rural in character and undeveloped (Figure 6-1 to 6-2). Developments in the area are sparse and limited to residential dwellings, fences, and roads.

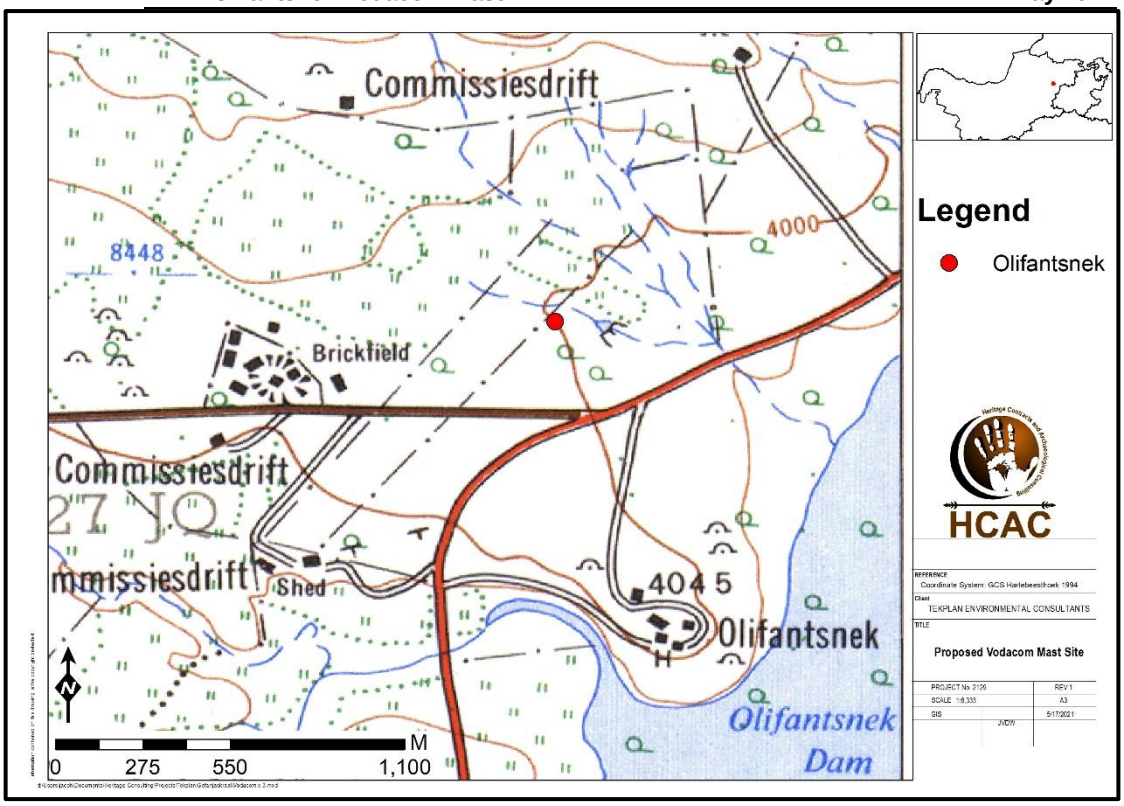

Figure 6-1. 1968 Topographic map showing the area to be undeveloped**.**

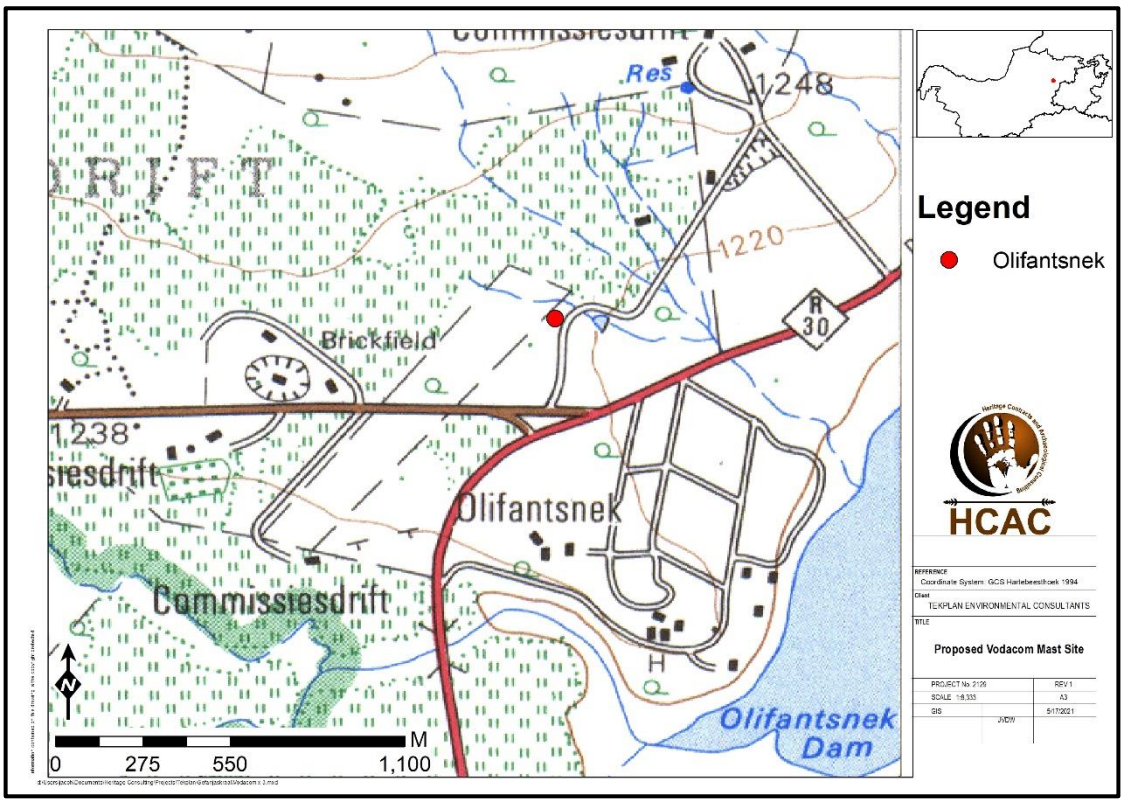

Figure 6-2. 1984 Topographic map showing the area to be undeveloped.

6.4 Graves and Burial Sites

Graves and cemeteries are widely distributed across the landscape and can be expected anywhere.

7 Description of the Physical Environment

The study area is rural in character and sparsely developed, and has been fallow for a number of years. The proposed site for the mast is flat with no major focal points like rocky outcrops or pans. The site is located next to a road with a powerline. General site conditions are illustrated in Figure 7-1 to 7-4.

Figure 7-1. General site conditions.

Figure 7-2. General site conditions.

Figure 7-3. General site conditions.

Figure 7-4. General site conditions.

8 Findings of the Survey

It is important to note that only the development footprint of the project was surveyed over 1 day. Based on the South African Heritage Resources Information Services (SAHRIS) Palaeontological map the area is of high paleontological sensitivity and an independent study was conducted for this aspect (Bamford 2021). The study concluded that it is extremely unlikely that any fossils would be preserved in the Silverton Formation or the nearby soils of the Quaternary. There is very small chance that trace fossils may occur in the Silverton Formation so a Fossil Chance Find Protocol should be added to the EMPr: No heritage resources of significance were noted in the study area.

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 (yellow polygon).

9 Potential Impact

Based on the current lay-out and the lack of heritage resources in the study area no impact is expected on the cultural heritage resources of the area (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 needed for the construction phase. 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:

Table 7. Impact assessment of the 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 rural in character and the proposed sites has been fallow for a number of years. The proposed site for the mast is covered in thick grass cover with no major focal points like rocky outcrops or pans that would have attracted human occupation in antiquity. The impact footprint of the Vodacom mast is small measuring 144m² and consist of a 55m lattice mast surrounded by a steel palisade fence. The site is located next to a gravel access road and powerline.

A visual and physical inspection of the proposed site recorded no structures older than 60 years or archaeological finds of significance. Based on the South African Heritage Resources Information Services (SAHRIS) Palaeontological map the area is of high paleontological sensitivity and an independent study was conducted for this aspect (Bamford 2021). The study concluded that a Fossil Chance Find Protocol should form part of the EMPr for the project.

No significant heritage resources will be affected by the development and therefore the impact of the project on heritage resources are low and the project can commence based on the implementation of the recommendations in this report and the approval of 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:

- Implementation of a chance find procedure for the project (as outlined below).

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 therefor 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.

Fossil Chance Find Protocol

Monitoring Programme for Palaeontology – to commence once the excavations for foundations begin.

1. The following procedure is only required if fossils are seen on the surface and when excavations commence.
2. When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossil, MISS, stromatolites) should be put aside in a suitably protected place. This way the project activities will not be interrupted.
3. 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 Figure 4). This information will be built into the EMP's training and awareness plan and procedures.
4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
5. If there is any possible fossil material found by the developer/environmental officer/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.
6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
7. If no good fossil material is recovered then no site inspections by the palaeontologist will not be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.
8. If no fossils are found and the excavations have finished then no further monitoring is required.

10.3. Reasoned Opinion

The overall impact of the project on heritage resources is considered to be low, based on the adherence to the recommendations in this report and approval from SAHRA prior to development. 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, and possible layout changes.

10.5 Monitoring Requirements

Day to day monitoring can be conducted by the Environmental Officers (EO). The EO 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 EO 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 Excavations	Entire project area	EO	Weekly – during construction phase	Proactively	• If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented: 1. Cease all works immediately; 2. Report incident to the Sustainability Manager; 3. Contact an archaeologist to inspect the site; 4. Report incident to the competent authority; and 5. Employ reasonable mitigation measures in accordance with the requirements of the relevant authorities. • Only recommence operations once impacts have been mitigated.

10.6 Management Measures for inclusion in the EMPr

The following management measures must be included in the EMPr to ensure the protection of non-renewable heritage resources.

Table 9. Management measure for inclusion in the EMPR.

ACTIVITIES (	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Construction and Excavation Activities	Pre Construction and Construction	Entire site	Chance Find Procedure	Heritage Act NHRA Act 25 of 1999	Construction phase

10.7 Knowledge Gaps

Due to the subsurface nature of heritage resources and limited archaeological visibility due to high vegetation cover, 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.

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