

HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED TOWNSHIP ESTABLISHMENT ON PORTIONS 24 AND 28 OF
MOHLABA'S LOCATION 567 LT, TZANEEN, LIMPOPO PROVINCE

Type of development:

Township Development

Client:

Vaxumi Consulting Town Planners

Applicant:

TBC

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Authority Reference Number	TBC
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Responsibility	Name	Qualifications and Certifications	Date
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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 0-1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(cA) an indication of the quality and age of base data used for the specialist report	Section 3.4.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 8 and 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(I) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities;	Section 1.3
(k) Mitigation measures for inclusion in the EMPr	Section 10.1 and 10.5
(l) Conditions for inclusion in the environmental authorisation	Section 10. 1 and 10.5
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 10. 4.
(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 10.2
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 5
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to EIA report
(q) Any other information requested by the competent authority	No other information requested at this time

Executive Summary

Leago Environmental Solutions has been appointed to undertake an Environmental Impact Assessment Process (EIA) for the proposed township establishment on Portions 24 and 28 of Mohlabas's Location 567 LT, Tzaneen, Limpopo Province. Beyond Heritage was appointed to conduct a Heritage Impact Assessment (HIA) for the project and the study area was assessed through a desktop assessment and by a non-intrusive pedestrian field survey. Key findings of the assessment include:


- The project area is transformed by earth-moving activities and excavations for the construction of surrounding township developments;
- The study area is considered to be of low archaeological potential since no focal points like rocky outcrops or pans occur in the area that would have attracted human occupation in antiquity as well as the extent of disturbance in the area. This is in line with other assessments in the area (e.g., Gaigher, 2007, van der Walt 2016 and 2022) where finds were limited to historical structures and a cemetery;
- This assessment focused on tangible heritage sites and recorded finds were limited to two findspots consisting of isolated undiagnostic ceramics;
- Based on the SAHRA Paleontological map the study area is of insignificant sensitivity (Figure 8.6) and no further studies are required for this aspect.
- The final lay out is included in Annexure A and makes provision for identified wetlands.

The impact on heritage resources is low and the project can commence based on the South African Heritage Resource Authority (SAHRA) 's approval and adherence to the following recommendations.

Recommendations:

- Implementation of a Chance Find Procedure for the project;
- The study area must be monitored by the ECO during construction.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 107 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations (as amended), that I:</p> <ul style="list-style-type: none"> • I act as an independent specialist in this application; • I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; • I declare that there are no circumstances that may compromise my objectivity in performing such work; • I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; • I will comply with the Act, Regulations and all other applicable legislation; • I have no, and will not engage in, conflicting interests in the undertaking of the activity; • I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; • All the particulars furnished by me in this form are true and correct; and • I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 49 A of the Act.
Signature	
Date	19/09/2022

a) Expertise of the specialist

Jaco van der Walt has been practising as a Cultural Resource Management (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 the Association of South African Professional Archaeologists (ASAPA) (#159) and have conducted more than 500 impact assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, Kwa Zulu Natal (KZN) as well as the Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, Democratic Republic of the Congo (DRC) Zambia, Guinea, Afghanistan, Nigeria and Tanzania. Through this, he has a sound understanding of the International Finance Corporations (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
CFPs: Chance Find Procedures
CMP: Conservation Management Plan
CRR: Comments and Response Report
CRM: Cultural Resource Management
DFFE: Department of Fisheries, Forestry and Environment,
EA: Environmental Authorisation
EAP: Environmental Assessment Practitioner
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EAP Environmental Assessment Practitioner
EMPr: Environmental Management Programme
ESA: Early Stone Age
ESIA: Environmental and Social Impact Assessment
GIS Geographical Information System
GPS: Global Positioning System
GRP Grave Relocation Plan
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSA: Middle Stone Age
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 the historic period)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 Introduction and Terms of Reference:

Beyond Heritage was appointed to conduct a Heritage Impact Assessment (HIA) for the proposed Proposed township establishment on Portions 24 and 28 of Mohlabas's Location 567 LT, Tzaneen, Limpopo Province (Figure 1.1 to 1.3). The report forms part of the Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for the development.

The aim of the study 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 sites of high significance 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 this report. The South African Heritage Resources Agency (SAHRA) as a commenting authority under section 38(8) of NHRA 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

Project components and the location of the proposed township is outlined under Table 2 and 3.

Table 1-1: Project Description

Farm and Magisterial District	Portions 24 and 28 of Mohlaba's Location 567 LT, Tzaneen, Limpopo Province
Central co-ordinate of the development	23°52'43.16"S 30°15'35.96"E
Topographic Map Number	2329 DD

Table 1-2: Infrastructure and project activities

Type of development	Township Development
Project Details	<p>The proposed development / activity is a township establishment which will entail 2008 stands / land uses for:</p> <ul style="list-style-type: none"> • 1345 Residential 1 • 416 Residential 2 • 99 Residential 3 • 45 Business 1 • 62 Business 2 • 4 Municipal • 1 Industrial • 30 Institutional • 6 Public Open Spaces

1.3 Alternatives

No alternatives were provided for assessment. The extent of the area assessed allows for siting of the development within this area to minimize impacts to heritage resources.

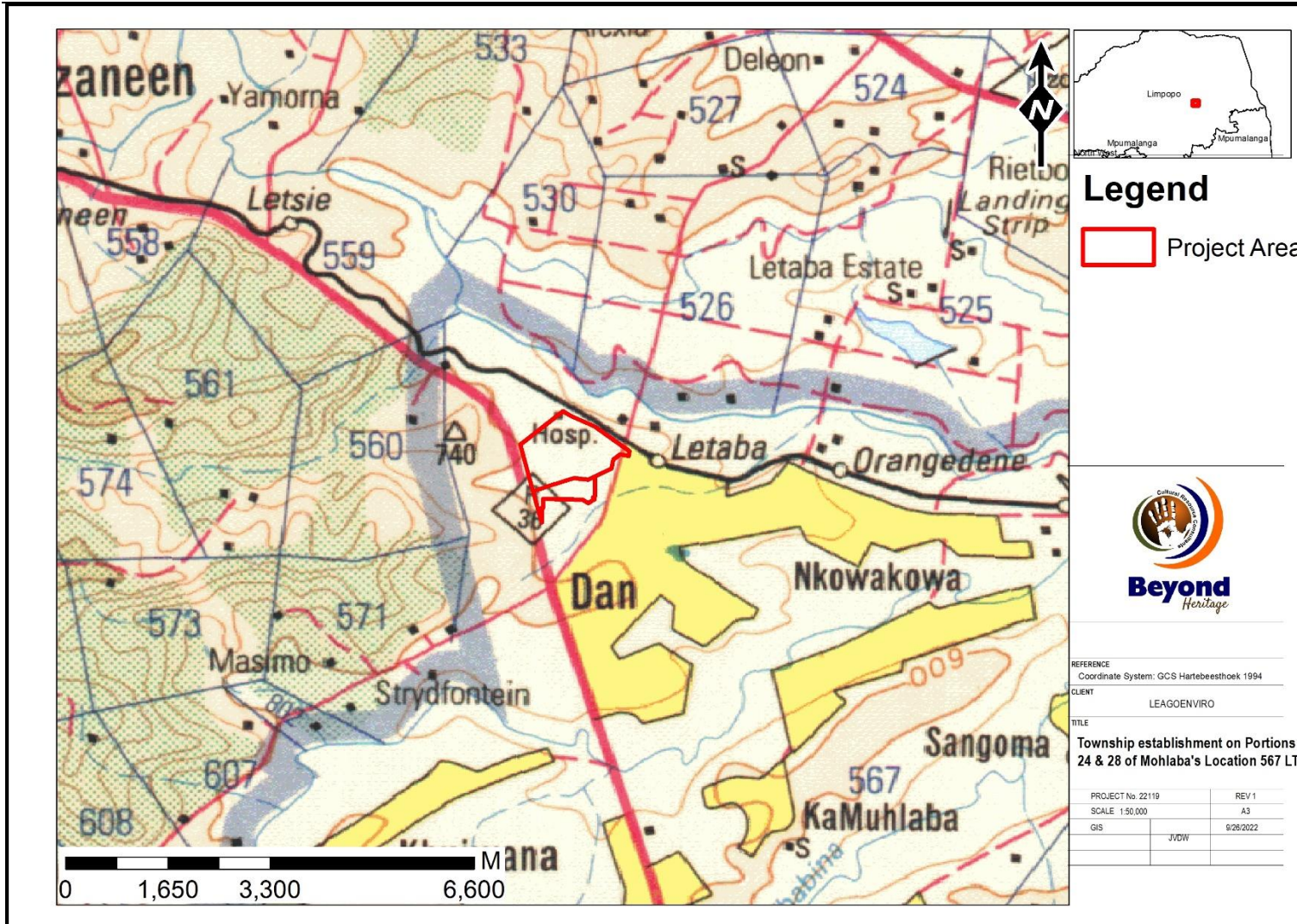


Figure 1.1. Regional setting of the Project (1: 250 000 topographical map).

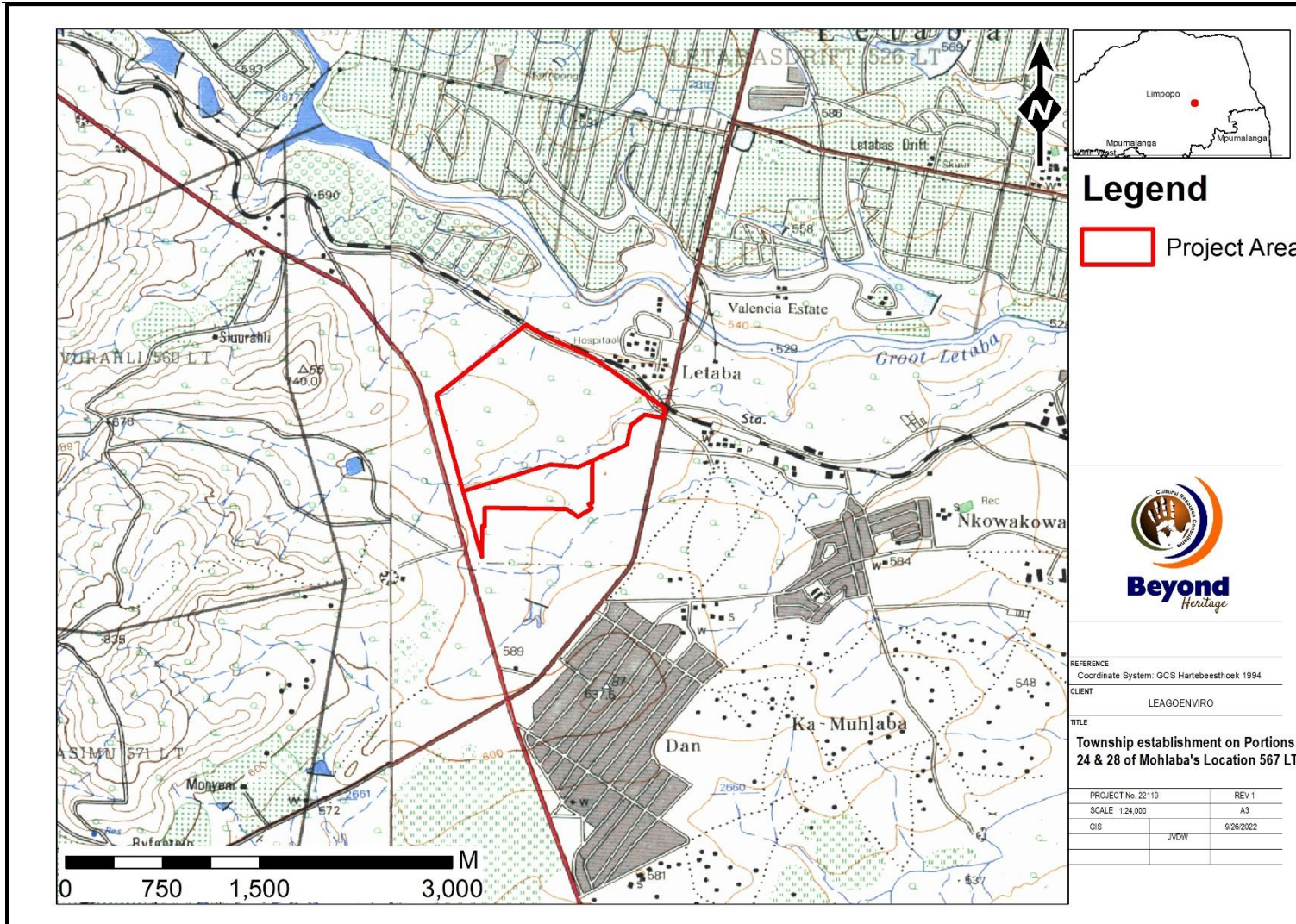


Figure 1.2. Local setting of the Project (1: 50 000 topographical map).

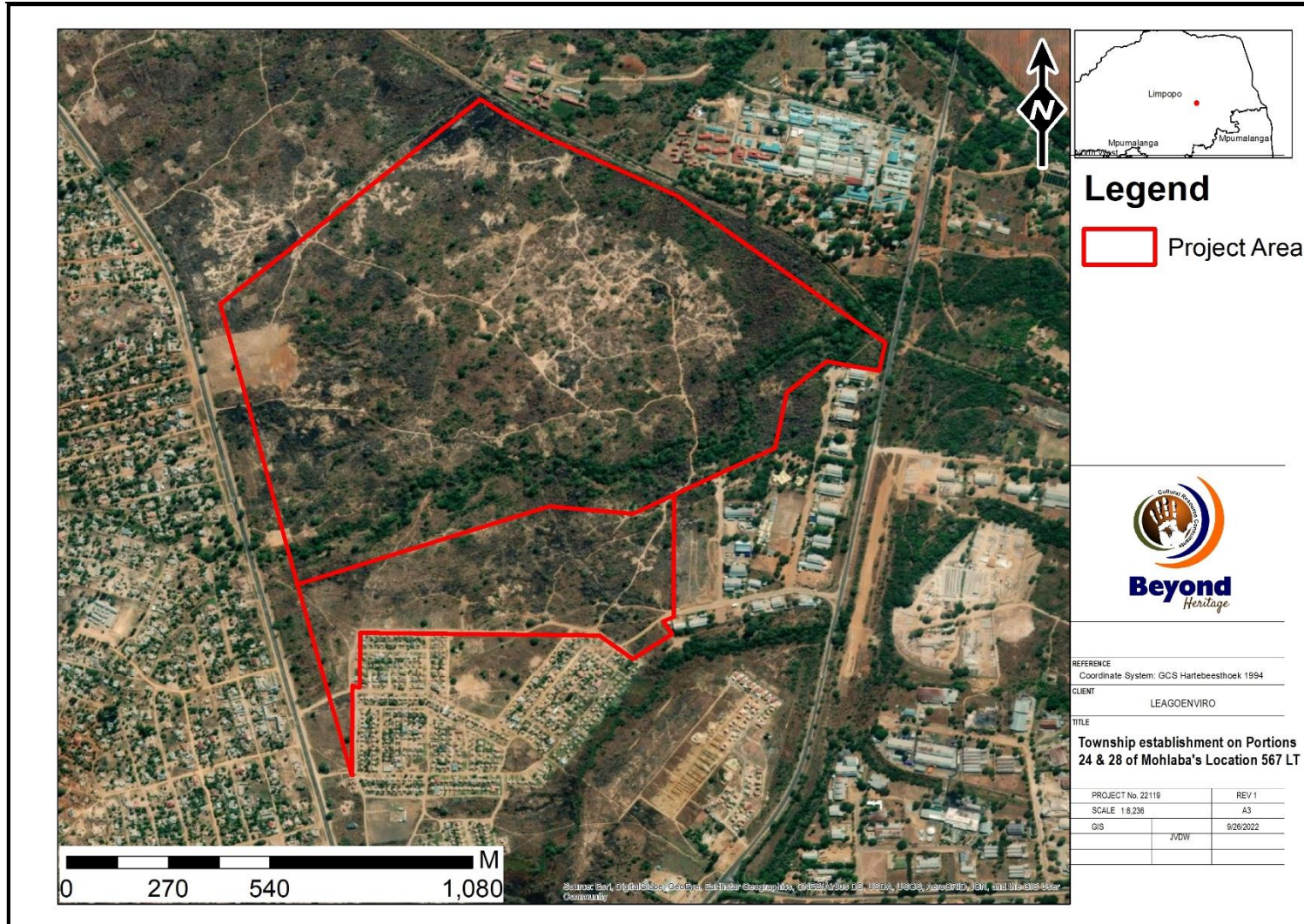


Figure 1.3. Aerial image of the Project area.

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)

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 (or avoidance) 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 undertaken by the EAP was to capture and address any issues raised by community members and other stakeholders.

3.4 Site Investigation

The aim of the site visit was to:

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

Table 3-1: Site Investigation Details

	Site Investigation
Season	Spring – The time of year did influence the survey as the site is highly overgrown and visibility was poor throughout the study area. Overall archaeological visibility was extremely low due to the overgrown vegetation as well as the highly disturbed nature of the proposed project area. Much of the original ground surface has been lost to sand mining activities. The Project area was sufficiently covered to understand the heritage character of the area (Figure 3.1).

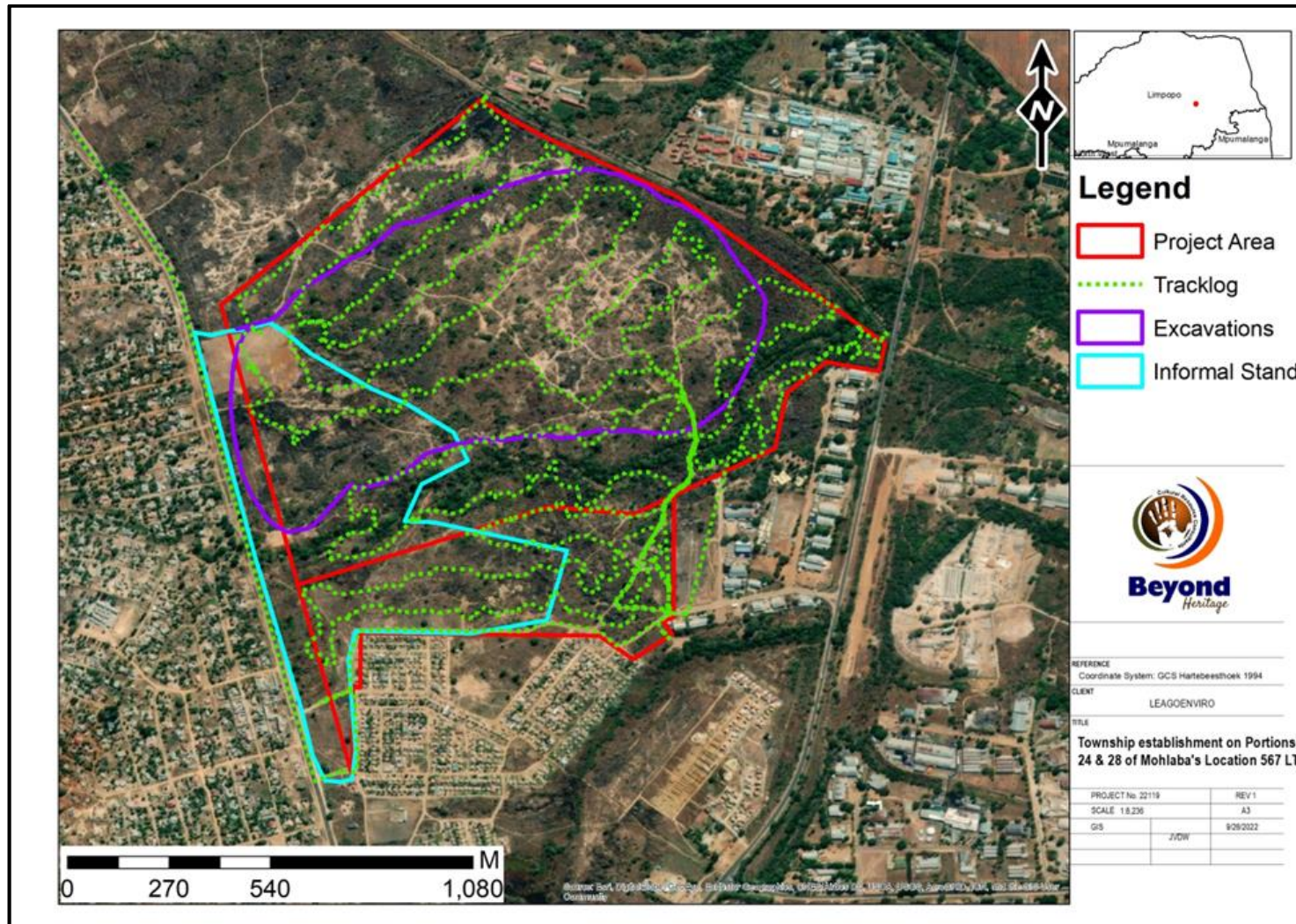


Figure 3.1. Tracklog of the survey path in green.

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 (2007), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 10 of this report.

Table 3-2: Heritage significance and field ratings

<i>FIELD RATING</i>	<i>GRADE</i>	<i>SIGNIFICANCE</i>	<i>RECOMMENDED MITIGATION</i>
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. This limitation is successfully mitigated with the implementation of a Chance Find Procedure and monitoring of the study area by the Environmental Control Officer (ECO). This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage (informal churches) as it is assumed that these components will be 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

Greater Tzaneen Municipality has a population size of 390 095, which is the largest municipality in terms of population contribution (36%) in the Mopani District. 96% of the population are black African, with whites second at 3%, and coloureds less than 100 in number as per Census 2011 results. For every 100 women there are 94 men. Most of the people speak Sepedi as a first language at 46,0%, followed by Xitsonga at 40,7%. Other official languages make up 13,2%.

There are 27 051 people that are economically active (employed or unemployed but looking for work), and of these, 36,7% are unemployed. Of the 11 948 economically active youth (15–34 years) in the area, 48,5% are unemployed.

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 EIA process by the EAP. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process. No heritage concerns have been raised thus far.

6 Literature / Background Study:

6.1 Literature Review (SAHRIS)

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). Few assessments were conducted in the area and the following reports were consulted:

Author	Year	Project	Findings
Gaigher, S.	2007	Heritage Impact Assessment for the Proposed Shopping centre and on-site sewage treatment plant at Maake near Lenyenye, Limpopo Province.	No Heritage resources were identified.
Murimbika, M.	2007	Phase 1 Cultural and Archaeological Heritage Assessment Specialist Study For The Proposed Thabina Regional Water Scheme Pipeline In Greater Tzaneen Local Municipality, Limpopo Province	No heritage resources, but one contemporary cemetery was identified
Fourie, W.	2008	Proposed Heritage Impact Assessment Maintenance of Road P17/3, P181/1, P116/1: R36 from Tzaneen to the Oaks to Aanlarge (D4430) Erasmus Pass in Mopani District, Limpopo Province Development of a Cellular Base Station-Kauletsi-Northern Province	No heritage resources
Roodt, F & Stegman, L.	2012	Phase 1 Heritage Resource Impact Assessment (Scoping & Evaluation) Proposed Township Establishment Ext 60 Tzaneen, Limpopo	No Heritage resources
Van der Walt, J.	2016	Archaeological Impact Assessment for the Upgrade of the Ebenezer Water Schemes, Limpopo Province.	Graves, a ruin and isolated Stone Age Artefacts
Van der Walt, J.	2017	Archaeological Impact Assessment – Ka Xikwambana Filling Station	No Heritage Resources

6.1.1 Google Earth and The Genealogical Society of South Africa (Graves and burial sites)

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological and historical sites might be located. The database of the Genealogical Society of South Africa indicated no known grave sites within the study area

6.2 Archaeological Background

6.2.1 Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation

regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

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

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

Based on previous archaeological and heritage impact studies conducted in the area, archaeological features or material culture are absent or occur in low densities in the surrounding areas. It is possible, but unlikely that ESA or MSA (Fig 6.1) lithic scatters will occur in the immediate study area. The presence of numerous rock art sites with associated stone tool assemblages in the Limpopo River basin, Blouberg, Makgabeng and Soutpansberg confirms the presence of Late Stone Age San communities in the wider region (Pager, 1973; Eastwood et al., 2002) but no sites dating to this period have been recorded for the study area.

6.2.2 Iron Age

As mixed farmers, Iron Age people usually lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle (Huffman, 1982). Usually, these settlements with the 'Central Cattle Pattern' (CCP) were sited near water and good soils that could be cultivated with an iron hoe. For the project area, archaeological sites such as these are unlikely to occur. However, according to the most recent archaeological cultural distribution sequences by Huffman (2007), the project area falls within the distribution area of various cultural groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration).

The *facies* that may be present are:

- Urewe Tradition: Kwale branch- Silver Leaves *facies* AD 280-450 (Early Iron Age)
- *Mzonjani facies* AD 450 – 750 (Early Iron Age)
- *Letaba facies* AD 1600 - 1840 (Late Iron Age)

Historically the Lobedu of Modjadji inhabit the area to the north (Krige 1938). Since the 1600s the Balobedu have been settled around the escarpment to the north west of the study area and whose Rain Queen is historically famous and revered by neighbouring people including the Shangaan/Tsonga and the Venda (Krige & Krige 1943). The Balobedu have had female rulers for the past six generations all bearing the title Modjadji. The Modjadji Rain queen also protects the adjacent population of Modjadji Cycads (*Encephalartos transvenosus*), growing in a Provincial Heritage Site in the area.

Historical highlights in the greater area include the 1895 war between Chief Makgoba and the ZAR, the establishment of the famous postal coach service from Pietersburg via Haenertsburg to Leydsdorp by Doel Zeederberg in 1899 and the passage of the Anglo-Boer War including a clash between the Bushveldt Carbineers (BVC) and the Letaba Commando at W.H. Viljoen's farm Duiwelskloof in August 1901 (Woolmoore 2002). Two of the BVC and three of the Boer commando were killed in this action. Further away the destruction of the last Long Tom guns took place near Haenertsburg in April 1901 (Changuion 2008).

The farm under investigation is located about 15 km southeast of Tzaneen. Tzaneen is the principal town of what used to be known as the Letaba district. It was established in 1919 and administered by a village council since 1939. Various explanations can be found for its name, for example that it was derived from

the word *dzana*, which means dance. It could also have been derived from the *tsana* shrub, which bark is used for making baskets. The word *batsanene* is another possible origin, and means “people of small villages”. Of Sotho origin, the name now seems to be accepted as meaning “place where people gathered” (Raper 1983: 442).

Since the mid-1800s up until the present, South Africa has been divided and re-divided into various districts. The district of Soutpansberg was established in 1848, and the area of interest, near the present day town of Tzaneen, formed part thereof. This remained the case up until 1902, when the area under investigation would have formed part of the magisterial district of Klein Letaba within the Soutpansberg district. In 1929 the larger Letaba district was proclaimed, and Tzaneen formed part thereof. This remained the case up until 1994. As of 1994 the farm was located in the new province of Limpopo. (Bergh 1999: 17, 20-27). Note that, prior to 1950 the farm under investigation was known as Mohlabas Location 414.

South Africa: A short chronology

Early Stone Age: 2 million - 250 000 BP. Hominins producing core and pebble tools, later stages includes handaxes and blades.

Middle Stone Age: 250 000 - 40 000 / 25 000 BP. *Homo Sapiens*. Prepared core techniques, formal tools, points, scrapers and backed artefacts. Occasionally includes bone points and ostrich eggshell fragments and grindstones.

Later Stone Age: 40 000 - 100 BP. Wide range of formal microlithic tools. Ostrich eggshell fragments, beads, rock art.

Ceramic Final Later Stone Age: 2000 BP. Wide range of formal microlithic tools, with thin-walled pottery, with some sites having faunal remains of ovicaprids.

Early Iron Age: 200 - 900 CE. Arrival of Bantu-speaking farmers who lived in sedentary settlements often located next to rivers. They kept livestock, cultivated sorghum, beans and cowpeas. Introduced metallurgy to the region and manufactured thick-walled pottery.

Middle Iron Age: 900 - 1300 CE. Confined to the modern-day Limpopo Province, and associated with early state formation, such as Mapungubwe and associated sites.

Late Iron Age: 1300 - 1840 CE. Marks the arrival of ancestral Eastern Bantu-speaking Nguni and Sotho-Tswana communities. Settlements are often located on or near hilltops for defensive purposes. The Iron Age as an archaeological period ends with the Mfecane, 1820s to 1840s CE. An event that caused major socio-political upheaval.

Historic events

1652: Dutch East India Company establishes refreshment station at modern-day Cape Town.

1658: First slave ships arrive at Table Bay.

1660 - 1793: Various armed conflicts between Khoisan and Europeans, several frontier wars between Europeans, Khoisan and Xhosa communities.

1795 - 1807: First British occupation of the Cape, the Dutch East India Company collapses, and slave trade is abolished.

1808 - 1820: Several frontier wars and first British Settlers arrive.

1820 - 1840: Onset of the Mfecane, abolishment of slavery and slaves are freed at the Cape. Dutch farmers started to migrate towards the interior of South Africa, what will become known as the 'Great Trek'.

1860 - 1880: Discovery of mineral wealth, diamonds and gold. Establishment of the Zuid-Afrikaansche Republiek (ZAR).

1899 - 1902: The South African War.

1910 - 1945: Unification of South Africa, formation of the ANC, World War I and World War II.

BP - Before Present
CE - Common Era

Figure 6.1. Summary of archaeological and historical events in South Africa.

7 Description of the Physical Environment

The study area comprises two portions namely Portion 24 and 28 and is described below:

7.1 Portion 24

Portion 24 is situated on the northern portion of the larger project area with the R36 running along the western boundary, an existing railway line running along the northern boundary, the existing industrial yard situated towards the eastern boundary. Portion 24 is characterised by a highly disturbed landscape of past excavations, existing and new stands as well as various areas cleared for informal church areas.

The landscape is overgrown with tall grasses, thickly wooded vegetation and various man made wetlands throughout the proposed portion as a result of past sand excavations. A large percentage of the original ground surface has been destroyed because of various activities such as the mining of sand for building materials. In some areas this is evident and can be seen where large trees are situated on top of large mounds of soil which may have been the original ground surface before the mining commenced.

A small stream is located along the southern boundary of the proposed portion heading towards the Groot-Letaba River. The vegetation along this river is thickly overgrown with various areas with mango trees planted by local community members. Various informal ploughed fields are also scattered across the proposed project area as a result of small-scale subsistence farming.

The western half of this portion is marked by activity from the community. These activities include informal churches, ploughed fields and various newly erected stands. Large portions of the centre of portion 24 is scarred by past excavation activities. General site condition for portion 24 is illustrated in Figure 7.1 to 7.6.



Figure 7.1. General site conditions - large parts of the proposed project area is covered in tall grass cover.



Figure 7.2 Illegal dumping of various building materials



Figure 7.3. Various artificial wetlands are scattered across the proposed project area.



Figure 7.4. General view of the highly disturbed landscape



Figure 7.5. Large erosion gullies forming within the proposed project area near the small stream.



Figure 7.6. Various stands have been set up along the western edge of the proposed project area.

7.2 Portion 28

Portion 28 is situated on the southern edge of the project area and the existing township is located along the southern and western boundary of Portion 28 with Portion 24 situated on the northern edge. An industrial complex is located on the eastern boundary of the proposed portion. This portion is dominated by thickly overgrown and wooded vegetation that extends across the entire portion. This portion is also highly disturbed due to current and past activities related to the surrounding townships such as the clearing of vegetation as well as construction of new stands, the excavation of natural sands and soil for construction activities and illegal dumping.

Large portions of this area have been extensively modified due to these activities. Various clearings have been created within the proposed portion to be used as informal churches. These churches are scattered across the entire project area. A small stream is located along the northern boundary of this portion. No archaeological material was identified in this portion. General site conditions are illustrated in Figure 7.7 to 7.10.



Figure 7.7. General site conditions - High levels of disturbances.



Figure 7.8. Large, cleared areas within the proposed project area serving as informal churches to the community.



Figure 7.9. Illegal dumping taking place on the southern edge of the proposed project area.



Figure 7.10. Various partially built structures situated within the proposed project area.

8 Findings of the Survey

8.1 Heritage Resources

It is important to note that only the development footprint of the project was surveyed, and finds were limited to isolated ceramics that were noted along the western edge of Portion 24. The low-density scatter of ceramics is undiagnostic and out of context and of no significance apart from mentioning it in this report. The study area is characterised by transformed areas marked by excavation activities and is disturbed. Recorded observations are described in Table 7 and spatially illustrated in Figure 8.1 to 8.3.



Figure 8.1. Isolated artefact at TN001.



Figure 8.2. Ceramic artefacts noted at TN002.

Table 8-1: Description of recorded observations

Label	Location	Description	Field Rating and Heritage Significance
TN001	23° 52' 43.5612" S, 30° 15' 13.6295" E	Isolated ceramic sherd located on top of a high mound of soil. This may possibly indicate an archaeological site that has been demolished due to past excavations in the process of mining sand within the proposed project area. The artefact is undiagnostic	GP C and Low significance
TN002	23° 52' 49.8611" S, 30° 15' 16.8265" E	Small scatter of ceramics was identified on a small, ploughed field on the western edge of the proposed project area. The artefacts were most likely exposed due to the ploughing of the small field, however it is highly likely that the original site was destroyed due to the mining of soil and sand within the area.	GP C and Low significance

8.2 Cultural Landscape

The study area is rural in character with limited development in the general area (Figure 8.3 to 8.4). Development is limited to residential dwellings and roads while the wider area is marked by sites dating to the historical period, none of these are located in the impact area.

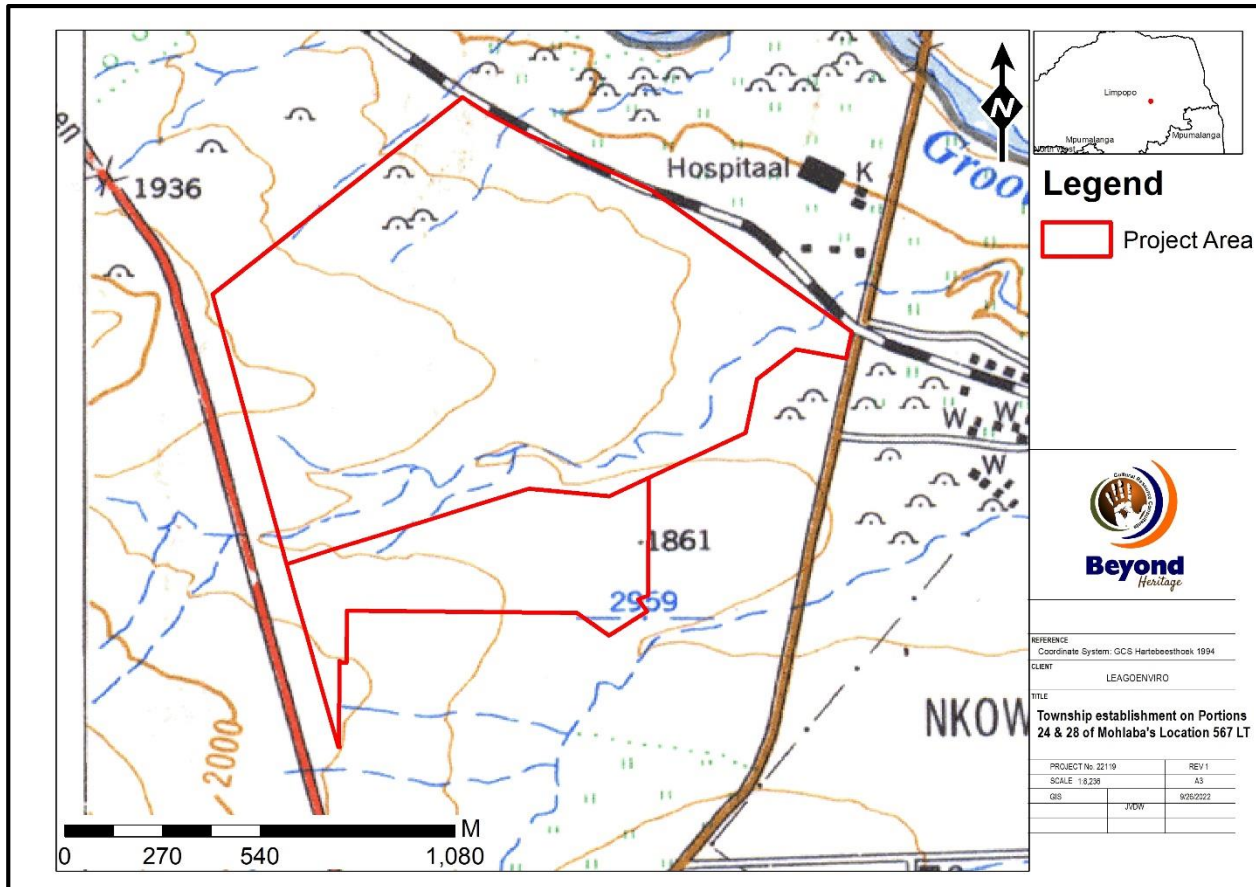


Figure 8.3. 1966 Topographic map of the area – huts are indicated towards the northern boundary of the study area but have been demolished.

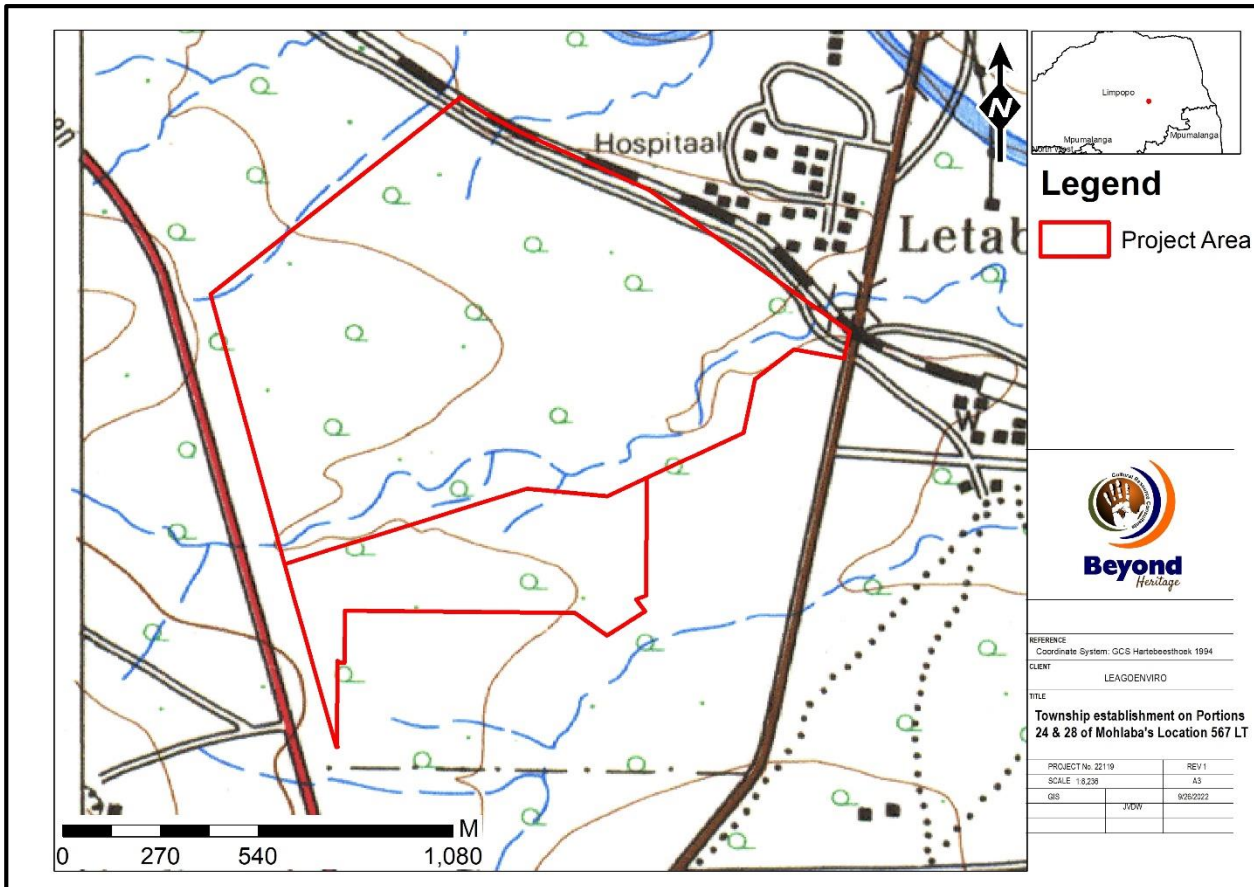


Figure 8.4.1973 Topographic map indicating the study area to be fallow.

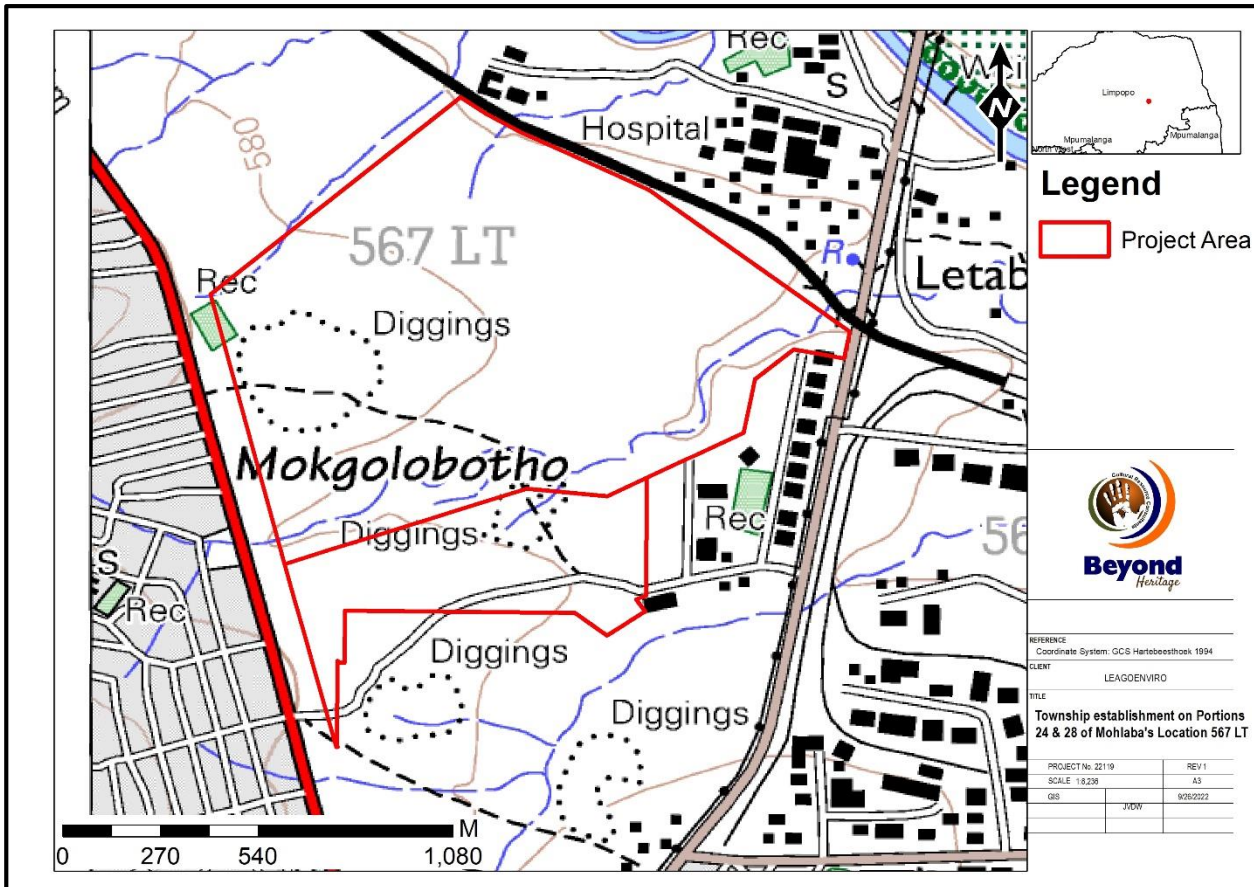
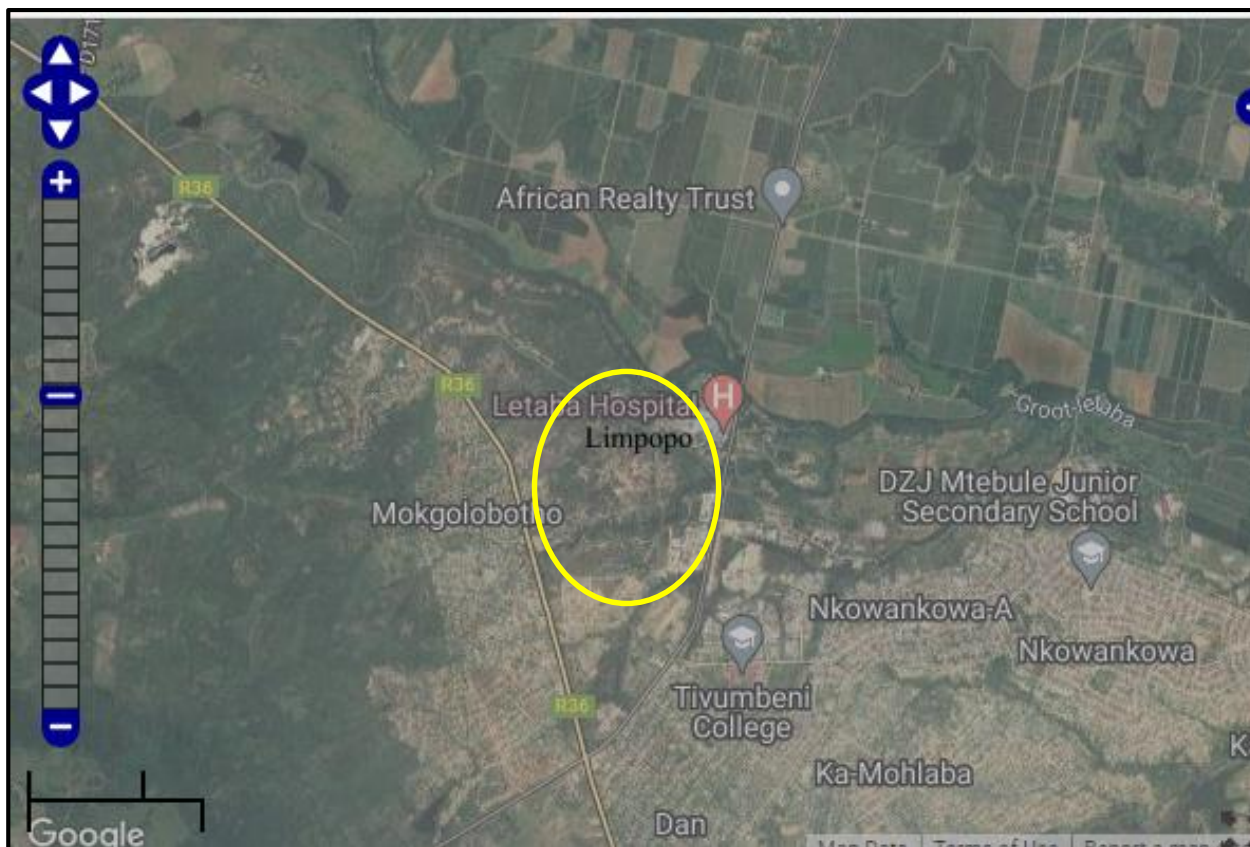


Figure 8.5. 2002 Topographic map of the study area. Excavations are indicating within the study areas concurring with the findings of the survey.

8.3 Paleontological Heritage

Based on the SAHRA Paleontological map the study area is of insignificant sensitivity (Figure 8.6) and no further studies are required.



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 8.6. Paleontological sensitivity of the approximate study area (yellow polygons) as indicated on the SAHRA Palaeontological sensitivity map.

9 Potential Impact

The lack of focal points in the study area that would have attracted human occupation in antiquity suggests that the project area is of low heritage potential. This was confirmed during the site visit and finds were limited to isolated scatters of undiagnostic ceramics of low significance.

Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. With the implementation of the recommended mitigation measures impacts of the project on heritage resources is acceptable (Table 6).

Cumulative impacts considered as an effect caused by the proposed action that results from the incremental impact of an action when added to other past, present, or reasonably foreseeable future actions. (Cornell Law School Information Institute, 2020). Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. In the case of this project, impacts can be mitigated to an acceptable level. However, this and other projects in the area can have a negative impact on heritage sites in the area where these sites have been destroyed unknowingly.

9.1.1 Pre-Construction phase

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

9.1.2 Construction Phase

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

9.1.3 Operation Phase

No impacts are expected during the operation phase.

9.1.4 Impact Assessment for the Project

Table 9-1. Impact assessment for 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	Probable (3)	Improbable (2)
Significance	27 (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:		
<ul style="list-style-type: none"> • Implementation of the Chance Find Procedure for the project; • The study area must be monitored by the ECO during construction. 		
Cumulative impacts:		
Other authorised projects in the area could have a cumulative impact on the heritage landscape. The impact on physical heritage is low as no sites of significance will be impacted on by the new developments.		
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 project area is characterised by transformed areas marked by excavation activities, illegal dumping, urban sprawl and is considered to be of low heritage potential. This was confirmed during the site visit and no sites of high heritage significance were noted during the survey. Archival maps of the study area show huts occurred in 1966 in the northern portion of the study area that have subsequently been demolished. No other standing structures or features of significance were recorded. This study did not assess the impact on medicinal plants and intangible heritage (informal churches) as it is assumed that these aspects would have been addressed during the social consultation process. According to the SAHRA Paleontological map the study area is of insignificant sensitivity (Figure 8.3) and no further studies are required for this aspect. The final lay out is included in Annexure A and makes provision for identified wetlands.

10.1 Recommendations for condition of authorisation

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

Recommendations:

- Implementation of the Chance Find Procedure for the project;
- The study area must be monitored by the ECO during construction.

10.2. Chance Find procedure

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefore chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below and monitoring guidelines for this procedure are provided in Section 10.4.

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.

Reasoned Opinion

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

10.3 Potential risk

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

10.4 Monitoring Requirements

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

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

Table 10-1. Monitoring requirements for the project

Heritage Monitoring					
Aspect	Area	Responsible for monitoring and measuring	Frequency	Proactive or reactive measurement	Method
Cultural Heritage Resources chance finds	Entire project area	EO & ECO	Weekly (Pre construction and construction phase)	Proactively	<ul style="list-style-type: none"> • If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented: <ol style="list-style-type: none"> 1. Cease all works immediately; 2. Report incident to Site Manager 3. EPC (Engineering Procurement and Construction) Contractor to contact an archaeologist/ palaeontologist to inspect the site; 4. Report incident to SAHRA; as advised by specialist and 5. Employ site specific mitigation measures recommended by the specialist after assessment in accordance with the requirements of the relevant authorities. • Only recommence operations once impacts have been mitigated.

10.5 Management Measures for inclusion in the EMPr

Table 10-2. Heritage Management Plan for EMPr implementation

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

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12 Annexure A

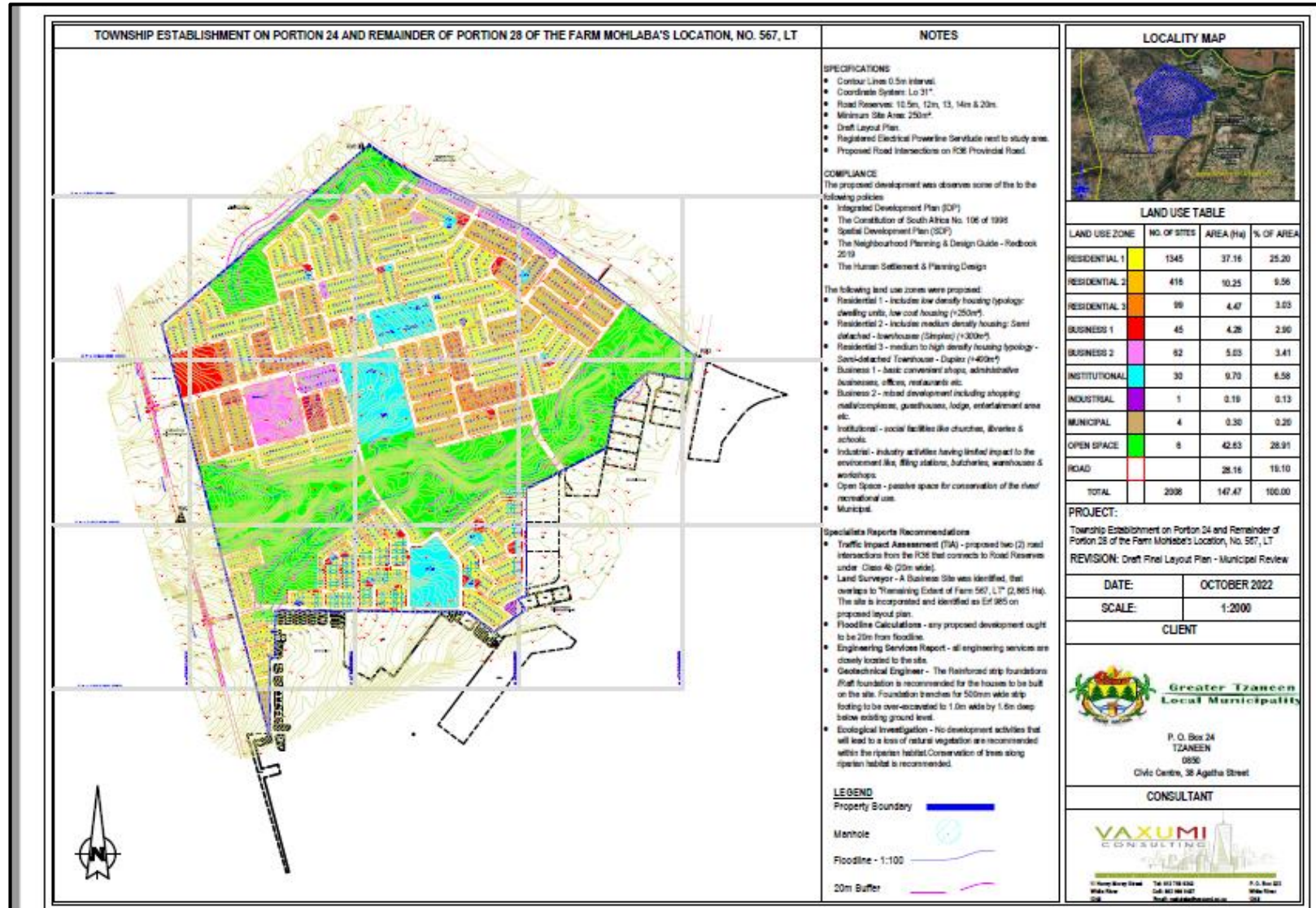


Figure 12.1. Amended layout as provided by Leago Enviro.