

PHASE 1 HERITAGE IMPACT ASSESSMENT REPORT

**THE PROPOSED TOWNSHIP
ESTABLISHMENT ON PORTION 100 OF
FARM NOOITGEDACHT 434-IP WITHIN THE
JURISDICTION OF THE CITY OF
MATLOSANA LOCAL MUNICIPALITY IN THE
NORTH WEST PROVINCE**

TSIMBA



**ARCHAEOLOGICAL
FOOTPRINTS (PTY) LTD**

**74 Loveday Street , Johannesburg
Gauteng,2000**

**Email: info@tsimba-arch.co.za
rmuroyi23@gmail.com**

Phone +27(0)813 717 993

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AUTHOR'S CREDENTIALS AND DECLARATION OF INDEPENDENCE**Archaeology and Heritage Specialist****Personal Details:** Roy Muroyi**Years of experience:** Eight (8) Years**Educational Background:** Masters Degree Heritage Studies – University of Witwatersrand

Masters Critical Diversity Studies – University of Witwatersrand

Hon. BA. Archaeology, Cultural Heritage and Museum Studies

Accreditations and Memberships: Association of Southern African Professional Archaeologists

Association of Professional Heritage Professionals

International Association Impact Assessment South Africa

KwaZulu-Natal Amafa and Research Institute

Society of Black Archaeologist

Cultural Resources Management Projects Completed:

: Over 100 Heritage Impact Assessments

: Close to 500 historical human burials excavated

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TECHNICAL SUMMARY

DOCUMENT INFORMATION ITEM	DESCRIPTION	
Proposed development and location	The proposed township establishment on Portion 100 of Farm Nooitgedacht 434-IP in order to establish integrated and sustainable human settlement development.	
Purpose of the study	To carry out a Phase 1 Heritage Impact Assessment to determine the presence/absence of archaeological assess their archaeological significance in terms of the NHRA of 1999.	
Municipalities	City of Matlosana Local Municipality	
Predominant land use of surrounding area	Informal urban residential areas	
Applicant	Housing Development Agency (HDA)	
Client Details	Ditsamai Investments & Projects (Pty) Ltd Phone: +011 483 0056 Email: songezo@ditsamai.co.za	
Heritage Consultant	Tsimba Archaeological Footprints (Pty) Ltd 24 Lawson Mansions 74 Loveday Street, Johannesburg, 200 Phone : (+27) 813 717 993 E-mail: info@tsimba-arch.co.za	
Development criteria in terms of Section 38(1) of the NHR Act	Yes	No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length		
Construction of bridge or similar structure exceeding 50m in length		

Development exceeding 5000 sq m		
Development involving three or more existing erven or subdivisions		
Development involving three or more erven or divisions that have been consolidated within past five years		
Rezoning of site exceeding 10 000 sq m		
Any other development category, public open space, squares, parks, recreation grounds		

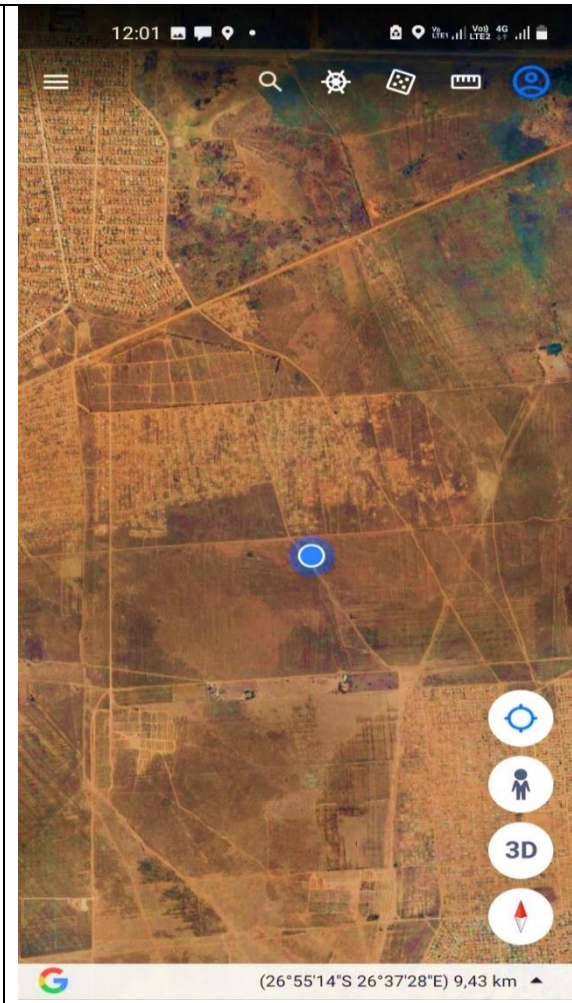
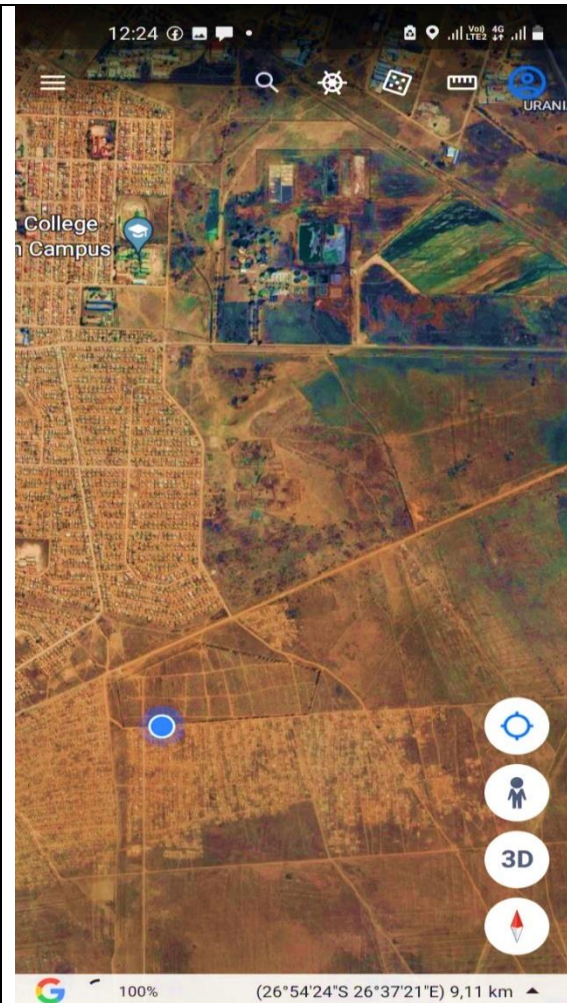
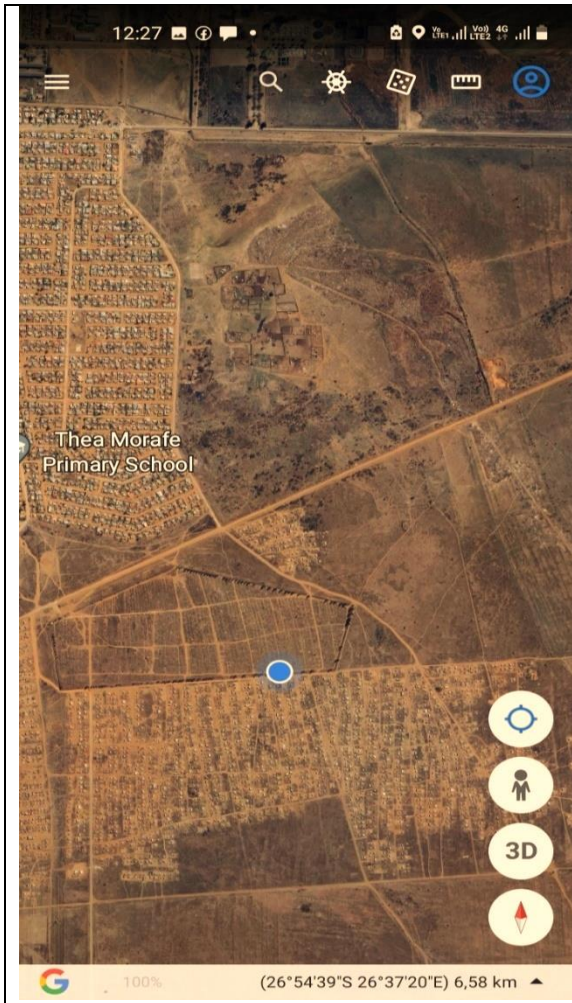
EXECUTIVE SUMMARY

Tsimba Archaeological Footprints (Pty) Ltd was requested by Ditsamai Investments & Projects (Pty) Ltd to conduct a Phase 1 Heritage Impact Assessment for the proposed township establishment on Portion 100 of Farm Nooitgedacht 434-IP in order to establish integrated and sustainable human settlement development. Although numerous Late Iron Age sites can be found in the greater geographic region to the north and west of the Klerksdorp town, there are no known EIA or MIA sites around the proposed development area (Bergh 1999). According to Huffman (2007), one such locations is Palmietfontein, which was dug up by D.A. White in 1975 and is located about 40 kilometers north of the of the proposed development area. However, the Rolong capital of Thabeng located in this region is relatively rich in Late Iron Age sites.

This Heritage Impact Assessment (HIA) study was commissioned by Housing Development Agency (HDA) through Ditsamai Investments & Projects (Pty) Ltd. The HIA was conducted in terms of the National Heritage Resources Act of 1999 as well as other supporting regulations such as the South African Heritage Resources Agency Minimum Standards for Specialist Heritage Studies (Archaeology, Palaeontology, Built Environment and Living Heritage). In order to produce an up best practice product. The assessment was also informed by the international standards such as the ICOMOS Guidelines on Impact Assessment near World Heritage places, and ICOMOS Australia's Burra Charter. Combined, these standards of best practice motivate for robust impact assessment processes and a cautious approach to the management of sites. They set out firmly that the cultural significance of heritage places must guide all decisions, developmental and otherwise.

Our field survey noted that the proposed housing development will not impact on any of heritage resources. Since the development includes excavations during the construction phase, it is expected that excavations might affect archaeological artefacts, however it is not expected that the bed rock will be affected.

The impact assessment study also includes detailed recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the entire project area. The real time geographical tacking applied during the survey is given below:



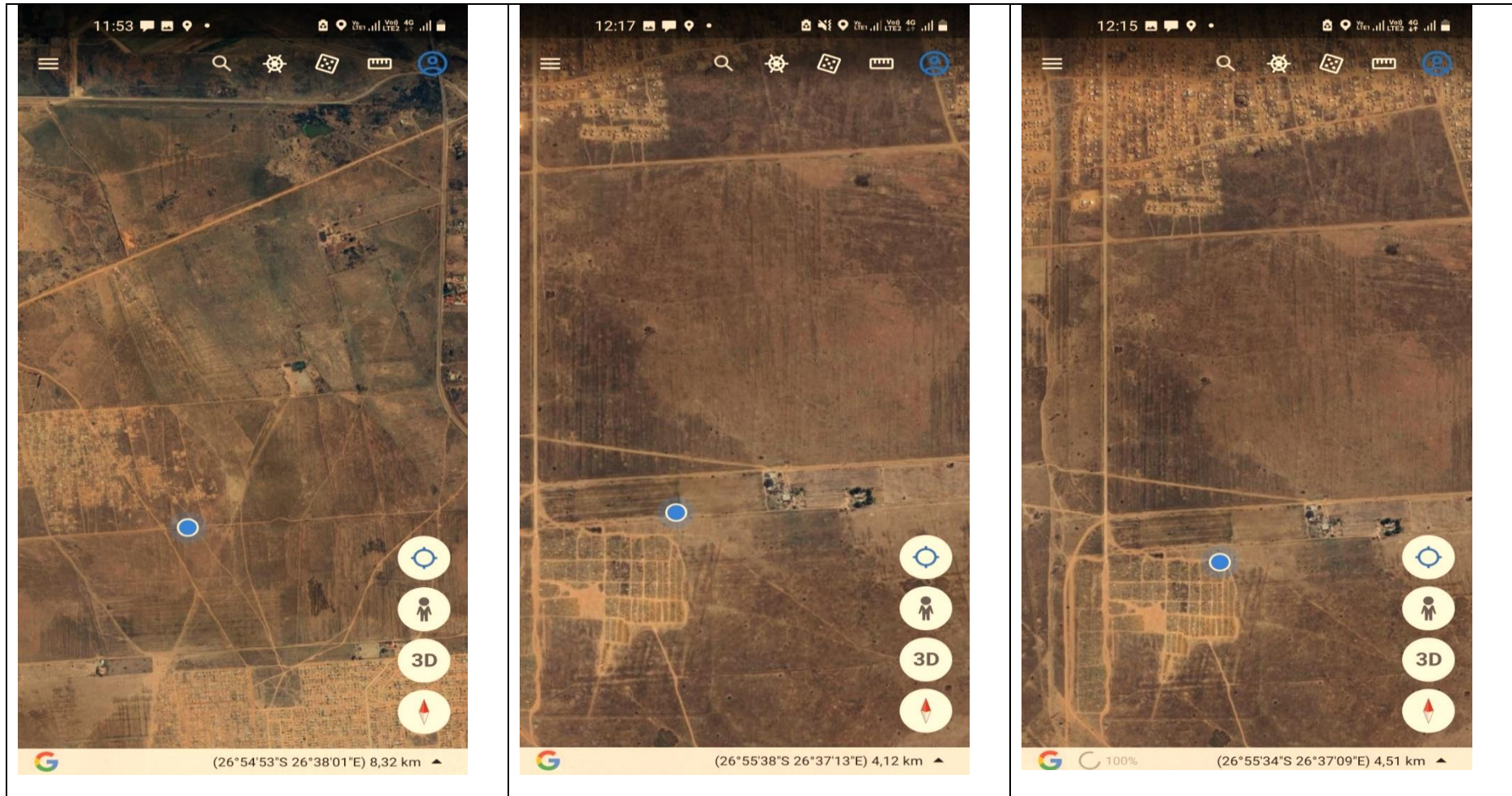


Figure 1: Realtime geographic tracking presentation employed during the field survey

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ABBREVIATIONS

Acronyms	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LSA	Late Stone Age
LIA	Late Iron Age
MIA	Middle Iron Age
MSA	Middle Stone Age
SAHRA	South African Heritage Resources Agency

GLOSSARY

Achievement	☞ Something accomplished, esp. by valour, boldness, or superior ability
Aesthetic	☞ Relating to the sense of the beautiful or the science of aesthetics.
Community	☞ All the people of a specific locality or country
Culture	☞ The sum total of ways of living built up by a group of human beings, which is transmitted from one generation to another.
Cultural	☞ Of or relating to culture or cultivation.
Diversity	☞ The state or fact of being diverse; difference; unlikeness.
Geological (geology)	☞ The science which treats of the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.
High	☞ Intensified; exceeding the common degree or measure; strong; intense, energetic
Importance	☞ The quality or fact of being important.
influence	☞ Power of producing effects by invisible or insensible means.
Potential	☞ Possible as opposed to actual.
Integrity	☞ The state of being whole, entire, or undiminished.
Religious	☞ Of, relating to, or concerned with religion.
Significant	☞ important; of consequence
Social	☞ Living, or disposed to live, in companionship with others or in a community, rather than in isolation.
Spiritual	☞ Of, relating to, or consisting of spirit or incorporeal being.
Valued	☞ Highly regarded or esteemed

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Ditsamai Investments & Projects (Pty) Ltd were appointed by Housing Development Agency (HDA) to attend to the preparation and submission of the township establishment on Portion 100 of Farm Nooitgedacht 434-IP in order to establish integrated and sustainable human settlement development. The proposed township will comprise of government fully subsidized housing programme (BNG) and Financial Link Subsidised Housing Programme (FLISP)/ Bonded housing in the area within the jurisdiction of City of Matlosana Local municipality in the North West Province.

The proposed project was initiated by the City of Matlosana Local Municipality who requested the Housing Development Agency (HDA) to assist in the development of the property in question for Human Settlements. This project is part of the HDA legislative mandate, Section 7 of the Housing Development Agency Act, (Act 23 of 2008) enjoins the Housing Development Agency (HDA) to, amongst others, undertake any processes relating to approvals required for housing development. The HDA is further mandated to prepare necessary documentation for consideration and approval by the relevant authorities, monitor progress of the development of land and landed properties acquired for the purposes of creating integrated and sustainable human settlements. As part of its processes, the HDA intends to undertake a Township Establishment Application to accommodate people living in the jurisdiction of City of Matlosana LM situated on the above-mentioned properties in order to establish integrated and sustainable human settlement development.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the development is planned. This HIA report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and is intended for submission to the South African Heritage Resources Agency (SAHRA).

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. According to Section 27(18) of the National Heritage Resources Act (NHRA), Act 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

1.2 ASSUMPTIONS AND LIMITATIONS

- ➔ The investigation was influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level.
- ➔ Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6)).
- ➔ Recommendations contained in this document do not exempt the developer from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA.
- ➔ The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

1.2 PROPOSED PROJECT MOTIVATION

The domination of the neo-liberal macroeconomic planning policies has also worsened poverty, employment opportunities and increased inequalities in our towns. Therefore, the proposed application seeks to alleviate and eradicate the above-mentioned difficulties by securing land use rights for formal housing for residents with provision of proper and adequate engineering services together with security of tenure. The current housing backlog within the Municipality is estimated at 38 500 stands and houses (this excludes the current housing projects and blocked projects). The residential mix according to the most recent market analysis is estimated as follows: Given the above, the SDF acknowledges that in order to provide additional residential land within the urban fringe that could be utilized for new housing projects, new residential developments must as far as possible, focus on mixed housing typologies and densities for a variety of income groups (Subsidised housing, FLISP/GAP, Affordable and Bonded Housing) in order to create more balanced communities with sufficient social amenities and local business opportunities.

The main objective of the areas identified for future residential development is to:

- ➔ Promote a more compact urban structure and to enhance the integration of the different urban areas within the demarcated urban edge.

- ➔ Provide land for integrated human settlement developments that will provide a wide choice of housing and tenure options (subsidized housing, rental housing, GAP housing, FLISP Housing and affordable / bonded housing) in line with BNG principles
- ➔ Eradication of the backlog in housing as well as informal structures (Millennium Development Goals)
- ➔ Promote social (rental) housing in areas where integration can be promoted as well as supporting urban or inner-city regeneration.

This can also be integrated with the Neighbourhood Development Partnership Grant programme

- ➔ Promote integration of areas and infill development
- ➔ Ensure conditions not conducive to health and safety of the inhabitants are prevented and removed (flood areas, dolomite areas etc)
- ➔ Discourage illegal occupation of land
- ➔ The Spatial Development Framework (SDF) earmarked ± 8 442,89 ha for future residential development on private and municipal land.

2.0 THE HERITAGE IMPACT ASSESSMENT PROCES

2.1 THE TERMS OF REFERENCE FOR THIS HIA STUDY ARE:

Heritage impact assessments (hereinafter referred to as HIA) are applied to cultural heritage assets. This is a recent notion grounded in the requirements to perform environmental assessments at the project or more strategic levels. The practice of performing an impact analysis is not new, however. As Clark (2001, p. 22) observes, “impact analysis is not a particularly special, unusual or complex process; it is simply a codification of the basic analysis undertaken by any competent conservation adviser”. The HIA exists to:

- ➔ Review existing theories and models of cultural heritage resources interpretation and how to develop effective methods of archaeological interpretation for future generations to assist and assist SAHRA in their deliberations;
- ➔ Clarify the extent and ways in which current site context archaeological findings may affect the interpretation of cultural sites for present and future generations;
- ➔ Shed light on the potential challenges and opportunities brought about by the existence of archaeological sites and other conflicting views of the values of a site;
- ➔ Set out the ethical considerations on the interpretation and preservation of archaeological findings given the varied range of approaches available;
- ➔ Explain that the issue of archaeological preservation and conservation as relevant not only National Heritage or Provincial Heritage properties, but also for any significant cultural site;
- ➔ Focus on best practice of interpretation and preservation of archaeological findings.

2.2 THE AIM: - There are two interlinked aims for this HIA. The first is to identify and document cultural heritage sites, cultural resources, sites associated with oral histories (intangible heritage), graves, cultural landscapes, and any structures of historical significance (tangible heritage) that may be affected within the development footprint. The second aim of this HIA is to assess the archaeological significance of the findings and make recommendations based on the best archaeological practice of interpretation and preservation of archaeological findings

2.3 THE FINDINGS: - The findings of this report have been informed by desktop data review and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project. This study was conducted before any activities too place on the proposed development area. The impact assessment study also includes detailed

recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the project area.

2.4 LEGISLATIVE FRAME WORKS USED

- ➔ The Australia ICOMOS charter for places of cultural significance (the Burra Charter).
- ➔ The principles for the analysis, conservation and structural restoration of architectural heritage (2003)
- ➔ The National Heritage and Resources Act of South Africa No.25 of 1999
- ➔ The Athens Charter, the Restoration of Historic Monuments (1931)
The International Council on Monuments and Sites (1965)
- ➔ The World Heritage Convention (1972)
- ➔ The Washington Charter (1987)
- ➔ The International Charter for the Conservation and Restoration of Monuments and sites (the Venice charter 2006).
- ➔ The Organisation of World Heritage Cities (1993).

2.5 HIA SCOPE OF WORKS

The Proposed project scope of the activities is given in the table below;

➔ **Desktop study**

Conduct a full desktop study where information on the area is collected to provide a background setting of the archaeology that can be expected in the area.

➔ **Field Survey**

A surface physical of the proposed development footprint where the proposed development will take place. The aim of the survey will be to identify any cultural heritage resources that may be available within the boundaries of the study site.

➔ **Reporting**

Report on the identification of anticipated and cumulative impacts that 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 Heritage legislation and the code of ethics and guidelines of ASAPA.

→ **Reasoned Opinion**

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 25 of 1999).

3.0 PROJECT AREA PHYSICAL ENVIRONMENT

Accessibility: - Access to the proposed development will be granted from the Provincial Road P150/1, approximately 2.4km from the south eastern of the proposed development.

Topography: - The site is characterised by a fairly flat surface. Therefore, there is no risk of unstable slope and instability.

Geological Conditions and Dolomitic Status: - According to the 1:250 000 geological map of the West Rand Sheet 2626 (Council for Geoscience, 1986), the site is underlined by amygdaloidal lava, agglomerate, and tuff, (R-Vr) of Ventersdorp Supergroup, Platberg.

Corridors of location: - The site is located on Portion 100 of the Farm Nooitgedacht 434 IP within the City of Matlosana Local Municipality in the North West Province. The site is located +-8km on the South Western part of Klerksdorp city centre and +- 7km North of the Orkney Central Business District, in the Jouberton-Kanana area.

The proposed area is surrounded by two townships which are Jouberton Extension 17 on the north west of the site and Kanana on the south east of the site. There is an existing informal settlement located in proximity to the site, approximately 28meters north and graves 100meters south west. The proposed development will take place at the following geographic location: **26°55'31.40"S** and **26°37'21.71"E**. See below Locality maps;



Figure 2: Locality map of the proposed development site in a regional context (Credit:Ditsamai)

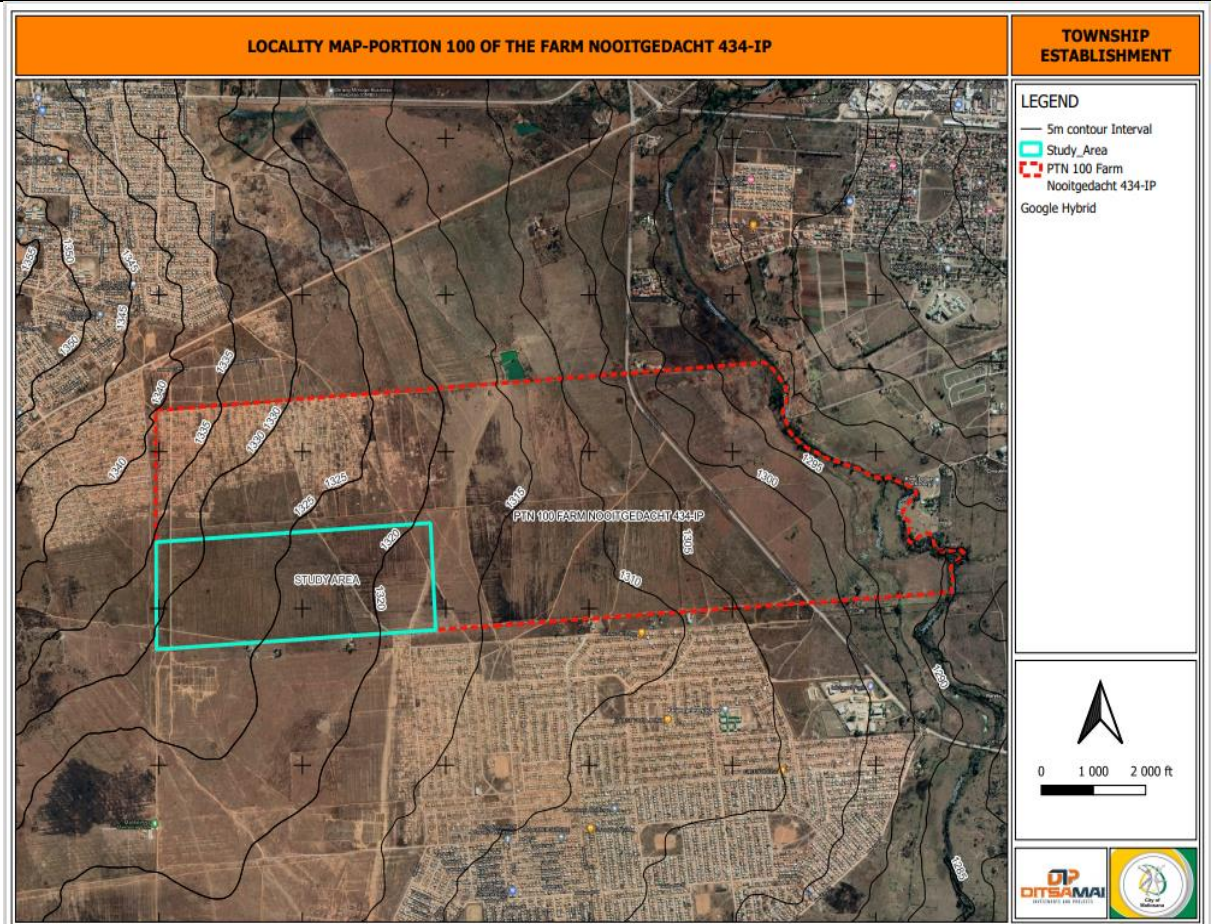


Figure 3: Eagle's eye view of the proposed development site (Credit:Ditsamai)

4.0 PROJECT RISK ASSESSMENT

4.1 POSSIBLE CONSTRUCTION PHASE:

The project will most likely impact on cultural heritage resources during excavations/earthmoving activities. The project may impact on tangible heritage resources. Since the construction phase of the project will involve extensive excavations, this impact could also occur on subterranean deposits. Often heritage sites are buried beneath years of alluvial deposits and there is no practical way of determining their location. This only becoming known once the covering matrix is excavated. The Chance Finds Protocol in this report will mitigate and manage such finds. The construction of any associated infrastructure for can also impact on heritage sites. Here we include secondary activities such as construction camps, access roads and temporary services, among others.

4.2 OPERATIONAL PHASE:

Although the majority of anticipated impacts are expected during the construction phase of the project there could be possible impacts on heritage resources during the operational phase as well. Potential impacts relate to the project activities. Unforeseen erosion due to focussed run-off because of the altered environment is also a possible impact. These impacts should be managed through the long-term environmental management plan for the project.

Table 1: Rating of Land-use Changes

IMPACT LAND USE CHANGES ON ALTERNATIVE 1 AND ALTERNATIVE 2	
OBJECTIVE: The overall goal is to identify and mitigate Impacts within the proposed development area.	
Project component/s	Construction Phase
Potential Impact	Alteration of the natural character and possible changes of use to some parts of the land that will be used by the developers.
Project component/s	The Operational Phase
Potential Impact	There will be changes to land use.
Activity/risk source	Exclusion of the mitigation measures aimed at mitigating impacts to cultural heritage.
Extent	The impact will only be expected only within the proposed development footprint.
Duration	The impact and its effects will be permanent.
Magnitude	The impact will not alter the broader land use and it can still be used/ function in a moderately modified way and maintains general integrity
Probability	There is a high chance of the Impact occurrence given the fact that the proposed development site is already altered.
Reversibility	The impact cannot be reversed but can be mitigated by making use of the recommendations made in this report.
Irreplaceable loss of resources	The impact of land use changes on heritage sites will result in marginal - minimal loss of resources.
Cumulative effect	The impact would result cumulative effects should additional pipelines be introduced.

5.0 METHODOLOGY

5.1 LITERATURE REVIEW

The methodology used in this HIA is based on a comprehensive understanding of the current or baseline situation; the type, distribution and significance of heritage resources as revealed through desk-based study and additional data acquisition, such as archaeological investigations, built heritage surveys, and recording of crafts, skills and intangible heritage. This is systematically integrated by the use of matrices with information on the nature and extent of the proposed engineering and other works to identify potential. The following tasks were also undertaken in relation to the cultural heritage and are described in this report:

The background information search of the proposed development area was conducted following the site maps from the client. Sources used in this study included:

- ➔ Published academic papers and HIA and PIA studies conducted in and around the region where the proposed infrastructure development will take place;
- ➔ Available archaeological literature on the broader study area was consulted;
- ➔ The SAHRIS website and the National Data Base were consulted to obtain background information on previous heritage surveys and assessments in the area; and other planning documents.
- ➔ Map Archives - Historical maps of the proposed area of development and its surrounds were assessed to aid information gathering of the proposed area of development and its surrounds

5.2 DATA CONSOLIDATION AND REPORT WRITING

Data captured on the development area (during the field survey) by means of a desktop study and physical survey is used as a basis for this HIA. This data is also used to establish assessment for any possible current and future impacts within the development footprint. This includes the following:

- ➔ Assessment of the significance of the cultural resources in terms of their archaeological, built environment and landscape, historical, scientific, social, religious, aesthetic and tourism value;
- ➔ A description of possible impacts of the proposed development, especially during the construction phase, in accordance with the standards and conventions for the management of cultural environments;

- ➔ Proposal of suitable mitigation measures to minimize possible negative impacts on the cultural environment and resources that may result during construction;
- ➔ Review of applicable legislative requirements that is the NEMA (read together with the 2014 EIA Regulations) and the NHRA of 1999
- ➔ The consolidation of the data collected using the various sources as described above;
- ➔ Acknowledgement of impacts on heritage resources (such as unearthed graves) predicted to occur during construction; and
- ➔ Geological Information Systems mapping of known archaeological sites and maps in the region
- ➔ A discussion of the results of this study with conclusions and recommendations based on the available data and study findings.

6.0 LEGISLATIVE FRAMEWORK

South Africa possesses some of the world's most comprehensive and progressive legislation for the protection and conservation of environmental, archaeological and palaeontological resources such as the National Environmental Management Act (Act no. 107 of 1998), the Environmental Conservation Act (Act no.73 of 1989), the National Heritage Resources Act (Act no. 25 of 1999) and the Mineral and Petroleum Resources Development Act (Act no. 28 of 2002). In terms of the World Heritage Convention Act (Act no.49 of 1999), the unnatural disturbance, pollution and degradation of the environment must be avoided, or where they cannot be avoided, mitigated. For this study the National Heritage Resources Act (Act no. 25 of 1999) comes into effect for the protection of cultural heritage resources.

The appointment of Tsimba Archaeological Footprints (Pty) Ltd is in terms of the National Heritage Resources Act (NHRA), No. 25 of 1999 read together with the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The HIA is completed in accordance to requirements of Section 38 (1) (c) of the NHRA, No. 25 of 1999. This is due to the nature of the proposed development, linear development which involves:

Any development or other activity which will change the character of a site exceeding 5 000 m² in extent.

The development may also impact on Cultural Heritage Resources such as graves, structures, archaeological and paleontological resources that are protected in terms of sections 34, 35, and 36 of the NHRA of 1999.

6.1 SCOPE OF THE PHASE 1 HIA

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 within the broader cultural landscape;
- ➔ Identify any heritage resources within the proposed development site;
- ➔ 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.

6.2 CULTURAL HERITAGE RESOURCES MANAGEMENT POLICY OBJECTIVES

- a. To preserve representative samples of the National archaeological resources for the scientific and educational benefit of present and future generations;
- b. To ensure that development proponents consider archaeological resource values and concerns in the course of project planning; and
- c. To ensure where decisions are made to develop land, the proponents adopt one of the following actions:
 - ➔ avoid archaeological sites wherever possible;
 - ➔ implement measures which will mitigate project impacts on archaeological sites; or
 - ➔ Compensate the local communities for unavoidable losses of significant archaeological value.

7.0 CULTURAL LANDSCAPE ASSESSMENT

7.1 INTRODUCTION

Interpretation: - In interpreting the cultural heritage significance of any particular landscape, recent heritage management research has shown that it is important to have a clear framework of criteria to assist in consistent assessment of the different host cultural landscapes that occur within the broader proposed development area falls within. These will be based on established practice from other works that have been carried out within the existing cultural landscape. It is likely to be based on a wide range of criteria (archaeological background of the area, historical background of the area, the settlement pattern in the area and degree of apparent human influence, among others) and it will define the degree of significance of the existing cultural landscape.

Values and receptors: - The question of the value of cultural landscape receptors will need careful consideration. By its very nature the work is concerned with designated cultural landscapes of national value for their cultural heritage values but the cultural landscapes within designated areas do nevertheless vary in their character and quality. It may therefore be appropriate to make a fine-grained assessment of the value of the cultural landscape character areas affected in the designated area. This will draw on statements about the special qualities contributing to the cultural heritage value of individual designated areas, on established criteria such as landscape quality and condition, scenic quality, historic/ heritage value, perceptual aspects and associations, and on other information such as the extent and setting of heritage assets including registered cultural heritage sites, burial grounds and archaeological sites.

7.2 CULTURAL LANDSCAPE METHODOLOGY

The methodology employed in carrying out the cultural landscape assessment of the proposals for the proposed development has been drawn from best practice guidelines and the Landscape Institute and the Institute of Environmental Management & Assessments “Guidelines for Landscape and Visual Impact Assessment” Second Edition (Spon Press 2002). The aim of these guidelines is to set high standards for the scope and contents of landscape and visual assessments and to establish certain principles that will help to achieve consistency, credibility and effectiveness in cultural landscape impact assessment. Guidance is contained in this publication on some approaches and techniques, which have been found to be effective and useful in practice by landscape professionals. However, the guidelines are not intended as a prescriptive set of rules, and have been adapted to the specific project.

Stage 1: Through a desktop and archival research process the heritage specialist is required to identify those landscape character types/areas of National, Provincial and Regional heritage significance which may be affected by the proposed development. The specialist should also locate information relevant to assessing landscape value for example written historical statements of special qualities.


Stage 2: Initial identification of potential effects the proposed development will bring to the broader regional area and design options to mitigate potential effects;




Stage 3: Design the development taking account of identified potential mitigation measures to avoid negative effects.

Stage 4: Assessment of effects the proposed developments have on the broader cultural landscape and considers its residual effects;

Stage 5: Fitting the cultural landscape assessment into the whole HIA.

7.3 ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

ARCHAEOLOGICAL PERIOD	APPROXIMATE DATES
<p>Early Stone Age more than 2 million years ago to >200 000 years ago</p>  <p>Pic Credit: Claire Anderson and Andy Halpin</p>	<p>The Stone Age dates back more than 2 million years representing a more explicit beginning of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. These early people made stone and bone implements. In South Africa more than 3 million years ago appeared proto- human hominids. Although a number of rock engraving sites are known to exist in the wider geographic area, Bergh claims that there are no known Stone Age sites close to Klerksdorp.</p>
<p>Middle Stone Age <300 000 years ago to >20 000 years ago</p>	<p>The Middle Stone Age is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. By then humans had become skillful hunters, especially of large grazers such as wildebeest, hartebeest and eland. This enabled skilled hunter-gatherer bands to adapt to</p>

 <p>Pic Credit: Claire Anderson and Andy Halpin</p>	<p>different environments. From this time onwards, rock shelters and caves were used for occupation and reoccupation over very long periods of time (Maggs, 1980).</p> <p>The modern humans known as the 'homo sapiens' emerged about 200 000 years ago in a Middle Stone Age setting (MSA) with the technological expertise to manufacture a wide variety of lithic tools compared to their forebears.</p>
<p>Late Stone Age <40 000 years ago up to historical times in certain areas</p>  <p>Pic Credit: Wits university Library</p>	<p>In the LSA period humans are classified as Homo sapiens which refer to the modern physical form and thinking capabilities. Several behavioral traits are exhibited, such as rock art and purposeful burials with ornaments, became a regular practice. The Later Stone Age (LSA), which occurred from about 20 000 years ago, is signaled by a series of technological innovations and social transformations within these early hunter-gatherer societies.</p>
<p>Iron Age c. AD 200 - c. AD 1840</p>  <p>Pic Credit: Claire Anderson and Andy Halpin</p>	<p>Although numerous Late Iron Age sites can be found in the greater geographic region to the north and west of the town, there are no known EIA or MIA sites in the area (Bergh 1999). One such location is Palmietfontein, which was dug up by D.A. White in 1975 and is located about 30 kilometers north of the Klerksdorp. The Rolong capital of Thabeng located in this region is relatively rich in Late Iron Age sites. According to Huffman's research, it is probable that the Thabeng facies of the Urewe Tradition (AD1700-1840) and the so-called Olifantspoort facies of the Urewe Tradition (AD1500-1700) could be discovered nearby (Huffman 2007). During the examination of the area, no Iron Age sites, features, or cultural artifacts were</p>

discovered.

7.4 HISTORICAL BACKGROUND OF THE STUDY AREA

The earliest written accounts of local oral histories typically mark the beginning of a region's history. Moving into the neighbourhood of those who could read and write is part of it. Cornwallis Harris, who first travelled through this region in 1836, was followed by missionaries and the Voortrekkers (Bergh 1999). The Voortrekkers established themselves on the banks of the Schoonspruit, which runs through the town, and this is how the town was established in 1837. The first settler with the most notoriety was C.M. du Plooy, who claimed the expansive property known as Elandsheuwel. In exchange for their assistance in constructing a dam and an irrigation canal, he granted additional Voortrekkers plots of land and community grazing rights on this property (Pelser,2021).

In exchange for their assistance in constructing a dam and an irrigation canal, he granted additional Voortrekkers plots of land and community grazing rights on this property. In honour of Jacob de Clerq, the first landdrost (magistrate) of the region, this group of smallholdings was later given the name Klerksdorp. M.G. Jansen van Vuuren found gold in August 1886 in the Klerksdorp region and on the Witwatersrand, which is located about 160 kilometers to the east. Due to the influx of thousands of fortune-seekers, the tiny village was transformed into a town with 70 bars and even its own stock exchange (Pelser,2021).

The oldest map that could be obtained from the Chief Surveyor General's database (www.csg.dla.gov.za) for the farm Nooitgedacht 434IP (for Portion 2) dates to 1905. It shows that the farm was then located in the District of Potchefstroom (Later Klerksdorp) in the Transvaal Colony. The whole of the farm was originally granted to J.M, J.M & D.S.P.G. Koekemoer on the 13th of October 1855. The portion was surveyed on behalf of a number of individuals in November 1904. The Portion 100 (a portion of Portion 2) map dates to 1972 and shows it was surveyed between October and December 1958 and again in December 1971 (Pelser,2021).

7.6 CULTURAL LANDSCAPE ASSESSMENT OF SIGNIFICANCE

Significance is not absolute and can only be identified in relation to each individual development and its unique location. It is important that any assessment of significance adopts an informed and well-reasoned judgement, supported through a clear justification as to how the conclusions about significance for each effect have been derived. It should be emphasised that whilst this methodology is designed to be robust and transparent, professional judgement is ultimately applied to determine the level of significance applied to each effect.

The two principal criteria determining the significance of effects are the scale or magnitude of effect, and the cultural heritage sensitivity of the location or receptor. With regard to visual receptors, a **HIGH** significance of effect would be from **HIGH** sensitivity receptors such as Regional to National significance old buildings and heritage sites with a Local rating where they would receive a major change in the view. A low significance of effect would be from the least sensitive low significance old buildings and heritage sites with a Local rating would be affected for a smaller period of time as they would experience transient views. Where no change is identified the significance is assessed as neutral. These thresholds will be determined by combining sensitivity and magnitude, with reference to any general terminology accepted for the whole Heritage Impact Assessment

7.7 CULTURAL LANDSCAPE SIGNIFICANCE ASSESSMENT

		Landscape receptor sensitivity			
		High	Medium	Low	
Assessment of significance of the cultural landscape impacts <ul style="list-style-type: none"> ▪ Red cells represent significant adverse impacts ▪ Yellow cells represent significant beneficial impacts ▪ Blue cells represent impacts that are not significant 		Landscape with National heritage significance Status sites and cultural Landscapes with Provincial heritage Significance Status	Regional or Local Significance Heritage sites valued characteristics reasonably tolerant of changes of the type proposed.	A relatively unimportant cultural landscape with few features of value or interest, potentially tolerant of substantial change of the type proposed.	
		Significant adverse changes, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness for more than 2 years High adverse significance	High/Medium adverse significance	Medium adverse significance	Medium adverse significance
Magnitude of landscape impact	Major	Noticeable but not significant adverse changes for more than 2 years or significant adverse changes for more than 6 months but less than 2 years, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness.	High/Medium adverse significance	Medium adverse significance	Low adverse significance
	Moderate adverse	Noticeable adverse changes for less than 2 years, significant adverse changes for less than 6 months, or barely discernible adverse changes for any length of time.	Medium adverse significance	Low adverse significance	Neutral
	Slight adverse	Any change would be negligible, unnoticeable or there are no predicted changes.	Neutral	Neutral	Neutral
	Neutral	Noticeable beneficial changes for less than 2 years, significant beneficial changes for less than 6 months, or barely discernible beneficial changes for any length of time.	Medium beneficial significance	Low beneficial significance	Neutral
	Slight benefit	Noticeable but not significant beneficial changes for more than 2 years or significant beneficial changes for more than 6 months but less than 2 years, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness.	High/Medium beneficial significance	Medium beneficial significance	Low beneficial significance
	Moderate benefit	Significant beneficial changes, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness for more than 2 years	High beneficial significance	High/Medium beneficial significance	Medium beneficial significance
	Major benefit				

Table 2: Cultural Landscape Significance Assessment

Table 3: Cultural Landscape Significance

<u>Klerksdorp Cultural Landscape</u>	Landscape with National heritage significance Status sites and cultural Landscapes with Provincial heritage Significance Status.
<u>Study area Cultural Landscape</u>	The Cultural Landscape is an important/significant landscape with Regional or Local Significance Heritage sites valued characteristics reasonably tolerant of changes of the type proposed.

8.0 DISCUSSION OF THE FINDINGS

This field visit, completed by a qualified archaeologist assessed the proposed pipeline upgrade routes that could be impacted during construction phase of proposed development. The field survey was undertaken on the 9th of November by Mr Roy Muroyi (Principal Heritage Specialist and Archaeologist). Some rains were experienced during the site visit.

The field survey was conducted during summer time and ground visibility was very good during the study period. The survey was carried out through driving and walking. An extensive portion of the survey area is already occupied by informal settlement, and the development is flanked by nearby Township developments. The research area is located in the Northwest Province's City of Matlosana (Klerksdorp) Local Municipality.

On the given land parcel, there are no recognized sites, and none were found during the ground truthing exercise. Agricultural, ongoing residential, and related operations have recently had a significant impact on and disrupted the environment. This includes widespread informal habitation covering the majority of the study area and development footprint. Disturbed and exposed layers were investigated. Such activities may possibly have cleared off archaeological remains within the project area (if any existed) that may be buried underneath the soil and be brought to the surface by human activities.

Therefore, at the time of the archaeological survey, archaeological sustainability and visibility would have been compromised. The impact types most commonly observed are alteration, transfer, and removal. This area has been heavily disturbed by the previous developments. Soil, clay, and sand were removed down to the level of bedrock especially during the road networks construction.

Due to erosion and other human activities, it is almost impossible that archaeological artefacts may still exist along the road reserve. In the case that artefacts still existed in some portions, these artefacts will no longer be in context. This would affect the integrity of the site therefore making it impossible to interpret the relationship between the artefacts and the site. Transfer and removal of artefacts, without alteration, affects the integrity of the site, and the validity of the cultural inferences based on artefact location or descriptions.

For example, correct identification and interpretation of artefact clusters as "activity areas" depends on their having remained more or less in situ since initial deposition. The ravages caused by rodents, tree roots, and relic collectors are well known, as are the actions of vertisols (self-mulching soils), and other geomorphic processes that transfer artefacts from place to place within a site, or remove them altogether. During the site inspection no archaeological or any other cultural heritage resources were discovered within the proposed development footprint and its environs. It is however important to note that lack of archaeological sites / artefacts on the ground does not necessarily mean lack of archaeological find underground. Archaeological resources may still be discovered during excavations or any ground breaking activities during the construction phase. The proposed development area is geographically positioned within a larger context where a number of cultural heritage sites (archaeological and/or historical) are known to exist.

The findings of the field survey are given below;



Figure 5: View of the proposed development area with power lines traversing across



Figure 6: View of some of the informal houses within the proposed development site



Figure 7: View of some of an access road within the proposed development site



Figure 8: View another section of the proposed development site showing some over grown vegetation and cattle grazing



Figure 9: A view of some overgrown vegetation within the proposed development site



Figure 10: View of stone stack probably tacked during ground clearing during the construction of the informal structures in the project area.



Figure 11: View of an old disused water tank now being used as a rubbish dumping site within the proposed development site



Figure 12: Outside view of the tank. Note that the tank might be over 60 years old but still does not have any heritage or architectural significance and may be demolished as it has been recorded through this report.

9.0 HERITAGE RESOURCES IDENTIFIED

a) Built Environment

Section 34(1) of National Heritage Resources Act of 1999 protects these structures against any altering.

No structures older than 60 years was identified as directly occurring along in the study area.

b) Archaeological and paleontological resources

Section 35 (4) No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite

The survey did not record any archaeological sites. Ground visibility was very good during the field survey making it easy to identify any archaeological sites that might occur within the proposed development footprint.

c) Intangible and Living Heritage

Section 3 (3) of the National Heritage Resources Act, No. 25 of 1999 makes provisions of such places of spiritual significance to individuals

Long term impact on the cultural landscape is considered to be negligible as the surrounding area consists of relatively new buildings. Visual impacts to scenic routes and sense of place are also considered to be low due to the nonexistence of any heritage resources within the study area.

d) Burial Grounds and Graves

Section 36(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves, without a permit issued by SAHRA or a provincial heritage resources authority

Graves or burial grounds were recorded just outside the proposed development footprint. However, two big cemeteries / grave yards were observed just outside the proposed development area boundaries. Both of these cemeteries/grave yards are located literally right on the Northern boundary and Southern boundaries of the proposed development area.

The exact number of the graves in the cemeteries could not be given as these are huge cemeteries with a large number of graves. Some of the graves are not marked, further escalating the challenges to numbering. It is however fair to conclude that these are community grave yards used by not only the

immediate communities but most of the communities in Klerksdorp. The grave yards contain mostly burials. The graveyard varies from single isolated burials to family burials. The different sizes of tombstones and headstones used in this graveyard make this graveyard a unique one where a mixture of burial patterns is likely to be found. It should however be noted that not all burials are marked on the surface, and the forms in which these burial grounds appear, largely depend on the social context of the buried individuals. Cemeteries are accessible primary sources that exist in virtually every community. They reflect the culture and heritage of the deceased as well as their values. Archaeologically cemeteries provide specific information that can be collated and analysed to uncover the life patterns of residents at specific times.

GPS Coordinates Western End: 26° 55' 49" S 26° 36' 58.91" E



Figure 13: A view of the grave yard on the southern side of the development site

GPS Coordinates Eastern End: 26° 55' 49.45" S 26° 37' 0766" E



Figure 14: Another view of the southern grave site

GPS Coordinates Gate : 26° 54' 52.99" S 26° 36' 55.55"



Figure 15: A view of the road that cuts across the grave yard on the Northern side of the proposed development site

GPS Coordinates E 26°54' 52.99" S 26° 37' 11.48" E



Figure 16: Another view of the northern grave yard

a) Public monuments and memorials

Section 37. Public monuments and memorials must, without the need to publish a notice to this effect be protected in the same manner as places which are entered in a heritage register referred to in section 30.

No public monuments, memorials and battlefields were recorded in the study area.

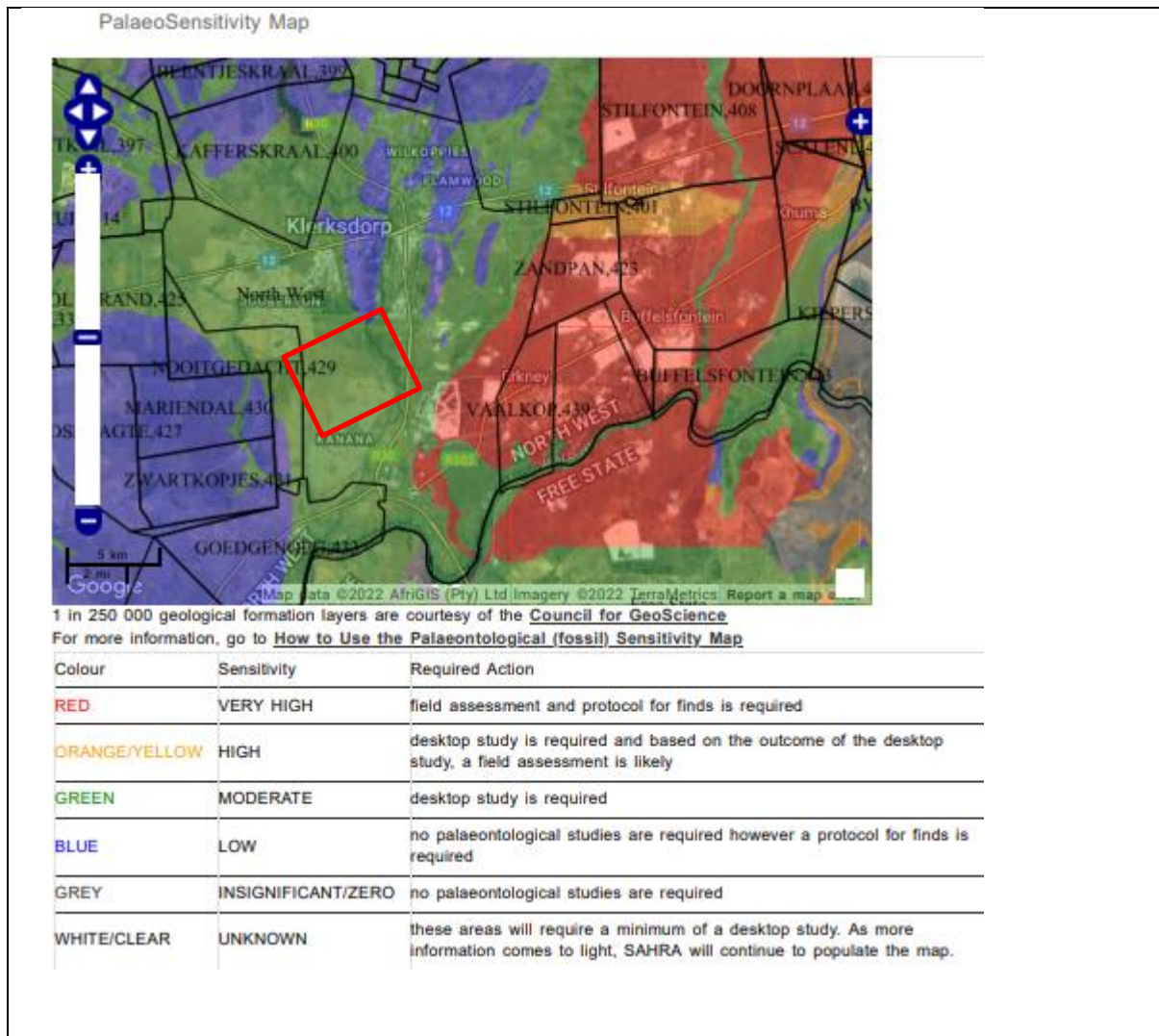


Figure 17:SAHRIS Palaeosensitivity map for the site for the proposed development site showing the Paleontological sensitivity of the site shows a Moderate sensitivity therefore a desktop paleontological study is required

Table 4: Site Assessment of values

1. Historic value				
Is it important in the community, or pattern of history			No	
Does it have strong or special association with the life or work of a person, group or organization of importance in history			No	
Does it have significance relating to the history of slavery			No	
2. Aesthetic value				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			No	
3. Scientific value				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			No	
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			No	
4. Social value				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			No	
5. Rarity				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			No	
6. Representivity				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			Yes	
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			No	
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.			No	
7. Sphere of Significance		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				Yes
8. Significance rating of feature				
1.	Low			Yes
2.	Medium			
3.	High			
9. Field Register Rating				
1.	National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA			
2.	Provincial/Grade 2: High significance - No alteration whatsoever without permit from provincial heritage authority.			
3.	Local/Grade 3A: High significance - Mitigation as part of development process not advised.			
4.	Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site			
5.	Generally protected 4A: High/medium significance - Should be mitigated before destruction			
6.	Generally protected 4B: Medium significance - Should be recorded before destruction			
7.	Generally protected 4C: Low significance - Requires no further recording before destruction			Yes

10.0 CONCLUSIONS AND RECOMMENDATIONS

From a heritage perspective, the proposed project is acceptable and Tsimba Archaeological Footprints would like to request the North West Provincial Heritage Authority to exercise its discretion and offer a conditional approval for the project.

While the graves yards were identified, it was noted that the grave yards fall-out of the proposed development boundaries/footprint. Within the proposed development footprint, no other heritage resources were recorded or identified.

Recommendations and measures for inclusion in the EMP include:

- i. In the event that any cultural heritage resources are discovered during and after the construction phase, operations exposing archaeological and historical residues, including modern graves, should cease immediately pending an evaluation by the heritage specialist. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process (see **Appendix B**).
- ii. A qualified archaeologist should be contracted to conduct an archaeological induction on site before construction begins. The archaeologist should also monitor the project during the construction phase and submit periodic archaeological Watching Briefs to the Provincial Heritage Authority at regular intervals (monthly intervals recommended).
- iii. The developer may not extend the scope of works beyond the given proposed boundaries. In the event that the scope of works extends beyond the given boundary another heritage assessment should be carried out.

1 1.0 REFERENCES

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APPENDIX A: HERITAGE ASSESSMENT OF SIGNIFICANCE

The significance of a site can be modified or added to. Its importance can be increased by communicating the significance to more people through the media or archaeological reports. Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purposes of this report.

- ❖ The main aim in assessing significance is to produce a succinct statement of significance, which summarises an item's heritage values. The statement is the basis for policies and management structures that will affect the item's future.

Table 5: SAHRA's Site Significance classification minimum standards

Filed Rating	Grade	Classification	Recommendation
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.A)		Low Significance	Destruction

Site significance is calculated by combining the following concepts in the given 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:

Table 6: The significance weightings for each potential impact

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8

Table 7: Impact of Significance

<p>It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. (S) is formulated by adding the sum of numbers assigned to Extent (E), Duration (D), and Intensity (I) and multiplying the sum by the Probability.</p> <p>$S = (E+D+M) P$</p>		
<30	Low	Mitigation of impacts is easily achieved where this impact would not have a direct influence on the decision to develop in the area.
30-60	Medium	Mitigation of impact is both feasible and fairly easy. The impact could influence

		the decision to develop in the area unless it is effectively mitigated.
>60	High	Significant impacts where there is difficult. The impact must have an influence on the decision process to develop in the area.
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 material or objects.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Medium (6)	Medium (6)
Probability	Probable (2)	Probable (2)
Significance	Low (24)	Low (16)
Status	Negative	Negative
Reversibility	Not irreversible	Not irreversible
Irreversible loss of resources	Resources were recorded	Resources were recorded
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: Impacts are rated as <30 (Low) Mitigation of impacts is easily achieved where this impact would not have a direct influence on the decision to develop in the area. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.		

APPENDIX B: CHANCE FINDS PROCEDURE (CFP)

What is a Chance Finds Procedure?

The purpose of Archaeological Chance Find Procedure (CFP) is to address the possibility of cultural heritage resources and archaeological and paleontological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required.

A CFP is a tool for the protection of previously unidentified cultural heritage resources during construction and mining. The main purpose of a CFP is to raise awareness of all mine workers on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources. Chance finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Archaeological sites are protected by The National Heritage Resources Act of 1999.

They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities. What are the objectives of the CFP? The objectives of this 'Chance Find Procedure' are to promote preservation of archaeological data while minimizing disruption of construction scheduling. It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Where is a CFP applicable?

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits. Chance finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is

considered to be a valuable instrument when properly implemented. For the CFP to be effective, the mine manager must ensure that all personnel on the proposed mine site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance Find Procedure details the necessary steps to be taken if any culturally significant artefacts are found during mining or construction.

What is the CF Procedure?

The following procedure is to be executed in the event that archaeological material is discovered:

- ☒ All construction activity in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the site.
- ☒ Briefly note the type of archaeological materials you think you've encountered, its location, and if possible, the depth below surface of the find.
- ☒ Report your discovery to your supervisor or if they are unavailable, report to the project Environmental Control Officer (ECO) who will provide further instructions.
- ☒ If the supervisor is not available, notify the ECO immediately. The ECO will then report the find to the Manager who will promptly notify the project archaeologist and SAHRA.
- ☒ Delineate the discovered find/ feature/ site and provide a 25m buffer zone from all sides of the find

APPENDIX C: ZONING INFORMATION

Zoning	Municipal
Primary Rights	Abattoir, Aerodrome, Agriculture, Builders Yard, Cafeteria, Caravan Park, Cemetery, Conference Facility, Conservancy, Conservation Purposes, Crematorium, Cultural Heritage Site, Dwelling Unit, Electrical Purposes, Government Purposes, High Potential/Unique Agricultural, Institution, Kennels, Live Stock Yard, Municipal Purposes, Office Parking Garage, Place of Instruction, Private/Public Open Space, Protected Areas, Railway Recreation, Taxi Holding/Parking Area, Taxi Rank, Telecommunication, Vehicle Workshop
Special Consent	Workshop Private Club, Social Hall
Written Consent	Informal Business, Mobile Dwelling Unit.
Height	As per Scheme- 2 Storeys
Coverage	As determined by the Municipality
Floor Area	As per Scheme
Density	N/A
Parking Provision	As determined by the Municipality
Building Lines	5m on the Street Boundaries; 2m on side and rear boundaries

APPENDIX D: TERMINOLOGY USED IN THE TEXT

The terminology adopted in this document is mainly influenced by the NHRA of South Africa (1999) and the Burra Charter (1979).

Adaptation: Changes made to a place so that it can have different but reconcilable uses.

Artefact: Cultural object (made by humans).

Buffer Zone: Means an area surrounding a cultural heritage which has restrictions placed on its use or where collaborative projects and programs are undertaken to afford additional protection to the site.

Co-management: Managing in such a way as to take into account the needs and desires of stakeholders, neighbours and partners, and incorporating these into decision making through, amongst others, the promulgation of a local board.

Conservation: In relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance as defined. These processes include, but are not necessarily restricted to preservation, restoration, reconstruction and adaptation.

Contextual Paradigm: A scientific approach which places importance on the total context as catalyst for cultural change and which specifically studies the symbolic role of the individual and immediate historical context.

Cultural Resource: Any place or object of cultural significance

Cultural Significance: Means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance of a place or object for past, present and future generations.

Feature: A coincidental find of movable cultural objects.

Grading: The South African heritage resource management system is based on a grading system, which provides for assigning the appropriate level of management responsibility to a heritage resource.

Heritage Resources Management: The utilization of management techniques to protect and develop cultural resources so that these become long term cultural heritage which are of value to the general public.

Heritage Resources Management Paradigm: A scientific approach based on the Contextual paradigm, but placing the emphasis on the cultural importance of archaeological (and historical) sites for the community.

Heritage Site Management: The control of the elements that make up the physical and social environment of a site, its physical condition, land use, human visitors, interpretation etc. Management

may be aimed at preservation or, if necessary, at minimizing damage or destruction or at presentation of the site to the public.

Historic: Means significant in history, belonging to the past; of what is important or famous in the past.

Historical: Means belonging to the past, or relating to the study of history.

Maintenance: Means the continuous protective care of the fabric, contents and setting of a place. It does not involve physical alteration.

Object: Artefact (cultural object)

Paradigm: Theories, laws, models, analogies, metaphors and the epistemological and methodological values used by researchers to solve a scientific problem.

Preservation: Refers to protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary. Preservation is appropriate where the existing state of the fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

Protection: With reference to cultural heritage resources this includes the conservation, maintenance, preservation and sustainable utilization of places or objects in order to maintain the cultural significance thereof.

Place : Means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Reconstruction: To bring a place or object as close as possible to a specific known state by using old and new materials.

Rehabilitation: The repairing and/ or changing of a structure without necessarily taking the historical correctness thereof into account.

Restoration: To bring a place or object back as close as possible to a known state, without using any new materials.

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artefacts, found on a single location.

Sustainable: Means the use of such resource in a way and at a rate that would not lead to its long-term decline, would not decrease its historical integrity or cultural significance and would ensure its continued use to meet the needs and aspirations of present and future generations of people.

APPENDIX E: DEFINITION OF VALUES

Value	Definition
Historic Value	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Scientific Value	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Aesthetic Value	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Social Value	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
Rarity	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage
Representivity	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use function, design or technique) in the environment of the nation, province region or locality.

Table 8: Cultural heritage values

APPENDIX F: RESOURCE LIKELY TO OCCUR WITHIN THESE CONTEXTS AND LIKELY SOURCES OF HERITAGE IMPACTS/ISSUES

HERITAGE CONTEXT	HERITAGE RESOURCES	SOURCES OF HERITAGE IMPACTS/ISSUES
A. PALAEOLOGICAL LANDSCAPE CONTEXT	Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations.	Road cuttings Quarry excavation
B. ARCHAEOLOGICAL LANDSCAPE CONTEXT NOTE: Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.	Archaeological remains dating to the following periods: <ul style="list-style-type: none"> ▪ ESA ▪ MSA ▪ LSA ▪ LSA - Herder ▪ Historical ▪ Maritime history 	<ul style="list-style-type: none"> ▪ Subsurface excavations including ground leveling, landscaping, foundation preparation. ▪ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.
	Types of sites that could occur include: <ul style="list-style-type: none"> ▪ Shell middens 	
	<ul style="list-style-type: none"> ▪ Historical dumps 	
	<ul style="list-style-type: none"> ▪ Structural remains 	
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Historical townscapes/streetscapes. • Historical structures; i.e. older than 60 years • Formal public spaces. • Formally declared urban conservation areas. • Places associated with social identity/displacement. 	<p>A range of physical and land use changes within this context could result in the following heritage impacts/issues:</p> <ul style="list-style-type: none"> • Loss of historical fabric or layering related to demolition or alteration work. • Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development. • Loss of social fabric related to processes of gentrification and urban renewal.