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Selahle Consultancy and Projects (Pty) Ltd

PHASE I ARCHAEOLOGICAL AND CULTURAL HERITAGE IMPACT ASSESSMENT SPECIALIST REPORT FOR THE PROPOSED DESIGN REVIEW, SERVICES RELOCATION AND CONSTRUCTION MONITORING OF BELLE OMBRE-PHASE 2 (OVERFLOW CAR PARK, ELECTRICAL FENCING ETC) WITHIN THE CITY OF TSWANE METROPOLITAN MUNICIPALITY IN GAUTENG PROVINCE.

September, 2022

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DECLARATION

ABILITY TO CONDUCT THE PROJECT

Munyadziwa Magoma is a professional archaeologist, having obtained his BA degree in Archaeology and Anthropology at the University of South Africa (UNISA), an Honours degree at the University of Venda (UNIVEN), and a Master's degree at the University of Pretoria (UP). He is an accredited Cultural Resource Management (CRM), a member of the Association for southern African Professional Archaeologists (ASAPA) and Amafa aKwaZulu-Natali. Munyadziwa is further affiliated with the South African Archaeological Society (SAAS), the Society of Africanist Archaeologists (SAfA), Historical Association of South Africa (HESA); Anthropology Southern Africa (ASA); International Association for Impact Assessment (IAIAsa); International Council on Monuments and Sites (ICOMOS) and the International Council of Archaeozoology (ICAZ). He has more than fifteen years of experience in heritage management, having worked for different CRM organisations and government heritage authorities. As a CRM specialist, Munyadziwa has completed well over 1000 hundred Archaeological Impact Assessments (AIA) for developmental projects situated in several provinces of the Republic of South Africa. The AIAs projects he has been involved with are diverse and include the establishment of the major substations, upgrades, and establishment of roads, and establishment and extension of mines. In addition, he has also conducted Heritage Impact Assessments (HIAs) for the alteration of heritage buildings and the relocation of graves. His detailed CV is available on request.

Ms. Nokusho Ngobeni is a professional archaeologist, with a BA degree in Arts, an Honours degree in Archaeology obtained at the University of Pretoria, and a Master of Science degree in Archaeological Heritage Management at Witwatersrand University. She has experience working at museums, laboratories and in the field handling archaeological materials (curation). Nokusho is a member of the International Association for Impact Assessment (IAIAsa), the Association for Southern African Professional Archaeologists (ASAPA) and the Society of Africanist Archaeologists (SAFA) Nokusho has undertaken several Heritage Impact Assessment and relocation of graves.

INDEPENDENCE

We declare that this report has been prepared independently of any influence as may be specified by all relevant departments, institutions and organization. We act as the independent specialist in this application and will perform the work relating to the application objectively even if this results in views and findings that are not favourable to the applicant. We declare that there are no circumstances that may compromise my objectivity in performing such work, we vow to comply with all relevant Acts, Regulations, and applicable legislation.

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EXECUTIVE SUMMARY

Introduction

At the request of Selahle Consultancy and Projects (Pty) Ltd, Vhubvo Consultancy Cc conducted a Phase I Cultural-Heritage Impact Assessment Study for the proposed Design Review, Services Relocation & Construction Monitoring of Belle Ombre-Phase 2. The proposed project is located within the jurisdiction of the City of Tswane Metropolitan Municipality in Gauteng Province. This assessment is a specialist component that will form part of the Environmental Management Programme and is aimed at investigating the general heritage state of the area affected by the proposed development as well as determining if there is a need to conduct any further investigation from an archaeological perspective. The study aims to advise on mitigation measures should any sites be impacted, these mitigations will, in turn, assist the developer in making decisions on the most appropriate option (in line with the National Heritage Resources Act, 1999 (Act 25 of 1999). To reach a defensible recommendation, both desktop study and field survey were conducted. The desktop study was undertaken through the South African Heritage Resources Information System (for previous Archaeological Impact Assessments conducted in the region of the proposed development, and also for research that has been carried out in the wider area over recent years. The field survey was conducted to validate any assumptions made during the desktop study.

Brief History of the Area

The Stone Age is the period in human history when stone materials were used to produce tools. In South Africa the Stone Age can be divided into three periods, Early (More than 2 million years ago - 250 000 years Ago), Middle (250 000 years ago – 25 000 years ago), and Late (25 000 years ago - AD 200). It is, however, important to note that dates only provide a broad framework for interpretation. This area is home to three known phases of the Stone Age. The Iron Age is the name given to the period of human history when metal was mainly used to produce tools. In South Africa it can be divided into two separate phases. Early (AD 400 - AD 1025) and Late (AD 1025 - AD 1830). Although there are no known Early Iron Age sites in the area, there are several Late Iron Age sites in the area (Bergh 1999: 7 - 8). The Late Iron Age farmers were followed by colonists. The pre-history of the area is evidence through the presence of several farms with rock art engravings (van Schalkwyk, 2012, Morris 1998).

Methodology and Approach

The study method refers to the SAHRA Policy Guidelines for impact assessment, 2012. As part of this impact assessment; the following processes were followed:

- Literature Review: To understand the background archaeology of the area, a background study was undertaken and relevant institutions were consulted. These studies entail the view of archaeological and

heritage impact assessment studies that have been conducted around the proposed area through SAHRIS. In addition, E-journal platforms such as the Journal Storage (J-stor), Google scholars, and History Resource Centre were searched. The University of Pretoria's Library collection was also utilised:

- The field survey was conducted on the **02nd of September 2022** by an archaeologist from Vhubvo.
- The final step involved the recording and documentation of relevant archaeological resources, as well as the assessment of resources in terms of the heritage impact assessment criteria and report writing, as well as mapping and useful recommendations.

The applicable maps, tables, and figures are included as stipulated in the NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (no 107 of 1998).

Impact statement

The impact of the proposed development on archaeological and cultural heritage remains is rated as being low. The probability of locating any important archaeological remains dating to the Stone or Iron Age during the construction of the project is rated as low.

Restrictions and Assumptions

As with any survey, archaeological materials may be under the surface and therefore unidentifiable to the surveyor until they are exposed once construction resume. As a result, should any archaeological/ or gravesite be observed during the construction stage, a heritage specialist monitoring the development must immediately be notified.

Survey Findings and Discussions

The main aim of the survey was to evaluate potential heritage resources that would occur within the boundaries of the proposed area (s), as well as to determine if there is any hamartia that may prevent the proposed development from taking place in any of the proposed study area. The Phase I Archaeological Impact Assessment for the proposed development did not yield any heritage resources within the footprint of the proposed area.

Recommendations and Discussions

Although no archaeological objects were observed during the survey, the client is reminded that these often happen underground, as such should any archaeological material be unearthed accidentally during construction (e.g., excavation), SAHRA should be alerted immediately, and construction activities within a radius of at least 10m of such indicator be stopped. The area should then be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the Environmental Officer and the contractor to protect the site from publicity (i.e., media)

until a mutual agreement is reached between the client and the consultant. It is mandatory to report any incident of human remains encountered to the South African Police Services, SAHRA staff members, and professional archaeologists. Any measure to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law under Section 35(4) and 36(3) of the National Heritage Resources Act, Act 25 of 1999. The developer must induct field workers about archaeology, and steps that should be taken in the case of exposing archaeological materials.

Pre-construction education and awareness training

Prior to construction, contractors should be given training on how to identify and protect archaeological remains that may be discovered during the project. The preconstruction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas. Below are some of the indicators of an archaeological site that may be found during construction:

- Flaked stone tools, bone tools, and loose pieces of flaked stone;
- Ash and charcoal;
- Bones and shell fragments;
- Artefacts (e.g., beads or hearths); and
- Packed stones that might be uncounted underground and might indicate a grave or collapsed stone walling.

In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached between the consultant and the client. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by SAHRA.

Conclusions

A thorough background study and survey of the proposed development was conducted and findings were recorded in line with SAHRA guidelines. As per the recommendations above, there are no major heritage reasons why the proposed development could not be allowed to proceed. It is thus recommended that SAHRA approves the proposed development to proceed subject to the recommendations given above.

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ACRONYMS AND ABBREVIATIONS

AIA	Archaeological Impact Assessment
EMP	Environmental Management Plan
HIA	Heritage Impact Assessment
LIA	Late Iron Age
MIA	Middle Iron Age
EIA	Early Iron Age
HMP	Heritage Management Plan
LSA	Late Stone Age
MSA	Middle Stone Age
ESA	Early Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

GLOSSARY OF TERMS

The following terms used in this Archaeology are defined in the National Heritage Resources Act [NHRA], Act Nr. 25 of 1999, South African Heritage Resources Agency [SAHRA] Policies as well as the Australia ICOMOS Charter *(Burra Charter)*:

Archaeological Material: remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artifacts, human and hominid remains, and artificial features and structures.

Artefact: Any movable object that has been used modified or manufactured by humans.

Conservation: All the processes of looking after a site/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

Cultural Heritage Resources: refers to physical cultural properties such as archaeological sites, palaeolontological sites, historic and prehistorical places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. This includes intangible resources such as religion practices, ritual ceremonies, oral histories, memories indigenous knowledge.

Cultural landscape: "the combined works of nature and man" and demonstrate "the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external".

Cultural Resources Management (CRM): the conservation of cultural heritage resources, management, and sustainable utilization and present for present and the future generations

Cultural Significance: is the aesthetic, historical, scientific, and social value for past, present, and future generations.

Chance Finds: means Archaeological artefacts, features, structures, or historical cultural remains such as human burials that are found accidentally in the context previously not identified during

cultural heritage scoping, screening, and assessment studies. Such finds are usually found during earth-moving activities such as water pipeline trench excavations.

Compatible use: means a use, which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Conservation means all the processes of looking after a place to retain its cultural significance.

Expansion: means the modification, extension, alteration, or upgrading of a facility, structure, or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

Grave: A place of interment (variably referred to as burial), including the contents, headstone, or other marker of such a place, and any other structure on or associated with such place.

Heritage impact assessment (HIA): Refers to the process of identifying, predicting, and assessing the potential positive and negative cultural, social, economic, and biophysical impacts of any proposed project, plan, program or policy which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. The HIA includes recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal, and heritage management and monitoring measures.

Historic Material: remains resulting from human activities, which are younger than 100 years, but no longer in use, including artifacts, human remains, and artificial features and structures.

Impact: the positive or negative effects on human well-being and / or on the environment.

***In situ* material:** means material culture and surrounding deposits in their original location and context, for instance, archaeological remains that have not been disturbed.

Interested and affected parties Individuals: communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

Interpretation: means all the ways of presenting the cultural significance of a place.

Late Iron Age: this period is associated with the development of complex societies and state systems in southern Africa.

Material culture means buildings, structures, features, tools and other artefacts that constitute the remains of past societies.

Mitigate The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

Place: means site, area, land, landscape, building or other work, group of buildings, or other works, and may include components, contents, spaces and views.

Protected area means those protected areas contemplated in section 9 of the NEMPAA and the core area of a biosphere reserve and shall include their buffers.

Public participation process: A process of involving the public in order to identify issues and concerns and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on or raise issues relevant to specific matters.

Setting: means the area around a place, which may include the visual catchment.

Significance: can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e., intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e., level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgments and science-based criteria (i.e., biophysical, physical cultural, social and economic).

Site: a spatial cluster of artefacts, structures, and organic and environmental remains, as residues of past human activity.

1. Introduction

Selahle Consultancy and Projects (Pty) Ltd appointed Vhubvo Consultancy Cc to conduct a Heritage Impact Assessment (HIA) for the proposed Design Review, Services Relocation & Construction Monitoring of Belle Ombre-Phase 2 (Overflow Car Park, Electrical Fencing Etc). This assessment is a specialist component which will provide the necessary input into the Basic Assessment Report, and form part of the Environmental Management Programme (EMPr). The main objective of the assessment is to investigate the general state of heritage within the affected area. The study aims are to outline the archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed development, and to advise on mitigation measures should any be affected and these will in turn assist the developer to decide on the most appropriate options in line with the National Heritage Resource Act, 1999 (Act 25 of 1999).

2. Sites Location and Description

The study area is located in an industrial area on portion of the Farm 636 Belle Ombre within the jurisdiction of City of Tswane Metropolitan Municipality, Gauteng Province. It is situated north of Pretoria central and is about 1.6 km. The site proposed for Belle Ombre Phase 2 car parking and associated infrastructure is approximately 0,39 Ha. There are noticeable roads adjacent to the site connecting to various developments. In addition, the site and surrounding areas are encircled by a railway line. Currently, the proposed study area is not occupied, whilst covered by vegetation. Although, the site seems to have been previously modified (i.e., preceding excavation activities, fire hydrant, burnt grass etc.,).

Summary of Project Location Details

Province:	Gauteng
Municipality:	City of Tswane
Suburb:	Belle Ombre
Proposed development:	Design Review, Services Relocation & Construction Monitoring of Belle Ombre-Phase 2 (Overflow Car Park, Electrical Fencing Etc)

Co-ordinates: 25º 44' 07.39" S 28º 10' 51.22" E.

Figure 1: Earth map of the area proposed for development.

Figure 2: View from the south eastern side.

Figure 3: Closer view of the ground cover. Note some patch(es) of burnt grass.

Figure 4: View from the western side.

Figure 5: Vegetation of the area.

Figure 6: The site is characterised by an escarpment.

Figure 7: Some material of the soil might have moved downslope.

3. Nature and Need of the Proposed Project

The project entails of the construction of new overflow car park and design review of the existing structures, finishing off works and relocation of services for Belle Ombre, located within the City of Tshwane Metropolitan Municipality, Gauteng Province. Construction of a new overflow parking which will include following but not limited to:

- Installation of ClearVu Fence
- Installation of ClearVu Sliding Gate
- Construction of Retaining Wall
- Installation of 5m Energy Poles
- Parking Area with car ports
- Installation of Kerbs
- Construction of Stormwater Structures
- Clearing (with relocation of services) and grubbing of the parking area.
- Mass earthworks (Excavation, Fills and Roadbed)
- Paving with 80mm Interlocking, with 20mm Bedding Sand
- Road marking
- Public lighting

The proposed development is an extension to an existing project, therefore, there would be an extension of works on the existing infrastructure which includes the following but not limited to:

- Installation of ClearVu Sliding Gate
- Installation of ClearVu Fence
- Construction of Refuse Waste Bin
- Construction of Paved Walkways
- Installation of Storm water concrete Manhole Cover
- Clearing and grubbing of the parking area.
- Installation of Cameras
- Installation of Boom Gates
- Construction of Concrete edge beams
- Asphalt road patching
- Paving with 80mm Interlocking, with 20mm Bedding Sand
- Layer works to 450mm Imported Materials.
- Road marking
- Installation of sleeves

Parking is an important and integral part of the transportation system in a metropolitan area. A city must have adequate parking spaces to provide its residents and visitors a place to safely park their cars. Insufficient parking, on the other hand, can result in overflow or queuing on the street network and illegal parking on the sidewalks and in the road reserve. A parking policy and parking provision requirements are essential element of any urban transport plan.

4. Purpose of the Cultural Heritage Study

The purpose of this Archaeological and Cultural Heritage study is to entirely identify and document archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed Design Review, Services Relocation & Construction Monitoring of Belle Ombre-Phase 2, these will, in turn, assist the developer in ensuring proper conservation measure in line with the National Heritage Resource Act, 1999 (Act 25 of 1999). Impact assessments highlight many issues facing sites in terms of their management, conservation, monitoring and maintenance, and the environment in and around the site. Therefore, this study involves the following:

- Identification and recording of heritage resources that may be affected by the proposed construction;

- Providing recommendations on how best to appropriately safeguard identified heritage sites. Mitigation is an important aspect of any development on areas where heritage sites have been identified.

5. Methodology and Approach

Background study introduction

The methodological approach is informed by the 2012 SAHRA Policy Guidelines for impact assessment. As part of this study, the following tasks were conducted: 1) literature review, 2), consultations with the developer and appointed consultants, 3), completion of a field survey and 4), analysis of the acquired data, leading to the production of this report.

Physical survey

The field survey was undertaken on the **2nd of September 2022** by an archaeologist from Vhubvo conducted the survey.

Documentation

The general project area was documented. This documentation included taking photographs using cameras a 10.1 mega-pixel Sony Cybershort Digital Camera. Plotting of finds was done by a Garmin etrex Venture HC.

Restrictions and Assumptions

As with any survey, archaeological materials may be under the surface and therefore unidentifiable to the surveyor until they are exposed once construction resume. As a result, if any archaeological/ or gravesite is observed during construction, a heritage specialist must be notified immediately.

6. Applicable Heritage Legislation

Several legislations provide the legal basis for the protection and preservation of both cultural and natural resources. These include the National Environment Management Act (No. 107 of 1998); Mineral Amendment Act (No 103 of 1993); Tourism Act (No. 72 of 1993); Cultural Institution Act (No. 119 of 1998), and the National Heritage Resources Act (Act 25 of 1999). Section 38 (1) of the National Heritage Resources Act requires that where relevant, an Impact Assessment is undertaken in case where a listed activity is triggered. Such activities include:

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50 m in length; and
(c) any development or other activity which will change the character of an area of land, or water -
(i) exceeding 5 000 m² in extent;
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a Provincial Heritage Resources Authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a Provincial Heritage Resources Authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Section 3 of the National Heritage Resources Act (25 of 1999) lists a wide range of national resources protected under the act as they are deemed to be national estate. When conducting a Heritage Impact Assessment (HIA) the following heritage resources have to be identified:

(a) Places, buildings, structures and equipment of cultural significance

(b) Places to which oral traditions are attached or which are associated with living heritage

(c) Historical settlements and townscapes

(d) Landscapes and natural features of formation of cultural significance

(e) Geological sites of scientific or cultural importance

(f) Archaeological and paleontological sites

(g) Graves and burial grounds including-

(i) ancestral graves

(ii) royal graves and graves of traditional leaders

(iii) graves of victims of conflict

(iv) graves of individuals designated by the Minister by notice in the Gazette

(v) historical graves and cemeteries; and

(vi) other human remains which are not covered by in terms of the Human Tissue Act,1983 (Act No. 65 of 1983)

(h) Sites of significance relating to the history of slavery in South Africa

(i) moveable objects, including -

(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens

(ii) objects to which oral traditions are attached or which are associated with living heritage

(iii) ethnographic art and objects

(iv) military objects

(v) objects of decorative or fine art

(vi) objects of scientific or technological interest; and

(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

Other sections of the Act with a direct relevance to the AIA are the following:

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

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*

Section 36 (3) *No person may, without a permit issued by SAHRA or a provincial heritage resources authority:*

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

- *bring onto or use at a burial ground or grave any excavation equipment, or any equipment which assists in detection or recovery of metals.*

7. Degree of Significance

This category requires a broad, but detailed knowledge of the various disciplines that might be involved. Large sites, for example, may not be very important, but a small site, on the other hand, may have great significance, as it is unique for the region. The following table is used to grade heritage resources.

Table 1: Grading systems for identified heritage resources in terms of National Heritage Resources Act (Act 25 of 1999).

Level	Significance	Possible action
National (Grade I)	Site of National Value	Nominated to be declared by SAHRA
Provincial (Grade II)	Site of Provincial Value	Nominated to be declared by PHRA
Local Grade (IIIA)	Site of High Value Locally	Retained as heritage
Local Grade (IIIB)	Site of High Value Locally	Mitigated and part retained as heritage
General Protected Area A	Site of High to Medium	Mitigation necessary before destruction
General Protected Area B	Medium Value	Recording before destruction
General Protected Area C	Low Value	No action required before destruction

Significance rating of sites

(i) High (ii) Medium (iii) Low

This category relates to the actual artefact or site in terms of its actual value as it is found today, and refers more specifically to the condition that the item is in. For example, an archaeological site may be the only one of its kind in the region, thus its regional significance is high, but there is heavy erosion of the greater part of the site, therefore its significance rating would be medium to low. Generally speaking, the following are guidelines for the nature of the mitigation that must take place as Phase 2 of the project.

High

- This is a 'do not touch' situation, alternative must be sought for the project, examples would be natural and cultural landscapes like the Mapungubwe Cultural Landscape World Heritage Site, or the house in which John Langalibalele resided.
- Certain sites, or features may be exceptionally important, but do not warrant leaving entirely alone. In such cases, detailed mapping of the site and all its features is imperative, as is the collection of diagnostic artefactual material on the surface of the site. Extensive excavations must be done to retrieve as much information as possible before destruction. Such excavations might cover more than half the site and would be mandatory; it would also be advisable to negotiate with the client to see what mutual agreement in writing could be reached, whereby part of the site is left for future research.

Medium

- Sites of medium significance require detailed mapping of all the features and the collection of diagnostic artefactual material from the surface of the site. A series of test trenches and test pits should be excavated to retrieve basic information before destruction.

Low

- These sites require minimum or no mitigation. Minimum mitigation recommended could be a collection of all surface materials and/ or detailed site mapping and documentation. No excavations would be considered to be necessary.

In all the above scenarios, permits will be required from the South African Heritage Resources Agency (SAHRA) or the appropriate PHRA as per the legislation (the National Heritage Resources Act, no. 25 of 1999). Destruction of any heritage site may only take place when the appropriate heritage authority has issued a permit. The following table is used to determine rating system on the receiving environment.

Table 2: Rating System

NATURE
Including a brief description of the impact of the heritage parameter being assessed in the context of the project. This criterion includes a brief written statement of the heritage aspect being impacted upon by a particular action or activity.
TOPOGRAPHICAL EXTENT

This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than 75% chance of occurrence).
REVERSIBILITY		
This describes the degree to which an impact on a heritage parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.

3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which heritage resources will be irreplaceably lost as a result of proposed activity		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resource	The impact will result insignificant loss of resources.
4	Complete loss of resource	The impact is result in a complete loss of all resources.
DURATION		
This describes the duration of the impact on the heritage parameter. Duration indicates the lifetime of a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in span shorter than the construction phase (0-1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0-2 years).

2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2-10 years).
3	Long term	The impact and its effects will continue or last for entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter (10-50 years).
4	Permanent	The only class of the impact that will non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts on the heritage parameter. A cumulative effect/impact is an effect, which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from similar or diverse activities as a result of the project activity in question.		
1	Negligible Cumulative Impact	The impact would result in negligible to no cumulative effects.
2	Low Cumulative Impact	The impact would result in insignificant cumulative effects
3	Medium Cumulative Impact	The impact would result in minor cumulative effects
4	High Cumulative Impact	The impact would result in significant cumulative effects.

MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapsed). Rehabilitation and remediation often impossible. If possible, rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE		

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on heritage parameter.

7. Discussion of (Pre-) History of South Africa

South Africa possesses a rich archaeological record. It has one of the longest sequences of human development in the world. South African scientists have been actively involved in the search of human origins since 1925 when Raymond Dart identified the *Taung* child as an infant halfway between apes and humans. Dart named the remains Austrolopithecus Africanus, southern ape-man, and his work fundamentally changed the focus of human evolution from Europe and Asia to Africa, and it is now widely accepted that humanity originated from Africa, hence reference to Africa as the "cradle of humanity" (Robins et al.1998). In many ways Dart's discovery marked the birth of palaeonthropology as a discipline. The archaeology of South Africa which fits well into the southern African periodisation is broadly divided into Stone Age, Iron Age and the Historical Period.

Stone Age

The Stone Age is the pre-historic period when humans widely used stone for tool making (Robins et al. 1998). As the early ancestors progressed physically, mentally and socially they developed stone tools. These tools are the earliest evidence for culture in southern Africa (Clark & Kuman 2000). The Stone Age began approximately 2.6 million years ago and ended around 20 000 years ago. It is divided into three phases; namely the Early Stone Age, Middle Stone Age and Later Stone Age. It is argued that there are two transitional periods. Noteworthy that the time used for Stone Age is approximate and it differs from one researcher to another (See Robins et al.1998; Korsman & Mayor 1999; Mitchell 2002).

Early Stone Age (ESA)

The Early Stone Age is dominated by two industries; the Oldowan and Acheulian. The Oldowan industry which was the earliest was developed by the earliest members of the genus Homo, such as Homo habilis around 2.6 million years ago. The Oldowan tools which are only found in Africa, and not anywhere else are mainly simple flakes that were struck from cobbles. The assemblage comprises tools such as cobble cores and pebble choppers. They were not task-specific tools, and

one tool could be used for many functions (Wurz 2000). The Oldowan industry was completely replaced by the Acheulian around 1.7 million years ago. Homo ergaster was probably responsible for the manufacture of Acheulian tools in South Africa. Acheulian tools were longer with sharper edges which suggest they could be used for a variety of activities ranging from the butchering of animals, chopping of wood, digging roots, and cracking bones for marrow.

Middle Stone Age (MSA)

The Middle Stone Age artefacts started appearing about 250 000 years ago and these replaced the larger handaxes and cleavers. In contrast to the ESA technique of removing flakes from a core, MSA tools were flakes to start with. These were of a predetermined size and shape. They were made by preparing a core of suitable material and striking off the flake so that it was flaked according to a shape that the toolmaker desired. MSA people made a range of tools from both coarse and fine-grained rock types, sometimes rocks used for tool making were transported considerable distances, probably in bags or containers, as such tool assemblages from some MSA sites tend to lack some of the preliminary cores and contain predominantly finished products like flakes and retouched pieces. The stone toolkit of this period is dominated by elongated, parallel-sided blades as well as triangular flakes. Many MSA sites have evidence of control of fire, before this, rock shelters and caves would have been dangerous for human occupation due to predators (Deacon & Deacon 1999). Besides the introduction of fire, the widespread use of red ochre, probably as body paint, also shows that MSA behavior had become more human. The recent finds of decorated ochre at Blombos and decorated ostrich egg shells at Diepkloof also in the Cape further cements the point. Other sites that have yielded MSA tools in South Africa are Klassies River Mouth, Bloombos, and Border Cave (Deacon & Deacon 1999).

Later Stone Age (LSA)

The Later Stone Age ranges from 20 000 to 2000 years ago. It is important to note that the transition from MSA to LSA did not occur simultaneously in southern Africa. It is described by Deacon (1984) as a period when man refined small blade tools conversely abandoning the MSA prepared-core technique. Anatomically speaking, as the brain gets bigger, tools became smaller and more efficient. Thus, refined artefacts such as thumbnails, convex–edge scrapers, crescents, and bladelets are associated with this period. Other tools of the period are hammers, adzes, bores, grooved stones, hafted tools, and points. The period also saw the introduction of poisoned arrows to enhance the effectiveness of bone points and this led to improved hunting (Walker & Thorp 1997). Faunal evidence suggests that LSA hunter-gatherers trapped and hunted zebras, impala,

warthog, and bovid of various sizes. They also diversified their protein diet by gathering tortoises, marine resources, and land snails (Achatina) in large quantities. In addition to bow-hunting and marine sources collection, human behaviour was recognisably modern in many ways; uniquely traits such as rock art and purposefully burial with ornaments was common practice (Villa *et al.*2012). Rock art in form of paintings and engravings is an important signature of this period. Examples of LSA sites in South Africa are Cottage Cave, and Nelson Bay Cave.

Iron Age

Iron Age is a period in human history when metal was mainly used to produce tools. The period marks the movement of farming communities into South Africa in the first millennium AD, or 2500 years ago (Mitchell 2002:259). The people were agro-pastoralists that settled in the vicinity of water. In terms of material culture, pottery is a dominant and critical component of an Iron Age assemblage. Iron Age archaeologists use pottery to identify the presence and chronology of different cultural groups on sites. Through the study of stylistic traditions related to vessel shape and decoration, the movement, interaction and lineage of cultural groups can be traced (Huffman 1989). Pottery seriation in conjunction with linguistic data has been used by researchers to trace the origin of these people who brought the Iron Age culture. Researchers have traced the origin of the Bantu people with their agro pastoral to what is now the border of Nigeria and Cameroon. These people migrated eastward and southward breaking into two groups. According to Huffman (2007) there were two streams of Early Iron Age expansion in southern Africa, one referred to as the Urewe-Kwale tradition (or the eastern stream) and another one called the Kalundu tradition (or the western stream). Refer to figure 14 below:

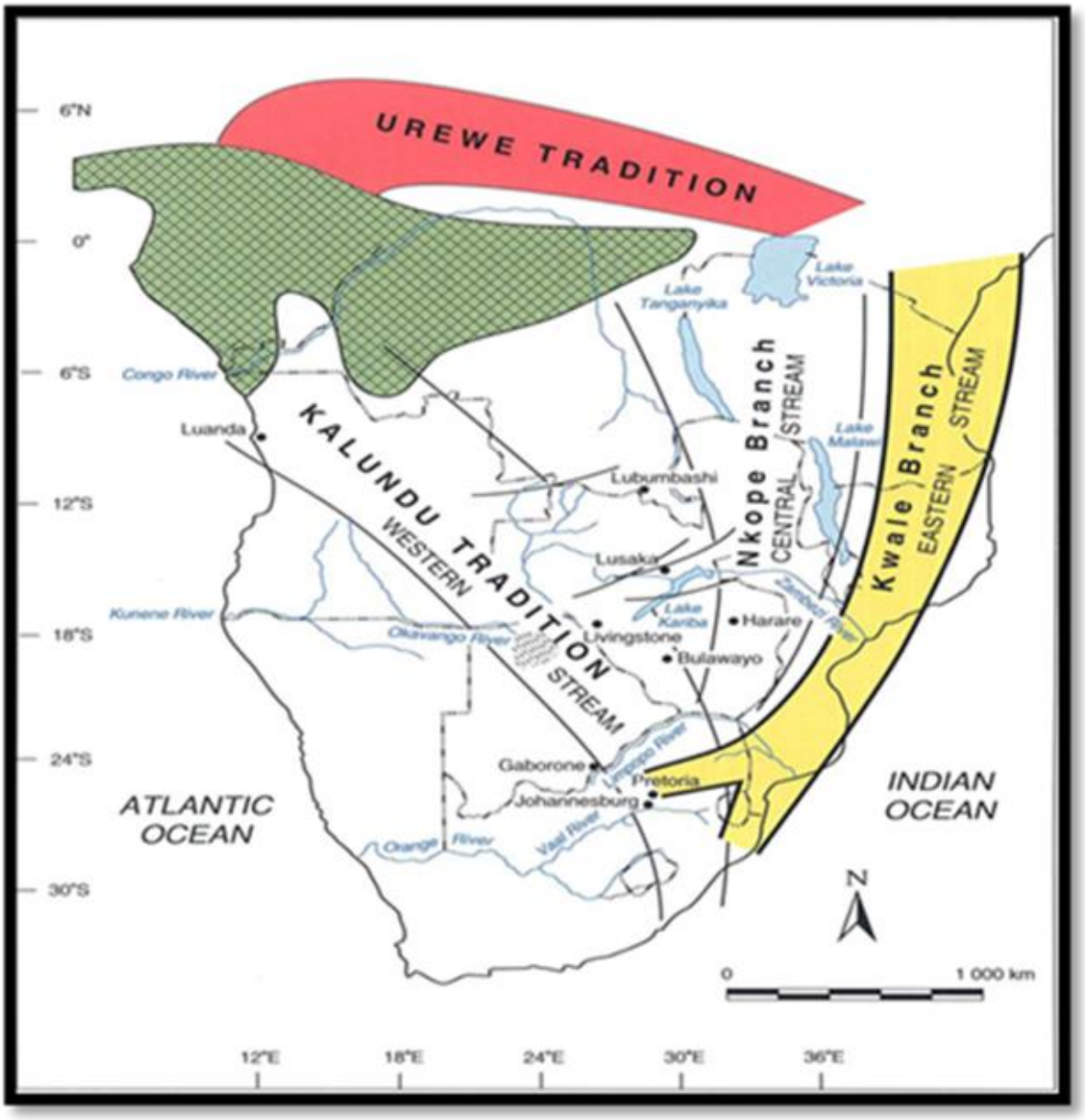

Figure 8: View of the spread of EIA movements, namely Urewe-Kwale and Kalundu traditions in southern Africa (From Huffman 2007:336).

Early Iron Age (EIA)

Early Iron Age dwelling were built-in low-lying areas, such as river valleys and the coastal plain, where forests and savannas facilitated shifting (slash and burn), they also cultivate grains such as cow peas, ground beans, sorghum and millets (Mitchell 2002). Early Iron Age pottery is characterized by large and prominent inverted rims, large neck areas and fine elaborate decorations. Unlike the broad and flat surface grinding stones of Late Iron Age, the Early Iron Age grinding stones is deeper and more lenticular grooves. Well known EIA sites in South Africa include Happy Rest in the Limpopo Province, Lydenburg Heads in Mpumalanga, Broederstroom in North West, and Mzonjani in KwaZulu-Natal Province.

Middle Iron Age (MIA)

The Middle Iron Age stretches from AD900 to 1300 and marks the origins of the Zimbabwe culture. It is marked by a change in emphasis from grain cultivation to cattle herding, however, the importance of cattle cut across all the three ages of the Iron Age period (Huffman 2007). In South Africa a clear shift from the EIA to the MIA is apparent in the Shashe-Limpopo basin where it marks the origins of the Zimbabwe culture where it came with class distinction and sacred leadership (Huffman 2005, 2007). Middle Iron Age sites in the Shashe-Limpopo basin are Schroda, K2 and Mapungubwe.

Late Iron Age (LIA)

The Late Iron Age dates from AD1300 to 1840.Greater focus on economic growth and the increased importance of trade marks the beginning of the LIA. Specialisation in terms of natural resources exploitation and utilisation is a character feature of this period. Iron slags which tend to occur only in certain localities compared to earlier times. Also Later Iron Age settlement were no longer located in rivers valleys but were built on higher ground where homestead which in most instances were made of stone for building purposes would benefit from cooling breezes and good views most probably for strategic purposes. Pottery styles also underwent significant changes; maize was also introduced during this period (Maggs 1980). Well known Late Iron Age sites in South Africa are Thulamela in Limpopo Province, there is also Madikwe in the North West (Huffman 2007).

Historical Period

The Historical period dates from 1600. It deals with Europe's infiltration, settlement, spread and domineering of European influence in southern Africa. Its segments are; Dutch settlement in the Western Cape, the troubled times of Zululand (Mfeqane/Difaqane), Voortrekkers, early missions and the diamond rush. This period also witnessed or saw the compilation of early maps by missionaries, explorers and military personnel.

Bartolomeo Dias was the first European to sail around the southern point of Africa in 1486, he named it "The Cape of Good Hope", nine years later it was Vasco da Gama, however, these Portuguese seafarers were not seriously interested in southern Africa. Nevertheless, the history of southeast part will change forever on the 6th of April 1652. This is when the Dutch seafarer Jan van Riebeeck arrived in Table Bay with his three ships. His mission was not to establish a full-

fledged colony at the Cape but to establish supply station on behalf of the Dutch East India Company (DEIC); however it committed itself when it granted nine company servants freedom in 1657 to establish private farms in the Rondebosch area below the eastern slopes of Table Mountain. One of the reasons why the Dutch settled at the Cape was to access the herds of cattle kept by the Khoi-Khoi, this was first achieved by friendly trade, however it was not long before disputes over land erupted after Free Burghers began to encroach on traditional communal grazing lands. By the early 1700's the Dutch colonists have prevailed (Bergh 1999). These new white settlers will influence the context and content of South African's culture forever, starting with development of Cape Town into an urban centre, however it took many years for it to equal the size of Mapungubwe Kingdom which was attained five centuries earlier (it is also argued that Mapungubwe was during its peak more developed than other areas in Europe). These newcomers also introduced new style of houses consisting of flat roofs and ornate pediments, slaves were also imported from other parts of Africa, i.e., Madagascar, India and East Asia, these slaves who were used as labourers were skilled carpenters and bricklayers as such their skills played an invaluable role in speeding up the progress and development of the Cape. It is important to note that the intermingling between the slaves, Africans and the European population marked the beginning of the coloured community.

One of the most significant historical occurrences in the early history of South Africa was the Mfecane/ Difaqane. Shaka was a shrewd king and he stablished a kingdom that became the strongest throughout the region in the 19th Century. During the Mfecane/Difaqane at the end of the 19th Century, communities who had settled in the KwaZulu-Natal were displaced and forced to move out by wars between the Zulu chiefdoms (Shillington 2013). Many generals were such as Mzilikazi, Soshangane were displaced as Zululand became a desert storm. Shaka's majesty rule came to end in 1828 when he was assassinated by his half-brothers, Dingane and Mhalangana, with Dingane assuming the leadership (Laband 1995). The kingdom became weaker and Cape merchants moved into the region to colonise Natal, and also the Voortrekker who became dissatisfied with British rule, also moved into the area (McKenna 2011).

Over a span of three years starting in 1835, some 12,000 Voortrekkers (pioneers) left the Cape Colony and trekked into the interior by ox wagon. In time, these Voortrekkers who were escaping British policies started to build a unique identity and started calling themselves Afrikaners, they also developed a hybrid language, Afrikaans, which stemmed from high Dutch but incorporated strong French, Malay, German and Black influences. The Afrikaans - speaking descendants of

these people would later simply be called "Boere" (boers or farmers) (Bergh 1999). From the 1820s European missionaries worked tireless to Christianise indigenous communities and to in-culture them in a European way of life, whatever intention these missionaries have undermine African and contributed to displacing African tradition across South Africa. By the 1860s, African states began to weaken as Europeans were eager to exploit Africans as a source of labour and to acquire the fertile area, during this era most African leaders died, e.g.: Makapane (1854); Soshangane (1858); Sekwate (1861); Mswati (1865); Mzilikazi (1868); Moshoeshoe (1870); Mpande (1872); Sekhukhune (1882) and Makhado (1895).

With the discovery of diamonds and gold in the 19th century, urbanisation started in South Africa. People came from all over the world to claim their stake in the diamond fields, these discoveries also made the British to realise that there was great wealth for the taking outside the Cape Colony, and with these discoveries South African black's view of life were further changed. Nevertheless, the 1902 Peace treaty in Vereeniging marked the end of Anglo/Boers war, this gave South African black people peace treaty as they hope for better opportunity after all the suppression and domination by the minority, unfortunately it turned out differently as it made no provisions as far as human rights for black people were concerned, actually the process of segregation increased in South Africa.

8. Discussion of (Pre-) History of the Study Area

Several Heritage Impact Assessment studies have been undertaken in the Tswane Municipality. These assessments have yielded archaeological, cultural and historical resources. This is for instance the work done by van Schalkwyk (2019), documented limited number of MSA tools close to streams, outcrops and ridges on the south east, north east and, west of Bronkhorstspruit. Van Schalkwyk also identified historical structures (i.e., buildings, monuments and bridges) occurring in the urban environment of the town (Bronkhorstspruit). Whilst the Archaeologist and Heritage Consultant (2010), recorded two graveyards for the Eskom Tswane strengthening project in Pretoria. Significantly, all graveyards and graves in South Africa can be considered to be high significance and are protected by law (i.e., NHRA of 25 no. 1999 section 36). A recent archaeological rescue excavation by Vhubvo Consultancy (2020), found plaster flooring, underground kiln and lot of charcoal between Vlakfontein and Mamelodi within Tswane, Kungwini and Ekhurhuleni Municipalities. In addition, there is a known EIA site located at Broederstroom west of Pretoria. The site comprises of the earliest evidence of metal working in the region.

Initially, the region of Pretoria was occupied by the Southern Ndebele people led by Chief Musi. The area was inhabited around 300 to 400 years ago. During the Mfecane or Difaqane period from the 1820 to 1832 change was experienced. This event began as a result of the movement of several Nguni people across the Drakensberg from the province of KwaZulu Natal in order to escape Zulu Expansion.

General Mzilikazi fled from the King Shaka Zulu's army. Along the way he caused so much havoc in various areas such as the Vaal, Orange River up to the south and Mozambique. This includes killing many members of the Bakwena and Ba Hurutsi tribes and taking over their land. He mainly killed men and took young boys and, girls to incorporate them into the Matebele tribe. The General took Pretoria as his home and formed two military kraals on the Apies River: Dinaneni which was located north west of Pretoria on the road to Hartbeespoort Dam and Kungweni which was constructed along the Daspoort range of hills.

In 1836 when Mzilikazi heard of the white invading his land, he launches a force to attack on the Voortrekkers led by Hendrick Portgieter. Mzilikazi launched a second attack on the whites and manage to take the Voortrekkers livestock. Portgieter launched a counter-attack on the Matebele recovering their livestock. The 1837 attack by the Voortrekkers preceded by Dingane was launched against Mzilikazi sending him across Limpopo.

The first white to settle in Pretoria were the Bronkhorst brothers in 1840. They owned the farms called Groenkloof and Elandspoort. Later a trek guided by Andries Pretorius from Ohrigstad settled in the area. In 1853, the son of Pretorius bought two farms called Elandspoort and Koadoespoort. The two farms were declared a town presently known as Pretoria.

There are a number of sites with rich history in Pretoria. Amongst these sites includes the Voortrekker monument a National Heritage Site that opened it doors in 1949 in commemoration of Trekkers who have left the Cape Colony between the mid-1800s, the Union Building also declared a National Heritage Site with historic events such as the inauguration of the late former President Dr. Nelson Rolihlahla Mandela, the Freedom Park Heritage Site built to commemorate all the individuals who gave their lives in the formation of the South Africa's freedom, the church Square at the centre of Pretoria surrounded by the old significant building (the Palace of Justice where Dr. Mandela trial of treason took place as he was later incarcerated, old Capitol Theater, National Bank & Mint, the Tudor Chambers, Old Coouncil Camber & General Post Office), Paul Kruger's House, Melrose House, Sammy Marks House and Pretorial Forts (www.sa-venues.com).

Cultural Landscapes

Over the past twenty years a territorial approach to heritage has shifted emphasis from sites to the recognition of broad territorial attributes of heritage. Within the international discourse which has ensued, a genre of heritage called Cultural Landscapes has emerged. Article 47 of the Operational Guidelines for the Implementation of the World Heritage Convention (2005) defines Cultural Landscapes as:

Cultural landscapes are cultural properties that represent the —combined works of nature and of man" designated in Article 1 of the World Heritage Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

9. Findings and Discussions

The main aim of the survey was to evaluate potential heritage resources that would occur within the boundaries of the proposed area (s), as well as to determine if there is any hamartia that may prevent the proposed development from taking place in any of the proposed study area. The Phase I Archaeological Impact Assessment for the proposed did not yield any heritage resources within the footprint of the surveyed area

9.1 Impact assessment

Below is a description of the proposed development impact ratings. These ratings are for archaeological and cultural heritage sites known to exist in the proposed area, and include Stone and Iron Age, as well as Historical era materials. Note that these impacts are assessed as per **Table 2** above:

Table 3: Anticipated impact ratings.

Alternatives	Ratings
Impact	Low
Nature	Negative
Topographical Extent	The impact will only affect site.
Duration	Long term
Magnitude	Medium
Probability	Possible
Reversibility	Irreversible

Irreplaceable Loss	The impact will not result in the loss of any heritage resources

10. Recommendations

Although no archaeological objects were observed during the survey, the client is reminded that these often happen underground, as such should any archaeological material be unearthed accidentally during the course of construction (e.g., excavation), SAHRA should be alerted immediately, and construction activities be stopped within a radius of at least 10m of such indicator. The area should then be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the Environmental Officer and the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached between the client and the consultant. It is mandatory to report any incident of human remains encountered to the South African Police Services, SAHRA staff members and professional archaeologists. Any measure to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law under Section 35(4) and 36(3) of the National Heritage Resources Act, Act 25 of 1999. The developer must induct field workers about archaeology, and steps that should be taken in the case of exposing archaeological materials.

Pre-construction education and awareness training

Prior to construction, contractors should be given training on how to identify and protect archaeological remains that may be discovered during the project. The preconstruction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas. Below are some of the indicators of an archaeological site that may be found during construction:

- Flaked stone tools, bone tools, and loose pieces of flaked stone;
- Ash and charcoal;
- Bones and shell fragments;
- Artefacts (e.g., beads or hearths); and
- Packed stones that might be uncounted underground and might indicate a grave or collapse stone walling.

In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a

professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached between the consultant and the client. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by SAHRA.

11. Conclusions

A thorough background study and survey of the proposed development was conducted and findings were recorded in line with SAHRA guidelines. As per the recommendations above, there are no major heritage reasons why the proposed development could not proceed. It is thus recommended that SAHRA approves the proposed development to proceed subject to the recommendations given above.

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APPENDIX 1: SITE SIGNIFICANCE

The following guidelines for determining site *significance*were developed by SAHRA in 2003. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

(a) Historic value

- Is it important in the community, or pattern of history?
- Does it have strong or special association with the life or work of a person, group or organization of importance in history?
- Does it have significance relating to the history of slavery?

(b) Aesthetic value

- Is it important in exhibiting particular aesthetic characteristics valued by a community or cultural group?

(c) Scientific value

- Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage?
- Is it important in demonstrating a high degree of creative or technical achievement at a particular period?

(d) Social value

- Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?

(e) Rarity

- Does it possess uncommon, rare or endangered aspects of natural or cultural heritage?

(f) Representivity

- Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects?
- What is the 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?
- Is it important 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?