

Archaeological Impact Assessment

**FOR THE PROPOSED MIXED USE
DEVELOPMENT ON REMAINDER OF
PORTION 4 & 7 OF THE FARM
SCHAAPPLAATS 524 LQ, LEPHALALE,
LIMPOPO PROVINCE**

Prepared For

Lokisa Environmental Consultants

By



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KNOWLEDGEMENT OF RECEIPT

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Executive summary

Site name and location: Proposed mixed land use development on the remainder of portion 4 & 7 of the farm Schaapplaats524 LQ, Lephalale, Limpopo Province.

EIA Consultant: Lokisa Environmental Consultants

Developer: MC Erasmus Eiendomme

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Date of Report: 29 May 2009

1:50 000 map: 2327DA

Findings of the Assessment: One Middle Stone Age site was found around a small pan in the study area. The site and the pan will be preserved as open space in the new development and will not be impacted upon by the proposed development. Since the archaeological site will be preserved t no further action is necessary for this aspect. From an archaeological point of view there is no reason why the development can not commence based on the fact that a 20 meter buffer will be kept around the pan.

If during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.

Disclaimer: *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites like graves could be overlooked during the study. Wits Heritage Contracts Unit and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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1. INTRODUCTION

Wits Heritage Contracts Unit was contracted by Lokisa Environmental Consultants to conduct an Archaeological Impact Assessment for the proposed mixed land use development on the remainder of portion 4 & 7 of the farm Schaapplaats524 LQ, Lephalale, Limpopo Province.

The report forms part of the EIA for the proposed project. The aim of the study is to identify all heritage sites, document, and assess their importance within Local, Provincial and national context. To assess the impact of the proposed project on non renewable heritage resources and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes in Phase 1: Information collection from various sources and consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

During the survey, one site of cultural heritage significance was identified. General site conditions and features on sites were recorded by means of photos, GPS location, and description. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA provincial office for peer review.

1.2 TERMS OF REFERENCE

Conduct brief desktop study to:

Review available literature, previous heritage studies and other relevant information sources. Gather data and compile a background history of the area. Identify all known and recorded archaeological and cultural sites; and determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.

Conduct a field study to:

Consult with locals (where possible) to gather information on oral history, local history, possible informal graves, cemeteries, and other areas of cultural significance. Systematically survey the proposed project area to locate, identify record, photograph and describe sites of archaeological, historical or cultural interest; and record GPS points of significant areas identified. Determine the levels of significance of the various types of heritage resources recorded in the project area;

Reporting

Identify the anticipated impacts, as well as cumulative impacts, of the operational units of the proposed project activity 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 requirements of the local South African Heritage Resources Agency (SAHRA) are met; and ensure that all studies and results are sufficient to comply with ALL the relevant requirements of the Equator Principles, World Bank Standards and IFC Principles and Performance Standards and National legislation. To assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.3 Nature of the development

The scope of the proposed project comprises the mixed uses for the following:

Residential 1, 3 & 4, Business 1, Private and Public Open Space, Special for Offices/Recreation/Medical Consulting Rooms/Service Industries/Institutional, Special for Institutional/Place of Public Worship/Place of Instruction, Special for Hotel/Recreation/Tourism Accommodation, Special for Place of Instruction/Recreation.

The related services that will be required include:

- roads and access,
- storm water reticulation,
- reticulation for sewerage,
- sewerage treatment plant

1.4 Description of study area

The proposed development area is unused in the west and grass cover is very high here. The eastern parts of the property is highly cultivated. Refer to main EIA report for geographical, environmental and demographic issues.

2. APPROACH AND METHODOLOGY

The aim of the study is to extensively cover all data available to compile a background history of the study area; this was accomplished by means of the following phases.

2.1 PHYSICAL SURVEYING

Due to the nature of cultural remains, the majority that occurs below surface, a physical walk through of the study area was conducted. The study area of 260 ha was surveyed over a period of one day, by means of vehicle and extensive surveys on foot.

Aerial photographs and 1:50 000 maps of the area were consulted and literature of the area were studied before undertaking the survey. The purpose of this was to identify topographical areas of possible historic and pre-historic activity. All sites discovered both inside and bordering the proposed development area was plotted on 1:50 000 maps and their GPS co-ordinates noted. 35mm photographs on digital film were taken at all the sites.

3. Abbreviations and definitions

3.1 Abbreviations

<i>ASAPA</i> : Association of South African Professional Archaeologists	<i>BPEO</i> : Best Practicable Environmental Option
<i>CRM</i> : Cultural Resource Management	<i>DEA&DP</i> : Department of Environmental Affairs and Development Planning
<i>DEAT</i> : Department of Environmental Affairs and Tourism	<i>DWAF</i> : Department of Water Affairs and Forestry
<i>EIA practitioner</i> : Environmental Impact Assessment Practitioner	<i>EIA</i> : Environmental Impact Assessment
<i>EIA</i> : Early Iron Age	<i>ESA</i> : Early Stone Age
<i>GPS</i> : Global Positioning System	<i>HIA</i> : Heritage Impact Assessment
<i>I&AP</i> : Interested & Affected Party	<i>IDP</i> : Integrated Development Plan
<i>LSA</i> : Late Stone Age	<i>LIA</i> : Late Iron Age
<i>MSA</i> : Middle Stone Age	<i>MIA</i> : Middle Iron Age
<i>NEMA</i> : National Environmental Management Act	<i>NHR Act</i> : National Heritage Resources Act
<i>PHRA</i> : Provincial Heritage Resources Agency	<i>PSSA</i> : Palaeontologic Society of South Africa
<i>ROD</i> : Record of Decision	<i>SACLAP</i> : South African Council for the Landscape Architect Profession
<i>SAHRA</i> : South African Heritage Resources Agency	<i>SAIA</i> : South African Institute of Architects
<i>SAPI</i> : South African Planning Institute	<i>SDF</i> : Spatial Development Framework

3.2 Definitions

Archaeological resources:

This includes material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;

Rock art:

Being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;

Wrecks:

Being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;

Military:

Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance:

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development:

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;

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- carrying out any works on or over or under a place;
- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or hoardings;
- any change to the natural or existing condition or topography of land;
- any removal or destruction of trees, or removal or vegetation or topsoil

Heritage resources:

This means any place or object of cultural significance

Stakeholders:

A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, authorities and all interested and affected parties.

4. ARCHAEOLOGICAL LEGISLATION AND BEST PRACTICE

Phase 1 Archaeological Impact Assessments or Heritage Impact Assessments are a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources;
- Make recommendations for the appropriate heritage management of these impacts.

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The AIA or HIA, as a specialist sub-section of the Environmental Impact Assessment [EIA] is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 38(1), Section 38(8) the National Environmental Management Act (NEMA) and the Mineral and Petroleum Resources Development Act (MPRDA).

The AIA should be submitted, as part of the EIA, BIA or Environmental Management Plan [EMP], to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and required additional development information, as per the EIA, BIA / EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA. Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists [ASAPA] in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the Southern African Development Community [SADC] region. ASAPA is primarily involved in the overseeing of archaeological ethical practice and standards. Membership is based on proposal and secondment by other professional members.

Phase 1 AIA's are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidance in the developer's decision making process:

Phase 2 archaeological projects are primarily based on salvage / mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations should be done under a permit issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes as minimum requirements reporting back strategies to SAHRA and deposition of excavated material at a accredited repository.

In the event of a site conservation option being preferred by the developer a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

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After mitigation is conducted on a site, a destruction permit must be applied for from SAHRA before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the South African Heritage Resource Agency (SAHRA). The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation. If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

.5. ASSESSMENT CRITERIA

5.1 Evaluation of Heritage sites

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance:

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

5.1.1 Heritage Site Significance and Mitigation Measures

Site significance classification standards prescribed by the South African Heritage Resources Agency (2007) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

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FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade I1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade III A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade III B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Field Rating IV A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Field Rating IV B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Field Rating IV C	Low Significance	No further action necessary before destruction

.5. Archaeological Context of study area

Professor T.N Huffman (2008) conducted a detailed background study of the wider area and a direct extract from his report are given here.

The historical background and timeframe of the study area can be divided into the Stone Age, Iron Age and Historical timeframe. These can be divided as follows:

Earlier Stone Age

Hominids began to make stone tools about 2.6 million years ago. Known as the Oldowan industry, most of the earliest tools were rough cobble cores and simple flakes. The flakes were used for such activities as skinning and cutting meat from scavenged animals. These early artefacts are difficult to recognize and have so far only been found in rock shelters such as the Sterkfontein Caves (Kuman, 1998); they are unlikely to occur in the study area.

At about 1.4 million years ago hominids started producing more recognizable stone artefacts such as hand axes, cleavers and core tools (Deacon & Deacon, 1999). Among other things these Acheulian tools were probably used to butcher large animals such as elephants, rhinoceros and hippopotamus that had died from natural causes. Acheulian artefacts are usually found near the raw material from where they were quarried, at butchering sites, or as isolated finds.

No Acheulian sites are on record near the project area, but isolated finds are possible. However, isolated finds have little value. Therefore, the project is unlikely to disturb a significant site. The presence and significance of finds can be determined by a field investigation.

Middle Stone Age

By the beginning of the Middle Stone Age (MSA), tool kits included prepared cores, parallel-sided blades and triangular points hafted to make spears (Volman, 1984). MSA people had become accomplished hunters by this time, especially of large grazing animals such as wildebeest, hartebeest and eland.

These hunters are classified as early humans, but by 100,000 years ago, they were anatomically fully modern. The oldest evidence for this change has been found in South Africa, and it is an important point in debates about the origins of modern humanity. In particular, the degree to which behaviour was fully modern is still a matter of debate. The repeated use of caves indicates that MSA people had developed the concept of a home base and that they could make fire. These were two important steps in cultural evolution

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(Deacon & Deacon, 1999). Accordingly, if there are caves in the study, they may be sites of archaeological significance.

MSA artefacts have been found in the Olieboompoort Cave to the south of Lephalale (Mason, 1962; M. van der Ryst, 2006) and in the river gravels of the Limpopo, northwest of the project area (Pistorius, 2007). MSA artefacts are common through out southern Africa, but unless they occur in undisturbed deposits, they have little significance. No MSA sites are on record for the study area, but isolated finds are possible.

Later Stone Age

By the beginning of the Later Stone Age (LSA), human behaviour was undoubtedly modern. Uniquely human traits, such as rock art and purposeful burials with ornaments, became a regular practice. These people were the ancestors of the San (or Bushmen).

San rock art has a well-earned reputation for aesthetic appeal and symbolic complexity (Lewis-Williams, 1981). There are no known rock art sites in the project area, but an important site with engravings is on record in the Tuli Block immediately north of the project area and on Nelsonskop 464 LQ to the east (Pistorius, 2007).

In addition to art, LSA sites contain diagnostic artefacts, including microlithic scrapers and segments made from very fine-grained rock (Wadley, 1987). Spear hunting probably continued, but LSA people also hunted small game with bows and poisoned arrows. Important LSA deposits have been excavated in Oliboompoort Cave (Mason, 1962) and other sites in the Waterberg to the south (Van der Ryst, 1998). Sites in the open are usually poorly preserved and therefore have less value than sites in caves or rock shelters. If there are rock shelters or caves in the study area, they may contain LSA sites of significance.

The Iron Age (AD 400 to 1840)

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell, 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The first 1,000 years is called the Early Iron Age.

Archaeologists have not yet resolved the role of a special pottery, known as Bambata, in the spread of pastoralism and mixed farming (Huffman, 2007). Some believe that Bambata pottery represents the vanguard of the Early Iron Age, or alternatively, Khoe pastoralists,

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while others believe it was acquired by LSA people through trade. This pottery has been found at Oliboompoort in LSA deposits (Mason, 1962; Van der Ryst, 2006) and is thus believed to exist in the general region.

As mixed farmers, Iron Age people usually lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle (Huffman, 1982). Usually, these settlements with the 'Central Cattle Pattern' (CCP) were sited near water and good soils that could be cultivated with an iron hoe. For the project area, archaeological sites such as these are unlikely to occur except along river terraces.

When Early Iron Age people moved into southern Africa, the climate was warmer and wetter than today (Tyson & Lindesay, 1992; Holmgren *et al.*, 2003). Throughout the Iron Age, in fact, climatic fluctuations played a significant role in human geography. From about AD 700 to 1000, the climate was colder and drier, and Early Iron Age farmers appear to have retreated from southern Africa to more optimal areas. The climate improved once again between AD 1000 and 1300, and some Iron Age settlements are on record for the general area, for instance alongside the Matlabas River (Aukema in Huffman, 1990) and in Botswana (Biemond, 2005). The Little Ice Age began at about AD 1300, and its impact on farming societies was particularly severe. Another major drought occurred at about AD 1650, and it is unlikely that Iron Age people lived in the project area at these times.

For convenience, archaeologists call the present millennium the Late Iron Age (LIA). The ancestors of present-day Sotho-Tswana and Nguni moved into southern Africa during this period. Sotho-Tswana first lived in Limpopo Province before they moved south. Recognized by distinctive pottery known as the Icon facies of Moloko (Huffman, 2007), 14th to 16th century settlements have been found near Alldays (Hanisch, 1979), while the next facies, known as Letsibogo, is on record on Basinghall Farm in Botswana, immediately north of the project area (Biemond, 2005). It is possible that some Moloko sites could lie within the project area.

In some areas devoid of trees, people with the CCP turned to building in stone to mark internal and external social boundaries. Because of the need for stone, most stonewalled settlements were sited near rocky outcrops. Typically, a rubble core fills the space between well-made inner and outer faces of the wall. Furthermore, most stonewalled settlements are similar in that animal enclosures form a circle around a central open space. Adult cattle stayed in the large enclosures in the centre and calves in the smaller ones. The number of large enclosures reflects the number of cattle-owning families living in the homestead. If there was only one family, then only one kraal (an enclosure for cattle) stood in the centre.

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Some Sotho-Tswana stonewalling is known near the Tswapong Hills in Botswana. Evidence for Iron Age activity will most likely be concentrated along water courses and rocky outcrops but the lack of suitable terrain means that such walling will likely not occur in the project area.

Cultural and Historic

Voortrekkers crossed the Vaal River in 1836, and within a few years, began to spread north. Much of the Limpopo Province contained tsetse fly, and so early Boer farmers didn't settle immediately in the area. Rather the area was used primarily for hunting. Even now, the general region is a big-game area.

Wits Database

No previously recorded sites are in close proximity to the study area. The author conducted several surveys in the area and also consulted with other specialist who worked in and around Lephalale.

Public consultation

Mr. Oscar Muhali and his mother Maria Muhali was consulted about the possibility of graves or other heritage sites in the study area. They both agreed that they are not aware of any sites or places of interest.

5.2 Probability of occurrence of sites

From the above information it is clear that a low-medium possibility of the occurrence of cultural heritage sites could be expected in the study area.

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. Exposed by road cuttings and quarry excavation: *Unknown*

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 can be expected with in the study area:

Stone Age finds

- *ESA: Low Probability*
- *MSA: Medium – High Probability*
- *LSA: Medium Probability*
- *LSA –Herder: Low Probability*

Iron Age Finds

- *EIA: Medium Probability*
- *MIA: Medium Probability*
- *LIA: Low Probability*

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Historical finds

- Historical period: *Low Probability*
- Historical dumps: *Low Probability*
- Structural remains: *Low Probability*

Military Finds

- *Battle and military sites: Low Probability*

Burial/Cemeteries

- *Burials over 100 years: Low Probability*
- *Burials over 60 years: Low-medium Probability*
- *Burials younger than 60 years: Low Probability*

Subsurface excavations including ground levelling, landscaping, and foundation preparation can expose any number of these.

6. ARCHAEOLOGICAL SITES OF SIGNIFICANCE

Two modern dwellings occur within the study area, it is unlikely that these structures will be impacted on by the proposed development. The first structure is a face brick house with outbuilding at coordinate 23° 41'19.97" and. 27° 44'17.02". The second is the current owner's house at coordinates 23° 41'20.13" and. 27° 44'24.72. These sites are less than 60 years old and not of architectural significance and subsequently not protected by legislation.



Figure 1: Modern dwelling

6.1 Site 1

This is the location of a scatter of Middle Stone Age artefacts clustered around a small pan at coordinates 23° 41'22.27" 27° 43' 35.99". The artefacts are on top of the calcrete that is exposed where erosion washed away the thick sand cover.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
Generally Protected B (GP.B)	-	Low – Medium Significance	Recording before destruction



Figure 2: Pan at site 1



Figure 3: Stone Artefacts found at site 1

7. ASSUMPTIONS AND LIMITATIONS

Due to the nature of cultural remains that occur, in most cases, below surface, the possibility remains that some cultural remains may not have been discovered during the survey. Low ground visibility is present on parts of the site due to exceptional high vegetation growth and the possibility of the occurrence of unmarked graves can not be excluded. Although Wits Heritage Contracts unit surveyed the area as thorough as possible, it is incumbent upon the developer to inform the relevant heritage agency should further cultural remains be unearthed or laid open during the process of development.

8. ASSESSMENT AND RECOMMENDATIONS

*A locality map is provided in **Annexure A***

Middle Stone Age (250,000 to 25,000 years ago) artefacts were found at the pan where the calcrete base was exposed. This correlates to similar finds made during CRM surveys (Huffman & van der Walt 2008) in the wider area. This calcrete formed during a cold period with alternating wet and dry episodes that allowed calcium carbonate to precipitate out at the top of the land surface. These artefact assemblages typically include radial cores, triangular points, convergent scrapers, and flakes. They represent what is called a Post Howison's Poort Industry and thus probably date to between 60,000 and 40,000 years ago. These Post Howison's Poort artefacts were made from quartz and quartzite pebbles.

The site and the pan will be preserved as open space in the new development and will not be impacted upon by the proposed development. Since the archaeological site will be preserved no further action is necessary for this aspect. From an archaeological point of view there is no reason why the development can not commence based on the fact that a 20 meter buffer will be kept around the pan.

9. LIST OF PREPARES

Jaco van der Walt. Wits Heritage Contract Unit

10. REFERENCES

10.1 ARCHAEOLOGICAL PAPERS

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ANNEXURE A: Locality Map

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