

# HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED SOUTH GERMISTON X 25  
(A PART OF PORTION 103 OF THE FARM DRIEFONTEIN 87 IR, GAUTENG  
PROVINCE)

**Type of development:**

Residential township with associated uses

**Client:**

Lokisa Environmental

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HCAC Project number 2170403

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April 2017

## APPROVAL PAGE

<b>Project Name</b>	<b>SOUTH GERMISTON X 25 (A PART OF PORTION 103 OF THE FARM DRIEFONTEIN 87 IR)</b>
<b>Report Title</b>	Heritage Impact Assessment South Germiston X25
<b>Authority Reference Number</b>	TBC
<b>Report Status</b>	Final Report
<b>Applicant Name</b>	Ekurhuleni Metropolitan Municipality

	<b>Name</b>	<b>Signature</b>	<b>Qualifications and Certifications</b>	<b>Date</b>
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Date	Report Reference Number	Description of Amendment

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## REPORT OUTLINE

Appendix 6 of GN 982 of 4 December 2014 provides the requirements for specialist reports undertaken as part of the environmental authorisation process. In line with this, Table 1 provides an overview of Appendix 6 together with information on how these requirements have been met.

**Table 1. Specialist Report Requirements.**

<b>Requirement from Appendix 6 of GN 982 of 4 December 2014</b>	<b>Chapter</b>
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(d) Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process	Section 3
(f) Specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(l) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) Description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment	Section 9
(k) Mitigation measures for inclusion in the EMPr	Section 9 and 10
(l) Conditions for inclusion in the environmental authorisation	Section 9 and 10
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9 and 10
(n) Reasoned opinion - (i) as to whether the proposed activity or portions thereof should be authorised; and (ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 10.2
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 6
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	TBC
(q) Any other information requested by the competent authority	Section 10

## Executive Summary


Lokisa Environmental were appointed by Gibb (Pty) Ltd, on behalf of Ekurhuleni Metropolitan Municipality to conduct an Environmental Basic Assessment for the proposed residential township development with associated uses, South Germiston X25 Gauteng. The study area falls under the jurisdiction of the Ekurhuleni Metropolitan Municipality. HCAC was appointed to conduct a Heritage Impact Assessment of the proposed project to determine the presence of cultural heritage sites and the impact of the proposed development on these non-renewable resources. The study area was assessed both on desktop level and by a field survey. The field survey was conducted as a non-intrusive pedestrian survey to cover the extent of the development footprint.

No archaeological sites or material was recorded during the survey and an independent paleontological desktop study (Rossouw 2017) was conducted. Rossouw (2017) determined: *“As far as the palaeontological heritage is concerned, the proposed development may proceed with no further palaeontological assessments required. If, in the unlikely event that localized fossil material is discovered within the overlying superficial sediments during the construction phase of the project, it is recommended that a professional palaeontologist be called in immediately to record and rescue the fossils where necessary.”* Please refer to the full report. No further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed. In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study area. In terms of Section 36 of the Act no burial sites were recorded. However, if any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The study area is surrounded by residential developments and road infrastructure developments and the proposed development will not impact negatively on significant cultural landscapes or views. During the public participation process conducted for the project no heritage concerns were raised.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMP and based on approval from SAHRA:

- Implementation of a chance find procedure.

## Declaration of Independence

<b>Specialist Name</b>	Jaco van der Walt
<b>Declaration of Independence</b>	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> <li>• I act as the independent specialist in this application;</li> <li>• I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;</li> <li>• I declare that there are no circumstances that may compromise my objectivity in performing such work;</li> <li>• I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;</li> <li>• I will comply with the Act, Regulations and all other applicable legislation;</li> <li>• I have no, and will not engage in, conflicting interests in the undertaking of the activity;</li> <li>• I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;</li> <li>• All the particulars furnished by me in this form are true and correct; and</li> <li>• I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.</li> </ul>
<b>Signature</b>	
<b>Date</b>	05/04/2017

### a) Expertise of the specialist

Jaco van der Walt has been practising as a CRM archaeologist for 15 years. He obtained an MA degree in Archaeology from the University of the Witwatersrand focussing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focussing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is an accredited member of ASAPA (#159) and have conducted more than 500 impact assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, KZN as well as he Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC Zambia and Tanzania. Through this he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

## TABLE OF CONTENTS

<b>REPORT OUTLINE.....</b>	<b>4</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>5</b>
<b>DECLARATION OF INDEPENDENCE .....</b>	<b>1</b>
A) EXPERTISE OF THE SPECIALIST.....	1
<b>ABBREVIATIONS.....</b>	<b>5</b>
<b>GLOSSARY .....</b>	<b>5</b>
<b>1..... INTRODUCTION AND TERMS OF REFERENCE:</b>	<b>6</b>
1.1 TERMS OF REFERENCE.....	6
<b>2..... LEGISLATIVE REQUIREMENTS</b>	<b>11</b>
<b>3..... METHODOLOGY</b>	<b>12</b>
3.1 LITERATURE REVIEW.....	12
3.2 GENEALOGICAL SOCIETY AND GOOGLE EARTH MONUMENTS.....	12
3.3 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:.....	12
3.4 SITE INVESTIGATION.....	13
3.5 SITE SIGNIFICANCE AND FIELD RATING.....	15
3.6 IMPACT ASSESSMENT METHODOLOGY .....	16
3.7 LIMITATIONS AND CONSTRAINTS OF THE STUDY .....	17
<b>4..... DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL</b>	<b>17</b>
<b>5..... DESCRIPTION OF THE PHYSICAL ENVIRONMENT:</b>	<b>18</b>
<b>6..... RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:</b>	<b>18</b>
<b>7..... LITERATURE / BACKGROUND STUDY:</b>	<b>19</b>
7.1 LITERATURE REVIEW .....	19
7.2 GENERAL HISTORY OF THE AREA .....	20
7.3 HISTORICAL INFORMATION.....	21



<b>8.....</b>	<b>FINDINGS OF THE SURVEY</b>	<b>28</b>
<b>9.....</b>	<b>DESCRIPTION OF IDENTIFIED HERITAGE RESOURCES (NHRA SECTION 34 -36):</b>	<b>31</b>
9.1	CULTURAL LANDSCAPES, INTANGIBLE AND LIVING HERITAGE. ....	31
9.2	PALAEONTOLOGICAL RESOURCES .....	31
9.3	BATTLEFIELDS AND CONCENTRATION CAMPS.....	31
9.4	POTENTIAL IMPACT .....	32
<b>10.....</b>	<b>RECOMMENDATIONS AND CONCLUSION</b>	<b>32</b>
10.1	CHANCE FIND PROCEDURES .....	33
10.2	REASONED OPINION .....	33
<b>11.....</b>	<b>REFERENCES</b>	<b>34</b>
<b>12.....</b>	<b>APPENDICES:</b>	<b>36</b>
	CURRICULUM VITAE OF SPECIALIST .....	36

#### LIST OF FIGURES

FIGURE 1. PROVINCIAL LOCALITY MAP (1: 250 000 TOPOGRAPHICAL MAP).....	8
FIGURE 2: REGIONAL LOCALITY MAP (1:50 000 TOPOGRAPHICAL MAP).....	9
FIGURE 3. SATELLITE IMAGE INDICATING THE STUDY AREA IN RED (GOOGLE EARTH 2016 ).....	10
FIGURE 4: TRACK LOGS OF THE SURVEY IN BLACK. ....	14
FIGURE 5. 1939 TOPOGRAPHICAL MAP OF THE STUDY AREA.....	23
FIGURE 6. 1954 MAP INDICATING THE STUDY AREA IN YELLOW.....	24
FIGURE 7. 1975 MAP INDICATING THE STUDY AREA IN YELLOW. ....	25
FIGURE 8. 1979 MAP OF THE STUDY AREA. ....	26
FIGURE 9. 1983 MAP WITH THE STUDY AREA INDICATED IN YELLOW.....	27
FIGURE 10. GENERAL SITE CONDITIONS .....	29
FIGURE 11. NEIGHBOURING DEVELOPMENTS.....	29
FIGURE 12. GENERAL SITE CONDITIONS .....	29
FIGURE 13. ILLEGAL DUMPING IN THE STUDY AREA.....	29
FIGURE 14. GENERAL SITE CONDITIONS – POWER LINE.....	30
FIGURE 15. GENERAL SITE CONDITIONS – SOCCER FIELD .....	30

#### LIST OF TABLES

TABLE 1. SPECIALIST REPORT REQUIREMENTS.....	4
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TABLE 2: PROJECT DESCRIPTION ..... 7

TABLE 3: INFRASTRUCTURE AND PROJECT ACTIVITIES ..... 7

TABLE 4: SITE INVESTIGATION DETAILS ..... 13

**ABBREVIATIONS**

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BGG Burial Ground and Graves
BIA: Basic Impact Assessment
CFPs: Chance Find Procedures
CMP: Conservation Management Plan
CRR: Comments and Response Report
CRM: Cultural Resource Management
DEA: Department of Environmental Affairs
EA: Environmental Authorisation
EAP: Environmental Assessment Practitioner
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Programme
ESA: Early Stone Age
ESIA: Environmental and Social Impact Assessment
GIS Geographical Information System
GPS: Global Positioning System
GRP Grave Relocation Plan
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NID Notification of Intent to Develop
NoK Next-of-Kin
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

**GLOSSARY**

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

## 1 Introduction and Terms of Reference:

Heritage Contracts and Archaeological Consulting CC (**HCAC**) has been contracted by Lokisa Environmental to conduct a heritage impact assessment of the proposed infrastructure for a residential township development with associated uses. The report forms part of the Basic Assessment Report (BAR) and Environmental Management Programme Report (EMPR) for the Germiston South X25 development.

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999). The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, review of relevant literature; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey, no heritage sites were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a commenting authority under section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all environmental documents, compiled in support of an Environmental Authorisation application as defined by NEMA EIA Regs section 40 (1) and (2), to be submitted to SAHRA. As such the Basic Assessment report and its appendices must be submitted to the case as well as the EMPr, once it's completed by the Environmental Assessment Practitioner (EAP).

### 1.1 Terms of Reference

#### Field study

Conduct a field study to: (a) locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed towers.

#### Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation, SAHRA minimum standards and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

**Table 2: Project Description**

<b>Size of farm and portions</b>	A part of Portion 103 of the Farm Driefontein 87 IR
<b>Magisterial District</b>	
<b>1: 50 000 map sheet number</b>	2628 AA
<b>Central co-ordinate of the development</b>	26° 13' 04.4562" S, 28° 11' 27.3287" E

**Table 3: Infrastructure and project activities**

<b>Type of development</b>	Residential township with associated uses
<b>Project size</b>	6.297ha
<b>Project Components</b>	The proposed development is to include the following uses. <ul style="list-style-type: none"> <li>· "Residential 4" at 150 units per ha</li> <li>· Public Open Space</li> </ul>



Figure 1. Provincial locality map (1: 250 000 topographical map)

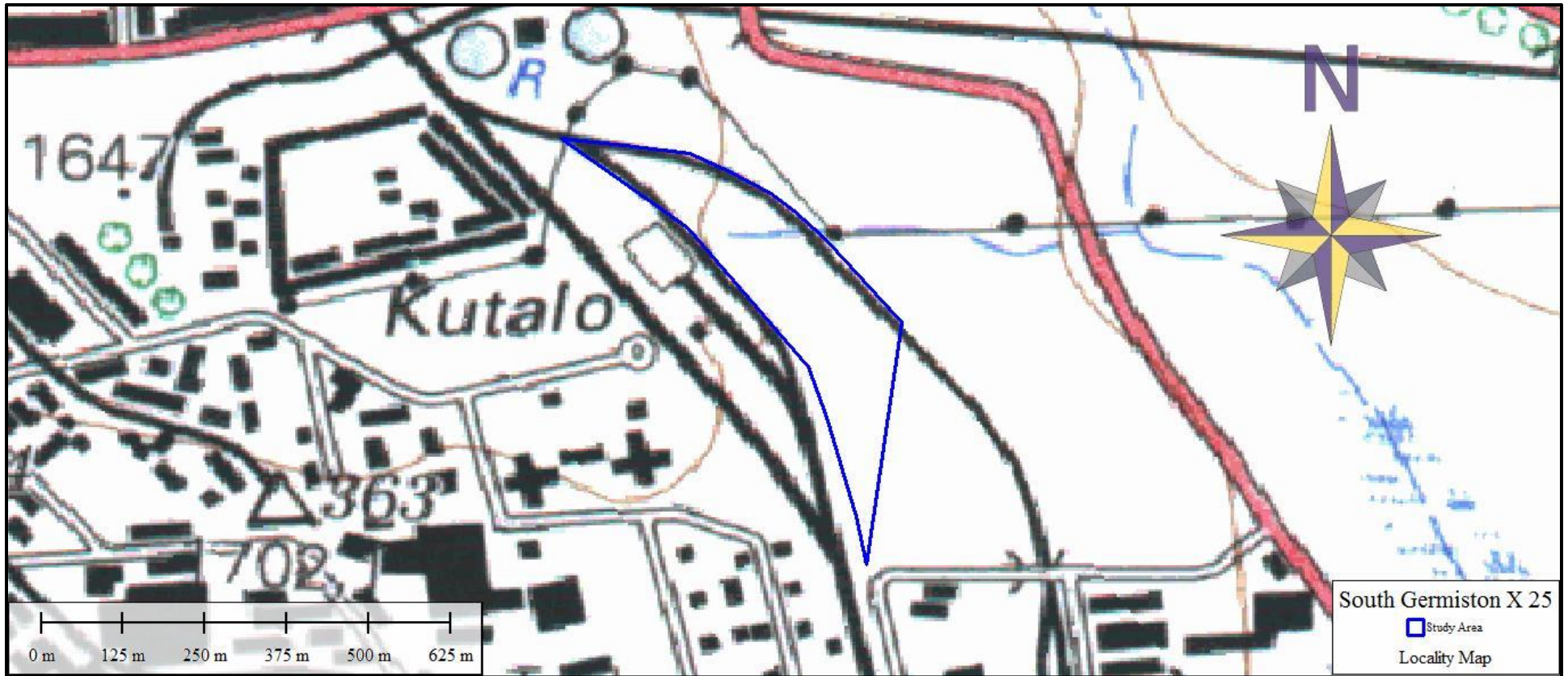


Figure 2: Regional locality map (1:50 000 topographical map).



Figure 3. Satellite image indicating the study area in red (Google Earth 2016 ).



## 2 Legislative Requirements

The HIA, as a specialist sub-section of the EIA, is required under the following legislation:

- National Heritage Resources Act (NHRA), Act No. 25 of 1999
- National Environmental Management Act (NEMA), Act No. 107 of 1998 - Section 23(2)(b)
- Mineral and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 - Section 39(3)(b)(iii)

A Phase 1 HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

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

The HIA should be submitted, as part of the impact assessment report or EMPr, to the PHRA if established in the province or to SAHRA. SAHRA will ultimately be responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the impact assessment report and/or EMPr, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level). Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

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

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

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

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

After mitigation of a site, a destruction permit must be applied for with SAHRA by the applicant before development may proceed.

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

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

### **3 METHODOLOGY**

#### **3.1 Literature Review**

A brief survey of available literature was conducted to extract data and information on the area in question to provide general heritage context into which the development would be set. This literature search included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

#### **3.2 Genealogical Society and Google Earth Monuments**

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the field work phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

#### **3.3 Public Consultation and Stakeholder Engagement:**

Stakeholder engagement is a key component of any BAR process, it involves stakeholders interested in, or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process was to capture and address any issues raised by community members and other stakeholders during key stakeholder and public meetings. The process involved:

- Placement of advertisements and site notices
- Stakeholder notification (through the dissemination of information and meeting invitations);
- Stakeholder meetings undertaken with I&APs;
- Authority Consultation

- The compilation of a Basic Assessment Report (BAR).
- The compilation of a Comments and Response Report (CRR).

### 3.4 Site Investigation

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

**Table 4: Site Investigation Details**

	<b>Site Investigation</b>
Date	1 April 2017
Season	Summer –vegetation in the study area is high hampering archaeological visibility. The impact area was however sufficiently covered (Figure 4) to adequately record the presence of heritage resources.



Figure 4: Track logs of the survey in black.

### 3.5 Site Significance and Field Rating

Section 3 of the NHRA distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- Its importance in/to the community, or pattern of South Africa's history;
- Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- Sites of significance relating to the history of slavery in South Africa.

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed project the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface. This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance with cognisance of Section 3 of the NHRA:

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

In addition to this criteria field ratings prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 10 of this report.

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

### 3.6 Impact Assessment Methodology

The criteria below are used to establish the impact rating on sites:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
  - \* the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
  - \* the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
  - \* medium-term (5-15 years), assigned a score of 3;
  - \* long term (> 15 years), assigned a score of 4; or
  - \* permanent, assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- the **status**, which will be described as either positive, negative or neutral.
- the degree to which the impact can be reversed.
- the degree to which the impact may cause irreplaceable loss of resources.
- the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:

$$S=(E+D+M)P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

### **3.7 Limitations and Constraints of the study**

The authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Similarly the depth of the deposit of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this Impact Assessment.

## **4 Description of Socio Economic Environmental**

The 2012 – 2013 Integrated Development Plan highlighted the following Socio Economic issues in the Ekurhuleni Metropolitan Municipality, the poverty rate was at 28.3% and the unemployment rate was at 30.7% and GiniCoefficient at 0.62%. Reports also suggest that only 8% of Ekurhuleni's population has a post-matric qualification, This suggests a mismatch between the demand for labour and the skills available in the economy. Basic services such as water and sanitation as well as the provision of housing will provide much needed improvement of conditions as well as create employment opportunities.

## 5 Description of the Physical Environment:

The study area measures approximately 6ha in size and is situated in between the residential suburb of South Germiston Extension 9 to the east and the Industries East industrial complex to the west. It is bordered by the Kutalo Station railway line on the west, Kutalo Road to the north and Henderson Road to the south. Several small roads border the property on the eastern side.

The proposed site is mostly open with several access points from the eastern side. An open, informal soccer field is situated within the central parts of the study area. A maze of fenced off, informal gardens and small fields is surrounding the soccer field and these gardens and fields occupy a large part of the proposed study area. The rest of the area is overgrown with grass, weeds and other vegetation. A cluster of trees is situated directly to the north of the soccer field.

Several tracks cross the study area as people commute to work or back home. A disused railway line is situated partly along the eastern boundary of the proposed study area and a big power line also crosses the northern section of it. Several mounds of illegally dumped material were also noticed on the property.

The vegetation and landscape is described by Mucina and Rutherford (2006) as Soweto Highveld Grassland, a gently moderate undulating landscape on the Highveld plateau supporting short to medium high, dense tufted grassland dominated by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon conturus* and *Tristachya leucothrix*. The vegetation unit is considered endangered and only a few patches are conserved in statutory reserves and a few private nature reserves.

## 6 Results of Public Consultation and Stakeholder Engagement:

Adjacent landowners and the public at large were informed of the proposed activity as part of the BA process. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process. No heritage concerns were raised.



## 7 Literature / Background Study:

### 7.1 Literature Review

The following CRM reports were conducted in the greater area and were consulted for this report:

Author	Year	Project	Findings
Prins, F.E.	2008	Cultural Heritage Impact Assessment Of The Delmore Park, Extension 7 Development	No heritage features were identified.
Birkoltz, P.	2011	Phase 1 HIA Reiger Ext 16 Boksburg, Gauteng.	No heritage features were identified.
Nel J	2012	Heritage Statement for the Lycaste Sand Dump 4/A/6 Dump	No heritage features were identified.
Higgitt, N. & Nel, J.	2015	Prospecting Right and Environmental Authorisation Application for the 4L40 Slimes Dam on R/E Driefontein 85 IR	Historical dump and slimes dam.

#### 7.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated close to the study area.

## 7.2 General History of the area

### 7.2.1 Archaeology of the area

#### 7.2.1.1 *The Stone Age*

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contain sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. The three main phases can be divided as follows;

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

There is evidence of the use of the larger area by Stone Age communities for example along the Kliprivier where ESA and MSA tools were recorded. The greater study area is located in the vicinity of the Linksfield and Primrose Middle Stone Age terrains (Bergh 1999: 4-8). For the Later Stone Age some petroglyphs occur to the south at Redan as well as along the Vaal River (Bergh 1999).

#### 7.2.1.2 *The Iron Age*

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

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

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living.

Extensive Stone walled sites are recorded at Klipriviers Berg Nature reserve belonging to the Late Iron Age period. A large body of research is available on this area. These sites (Taylor's Type N, Mason's Class 2 & 5) are now collectively referred to as Klipriviersberg (Huffman 2007).

These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites date to the 18th and 19th centuries and were built by people in the Fokeng cluster. In this area, the Klipriviersberg walling would have ended at about AD 1823, when Mzilikazi entered the area (Rasmussen 1978). This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi.

### 7.3 Historical Information

The Difaqane (Sotho), or Mfekane (“the crushing” in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820’s until the late 1830’s (Bergh 1999: 10). It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka’s Zulus to attack other tribes. (Bergh 1999: 14; 116-119) It seems that, in 1827, Mzilikazi’s Ndebele started moving through the area where Johannesburg is located today. This group went on raids to various other areas in order to expand their area of influence. (Bergh 1999: 11)

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720’s.

It was however only by the late 1820’s that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent (Ross 2002: 39). By 1939 to 1940, farm boundaries were drawn up in an area that includes the present-day Johannesburg and Krugersdorp (Bergh 1999: 15).

### 7.3.1 Anglo-Boer War

Two incidents of the Anglo Boer War took place in the greater study area.

An Anglo Boer War battle known as the Battle of Doornkop took place in the area on 29 May 1900. The British were advancing toward Johannesburg led by General John French. De La Rey and his men held the Klipriviersberg Ridge for the first two days but on the third day the Boers were outflanked by French's cavalry to the West, where General Sarel Oosthuizen's commando was forced to withdraw. This opened the road to Johannesburg and the British took the city peacefully on 30 May 1900 (Bikholtz 2013). Their route would have passed a few kilometers from the present study area.

Huffman (2008) recorded several sangers dating to the Boer war close to the study area on a ridge. On 18 February 1901 a British train was held up by a Boer Commando along the railway line between the Klip River and Natalspruit Stations ([www.vaalmeander.co.za](http://www.vaalmeander.co.za)) (Wallace, 1976). While Wallace (1976) states that the train was loaded with food and had been held up, the Vaal Meander website indicates that the train was derailed within the boundaries of the farm Palmietfontein after which a machine gun, cavalry greatcoats, saddles and other supplies were taken (Birkholtz 2014).

### 7.3.2 History of Germiston

Germiston was established during the gold rush when two prospectors, John Jack from the farm of Germiston near Glasgow and August Simmer from Vacha in Germany, found pay dirt on the farm of Elandsfontein. The men made fortunes and the town was established next to the mine. Germiston still has historic buildings including the St Andrew's Presbyterian Church, built in 1905, as well as the St Boniface's Church, designed by Sir Herbert Baker and built in 1910 (this is the second church on the site, as the Anglican Parish was founded in 1897). The Dominican St Catherine's Convent was founded in the city centre in 1908. It was later relocated to the suburbs of Parkhill Gardens (1940s – 1960s).

In 1921 the world's largest gold refinery, the Rand Refinery, was established at Germiston. Seventy percent of the Western World's gold passes through this refinery.

Germiston is also the location of Rand Airport, at one time one of the busiest airports in Africa. Two of the earlier Boeing 747 Jumbo Aircraft acquired by SAA are on permanent display in the museum (<http://heloman.harcourts.co.za/Home/Our-Community/History-on-Germiston/3627>).

7.3.3 Maps of the area under investigation

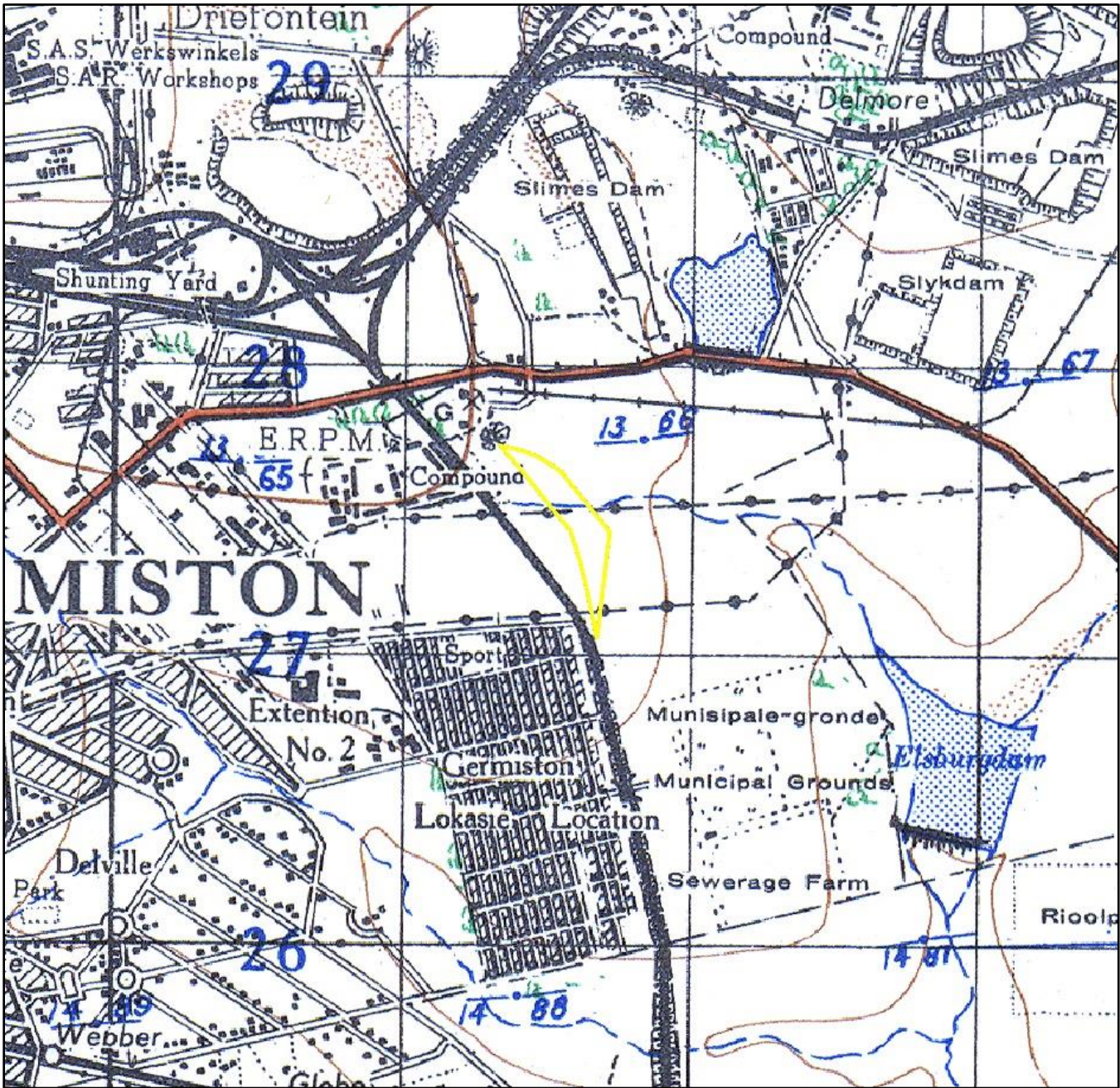


Figure 5. 1939 Topographical map of the study area



Figure 6. 1954 Map indicating the study area in yellow.

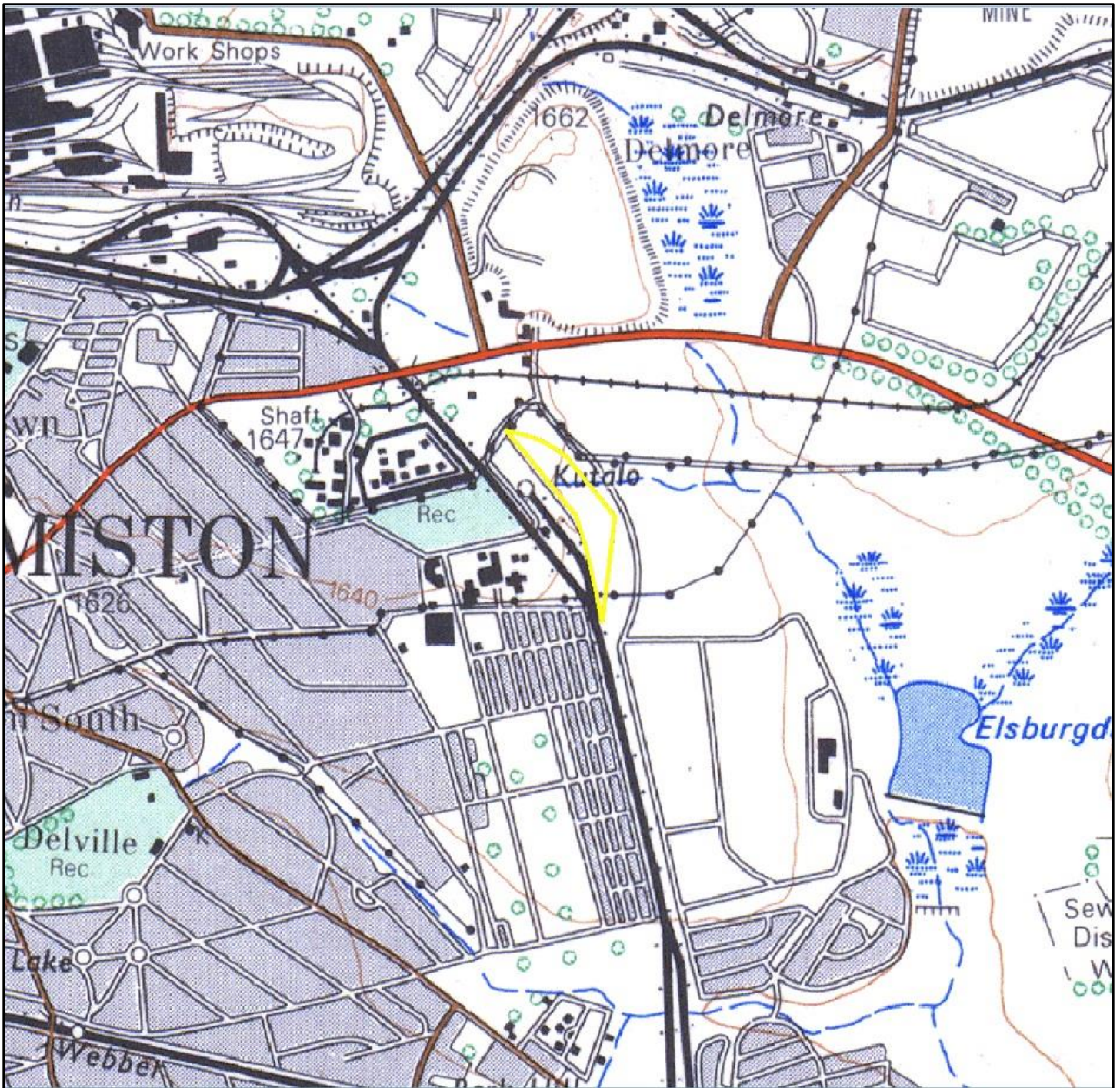


Figure 7. 1975 map indicating the study area in yellow.



Figure 8. 1979 map of the study area.





Figure 9. 1983 map with the study area indicated in yellow.

## 8 Findings of the Survey

It is important to note that only the development footprint was surveyed. The study area measures approximately 6ha in size and is situated in between the residential suburb of South Germiston Extension 9 to the east and the Industries East industrial complex to the west. It is bordered by the Kutalo Station railway line on the west, Kutalo Road to the north and Henderson Road to the south. Several small roads border the property on the eastern side.

The proposed site is mostly open with several access points from the eastern side. An open, informal soccer field is situated within the central parts of the study area. A maze of fenced off, informal gardens and small fields is surrounding the soccer field and these gardens and fields occupy a large part of the proposed study area. The rest of the area is overgrown with grass, weeds and other vegetation. A cluster of trees is situated directly to the north of the soccer field.

Several tracks cross the study area as people commute to work or back home. A disused railway line is situated partly along the eastern boundary of the proposed study area and a big power line also crosses the northern section of it. Several mounds of illegally dumped material were also noticed on the property. The study area is largely disturbed due to the construction of the railway lines and power line as well as the gardening activities across the site.

Nothing of heritage value or significance was identified within the proposed study area.



Figure 10. General site conditions



Figure 11. Neighbouring developments.



Figure 12. General site conditions



Figure 13. Illegal dumping in the study area



Figure 14. General site conditions – power line



Figure 15. General Site conditions – soccer field

## 9 Description of Identified Heritage Resources (NHRA Section 34 -36):

No sites or finds of any heritage value or significance were identified within the proposed study area.

### 9.1 Cultural Landscapes, Intangible and Living Heritage.

Long term impact on the cultural landscape is considered to be negligible as the surrounding area consists of a densely-developed zone. Visual impacts to scenic routes and sense of place are also considered to be low due to the extensive developments in the area.

### 9.2 Palaeontological Resources

Rossouw (2017) indicated: “*The site is underlain by palaeontologically insignificant quartzites and conglomerates of the Turfontein Subgroup (Central Rand, Witwatersrand Supergroup) (Jonathan 1990; Johnson et al. 2006). There is currently no record of Quaternary vertebrate fossils or sites found in the overlying superficial sediments (colluvium, residual soils) in and around the area and the likelihood of impact on such remains resulting from the proposed development is considered to be very low. As far as the palaeontological heritage is concerned, the proposed development may proceed with no further palaeontological assessments required. If, in the unlikely event that localized fossil material is discovered within the overlying superficial sediments during the construction phase of the project, it is recommended that a professional palaeontologist be called in immediately to record and rescue the fossils where necessary*”. Please refer to the report conducted by Rossouw (2017) – Annexure A.

### 9.3 Battlefields and Concentration Camps

There are no battlefields or related concentration camp sites located in the study area. The greater study area was however affected by the political violence that occurred in the late 1980s and early 1990s (Birkholtz 2014) including the Reiger Park Consumer Boycott.

## 9.4 Potential Impact

### 9.4.1 Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of road infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

### 9.4.2 Construction Phase

During this phase the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

### 9.4.3 Operation Phase:

No impact is envisaged for the recorded heritage resources during this phase.

Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. In the case of the development, it will, with the recommended mitigation measures and management actions, not impact any heritage resources directly. However this and other projects in the area could have an indirect impact on the heritage landscape. The lack of any heritage resources in the immediate area minimises additional impact on the landscape.

## 10 Recommendations and conclusion

No archaeological sites or material was recorded during the survey and a paleontological desktop study. Rossouw (2017) determined: *“As far as the palaeontological heritage is concerned, the proposed development may proceed with no further palaeontological assessments required. If, in the unlikely event that localized fossil material is discovered within the overlying superficial sediments during the construction phase of the project, it is recommended that a professional palaeontologist be called in immediately to record and rescue the fossils where necessary.”* Therefore, no further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed. In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study area. In terms of Section 36 of the Act no burial sites were recorded. However, if any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The study area is surrounded by residential developments and road infrastructure developments and the proposed development will not impact negatively on significant cultural landscapes or views. During the public participation process conducted for the project no heritage concerns was raised.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that the following chance find procedure are implemented as part of the EMP and based on approval from SAHRA

## 10.1 Chance Find Procedures

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

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

## 10.2 Reasoned Opinion

The impact of the proposed project on heritage resources is considered low and no further pre-construction mitigation in terms of archaeological resources is required based on approval from SAHRA. Furthermore, the socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures (i.e. chance find procedure) are implemented for the project.

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**12 Appendices:****Curriculum Vitae of Specialist**

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**Education:**


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**Particulars of degrees/diplomas and/or other qualifications:**

**Name of University or Institution:** University of Pretoria  
**Degree obtained** : BA Heritage Tourism & Archaeology  
**Year of graduation** : 2001

**Name of University or Institution:** University of the Witwatersrand  
**Degree obtained** : BA Hons Archaeology  
**Year of graduation** : 2002

**Name of University or Institution** : University of the Witwatersrand  
**Degree Obtained** : MA (Archaeology)  
**Year of Graduation** : 2012

**Name of University or Institution** : University of Johannesburg  
**Degree** : PhD  
**Year** : Currently Enrolled

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**EMPLOYMENT HISTORY:**


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2011 – Present: **Owner – HCAC (Heritage Contracts and Archaeological Consulting CC).**  
2007 – 2010 : **CRM Archaeologist**, Managed the Heritage Contracts Unit at the University of the Witwatersrand.  
2005 - 2007: **CRM Archaeologist**, Director of Matakoma Heritage Consultants  
2004: **Technical Assistant**, Department of Anatomy University of Pretoria  
2003: **Archaeologist**, Mapungubwe World Heritage Site  
2001 - 2002: **CRM Archaeologists**, For R & R Cultural Resource Consultants, Polokwane  
2000: **Museum Assistant**, Fort Klapperkop.

**Countries of work experience include:**

Republic of South Africa, Botswana, Zimbabwe, Mozambique, Tanzania, The Democratic Republic of the Congo, Lesotho and Zambia.

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**SELECTED PROJECTS INCLUDE:**

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**Archaeological Impact Assessments (Phase 1)**

Heritage Impact Assessment Proposed Discharge Of Treated Mine Water Via The Wonderfontein Spruit Receiving Water Body Specialist as part of team conducting an Archaeological Assessment for the Mmamabula mining project and power supply, Botswana

Archaeological Impact Assessment Mmamethlake Landfill

Archaeological Impact Assessment Libangeni Landfill

**Linear Developments**

Archaeological Impact Assessment Link Northern Waterline Project At The Suikerbosrand Nature Reserve

Archaeological Impact Assessment Medupi – Spitskop Power Line,

Archaeological Impact Assessment Nelspruit Road Development

**Renewable Energy developments**

Archaeological Impact Assessment Karoshoek Solar Project

**Grave Relocation Projects**

Relocation of graves and site monitoring at Chloorkop as well as permit application and liaison with local authorities and social processes with local stakeholders, Gauteng Province.

Relocation of the grave of Rifle Man Maritz as well as permit application and liaison with local authorities and social processes with local stakeholders, Ndumo, Kwa Zulu Natal.

Relocation of the Magolwane graves for the office of the premier, Kwa Zulu Natal

Relocation of the OSuthu Royal Graves office of the premier, Kwa Zulu Natal

**Phase 2 Mitigation Projects**

Field Director for the Archaeological Mitigation For Booyensdal Platinum Mine, Steelpoort, Limpopo Province. Principle investigator Prof. T. Huffman

Monitoring of heritage sites affected by the ARUP Transnet Multipurpose Pipeline under directorship of Gavin Anderson.

Field Director for the Phase 2 mapping of a late Iron Age site located on the farm Kameelbult, Zeerust, North West Province. Under directorship of Prof T. Huffman.

Field Director for the Phase 2 surface sampling of Stone Age sites effected by the Medupi – Spitskop Power Line, Limpopo Province

**Heritage management projects**

Platreef Mitigation project – mitigation of heritage sites and compilation of conservation management plan.

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**MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:**


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- Association of Southern African Professional Archaeologists. Member number 159  
Accreditation:
  - Field Director                      Iron Age Archaeology
  - Field Supervisor                  Colonial Period Archaeology, Stone Age  
Archaeology and Grave Relocation
- Accredited CRM Archaeologist with SAHRA
- Accredited CRM Archaeologist with AMAFA
- Co-opted council member for the CRM Section of the Association of Southern African Association Professional Archaeologists (2011 – 2012)

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**PUBLICATIONS AND PRESENTATIONS**


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- A Culture Historical Interpretation, Aimed at Site Visitors, of the Exposed Eastern Profile of K8 on the Southern terrace at Mapungubwe.
  - J van der Walt, A Meyer, WC Nienaber
  - Poster presented at Faculty day, Faculty of Medicine University of Pretoria 2003
- 'n Reddingsondersoek na Anglo-Boereoorlog-ammunisie, gevind by Ifafi, Noordwes-Provinsie. South-African Journal for Cultural History 16(1) June 2002, with A. van Vollenhoven as co-writer.
- Fieldwork Report: Mapungubwe Stabilization Project.
  - WC Nienaber, M Hutten, S Gaigher, J van der Walt
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2004
- A War Uncovered: Human Remains from Thabantšho Hill (South Africa), 10 May 1864.
  - M. Steyn, WS Boshoff, WC Nienaber, J van der Walt
  - Paper read at the 12<sup>th</sup> Congress of the Pan-African Archaeological Association for Prehistory and Related Studies 2005
- Field Report on the mitigation measures conducted on the farm Bokfontein, Brits, North West Province .
  - J van der Walt, P Birkholtz, W. Fourie
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2007
- Field report on the mitigation measures employed at Early Farmer sites threatened by development in the Greater Sekhukhune area, Limpopo Province. J van der Walt
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2008
- Ceramic analysis of an Early Iron Age Site with vitrified dung, Limpopo Province South Africa.
  - J van der Walt. Poster presented at SAFA, Frankfurt Germany 2008

- Bantu Speaker Rock Engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga (*In Prep*)
  - J van der Walt and J.P Celliers
- Sterkspruit: Micro-layout of late Iron Age stone walling, Lydenburg, Mpumalanga. W. Fourie and J van der Walt. A Poster presented at the Southern African Association of Archaeologists Biennial Conference 2011
- Detailed mapping of LIA stone-walled settlements' in Lydenburg, Mpumalanga. J van der Walt and J.P Celliers
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Bantu-Speaker Rock engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga. J.P Celliers and J van der Walt
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Pleistocene hominin land use on the western trans-Vaal Highveld ecoregion, South Africa, Jaco van der Walt.
  - J van der Walt. Poster presented at SAFA, Toulouse, France. Biennial Conference 2016

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**REFERENCES:**

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1. Prof Marlize Lombard      Senior Lecturer, University of Johannesburg, South Africa  
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University of the Witwatersrand
3. Alex Schoeman      University of the Witwatersrand  
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