Archaeological Impact Assessment

FOR THE PROPOSED COAL MINE ON THE FARM LEEUFONTEIN 48 IS, DISTRICT ERMELO, MPUMALANGA PROVINCE

Prepared For

Metago Environmental Engineers (Pty) Ltd

By

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VERSION 1.0
13 APRIL 2009

KNOWLEDGEMENT OF RECEIPT

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CONTRACTS UNIT

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SIGNATURE: _____

Executive summary

Site name and location: Proposed coal mine on portion 17 of the farm Leeufontein 48 IS, District Ermelo, Mpumalanga Province.
EIA Consultant: Metago Environmental Engineers (Pty) Ltd

Heritage Consultant: Wits Heritage Contracts Unit. University of the Witwatersrand, School of Geography, Archaeology and Environmental Studies, Private Bag 3, P.O Wits 2050,Tel: +27 82 373 8491. E –mail jaco.heritage@gmail.com.

Date of Report: 13 April 2009

1:50 000 map: 2629 AB

Findings of the Assessment: No heritage significant sites were identified during the survey. A search on the archaeological Wits data base also yielded no known sites within the study area.

From a Heritage point of view there is no reason why the development can not commence.

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.*

Heritage Contracts Unit the full price for the work as agreed, shall be entitled to use for its own benefit and for the specified project only:

- The results of the project;
- The technology described in any report
- Recommendations delivered to the Client.

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FIGURES

.1. INTRODUCTION

Wits Heritage Contracts Unit was contracted by Metago Environmental Engineers (Pty) Ltd to conduct an Archaeological Impact Assessment for the proposed coal mine on portion 17 of the farm Leeufontein 48 IS, District Ermelo, Mpumalanga 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, no cultural heritage sites of significance were 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 Background Information

Nature of the development

The application is for the establishment of a proposed coal mine. The site will house the pit, topsoil stockpile and overburden, but the coal will be transported to the neighbouring property for washing.

Description of study area

The site is characterised by grassland, but has been impacted on by farming. Refer to main EIA report for geographical, environmental and demographic issues.

.1.3. Baseline description

Focused archaeological research has been conducted in the Mpumalanga Province for at least three decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as the recording of rock art sites. The area has a rich cultural heritage, consisting of remains dating from both the prehistoric and the colonial periods of South Africa. 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:

Stone Age

The Stone Age is divided in Early; Middle and Late Stone Age and refers to the earliest people of South Africa who mainly relied on stone for their tools.

Early Stone Age: The period from ± 2.5 million yrs - ± 250 000 yrs ago. Acheulean stone tools are dominant.

Middle Stone Age: Various lithic industries in SA dating from ± 250 000 yrs – 25 000 yrs before present. This period is first associated with archaic *Homo sapiens* and later *Homo sapiens sapiens.* Material culture includes stone tools with prepared platforms and stone tools attached to handles.

Late Stone Age: The period from ± 25 000-yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with *Homo*

sapiens sapiens. Material culture from this period includes: microlithic stone tools; ostrich eggshell beads and rock art.

Rock Art Sites

Rock engraving sites located along rocky outcrops and dating from the last 20 000 years and rock painting sites which can date from the last 10 000 years;

Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic periods. Similar to the Stone Age it to can be divided into three 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.

Historic Timeframe

17th Century to present AD (1600 – 2000)

The historic timeframe intermingles with the later parts of the Stone and Iron Age, and can loosely be regarded as times when written and oral recounts of incidents became available. The first Colonists settled this area around 1845.Therefor the study area has a rich history of historic events and sites that include:
Block houses built by British troops during the Anglo-Boer War (1899-1900) on mountain ranges; and numerous other formal historical features like the Pelgrimsrust Museum, the historically reconstructed Nederlandsch Zuid-Afrikaansche Spoorweg Maatschappij (NZASM) tunnel near Waterval-Boven, the Middelburg Museum with a Ndebele *umuzi* as one of its satellite museums, the Mapoch's Caves near Roossenekal and the Merensky Missionary station near Middelburg to name but a few.

Wits Archaeological Database

No Previously recorded sites are located within close proximity to the study area.

The heritage resources of the Mpumalanga Province therefore constitute a rich and wide diversified range (comprising the National Estate) as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999).

1.4 Probability of occurrence of sites

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

A. PALAEONTOLOGICAL 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: *Low Probability*

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*.

*Archaeologica*l remains dating to the following periods can be expected with in the study area:

Stone Age finds

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

Iron Age Finds

- EIA: *Medium Probability*

- MIA: *Medium Probability*
- LIA: *Medium Probability*

Historical finds

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

Military Finds

- *Battle and military sites*: *Medium Probability*

Burial/Cemeteries

- *Burials over 100 years*: *Medium Probability*
- *Burials younger than 60 years: Medium Probability*

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

2. Methodology

2.1 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).

2.2. APPROACH

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.

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. Wits Heritage Contract Unit was appointed to conduct a survey of the proposed footprint of 9 ha for the proposed mine. The study area was surveyed over a period of one day, by means of a foot survey by the author and Mr. A Pelser.

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. Impact Assessment

No sites of significance were identified during the survey. The site is overgrown with thick kikuyu grass and was impacted on by agricultural activities in the past. The demolished remains of at least four structures are still visible on site, probably belonging to a single farm house with outbuildings. Judging on the bricks, window frames and building rubble from these structures these features were not older than 60 years and therefore of no significance.

Figure 1:: General site conditions

Figure 2: Remains of demolished structures

Figure 3 : Remains of demolished structures

SIGNIFICANCE OF IMPACTS

During the survey no heritage sites were identified and there for no impact are foreseen on heritage resources during the construction, operational or closure phase for the project.

PART A: DEFINITION AND CRITERIA*		
Definition of SIGNIFICANCE		**Significance = consequence x probability** **Significance is Low**
Definition of CONSEQUENCE		**Consequence is a function of severity, spatial extent and duration** **Consequence is Low**
Criteria for ranking of the SEVERITY of environmental impacts	**L**	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
Criteria for ranking the DURATION of impacts	**L**	Quickly reversible. Less than the project life. Short term
Criteria for ranking the SPATIAL SCALE of impacts	**L**	Localised - Within the site boundary.

PART B: DETERMINING CONSEQUENCE					
SEVERITY = L					
DURATION	Long term	**H**	**Medium**	**Medium**	**Medium**
	Medium term	**M**	**Low**	**Low**	**Medium**
	Short term	**L**	**Low**	**Low**	**Medium**

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY **(of exposure to impacts)**	Definite/ Continuous	**H**	**Medium**	**Medium**	**High**
	Possible/ frequent	**M**	**Medium**	**Medium**	**High**
	Unlikely/ seldom	**L**	**Low**	**Low**	**Medium**
			L	**M**	**H**
			CONSEQUENCE =Low		

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	**Decision guideline**
Low	It will not have an influence on the decision.

Receptor	Activity	Impact	Before Mitigation						After Mitigation				
			Severity	Duration	Spatial Scale	Consequence	Probability	Significance	Severity	Duration	Spatial Scale	Consequence	Probability
			Construction phase										
Heritage Sites	None – No sites were found	None	L	L	L	L	L	**L**	L	L	L	L	**L**
			Operational Phase										
Receptor	**Activity**	**Impact**	**Before Mitigation**						**After Mitigation**				
			Severity	**Duration**	**Spatial Scale**	**Consequence**	**Probability**	**Significance**	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability**
Heritage Sites	None – No sites were found	None	L	L	L	L	L	**L**	L	L	L	L	**L**

.4. 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.

5. ASSESSMENT AND RECOMMENDATIONS

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

No heritage significant sites were identified during the survey. A search on the archaeological Wits data base also yielded no known sites within the study area.

From a Heritage point of view there is no reason why the development can not commence.

.6. LIST OF PREPARES

Jaco van der Walt, BA (Hon) Archaeology (Wits)

.7. REFERENCES

7.1 ARCHAEOLOGICAL PAPERS

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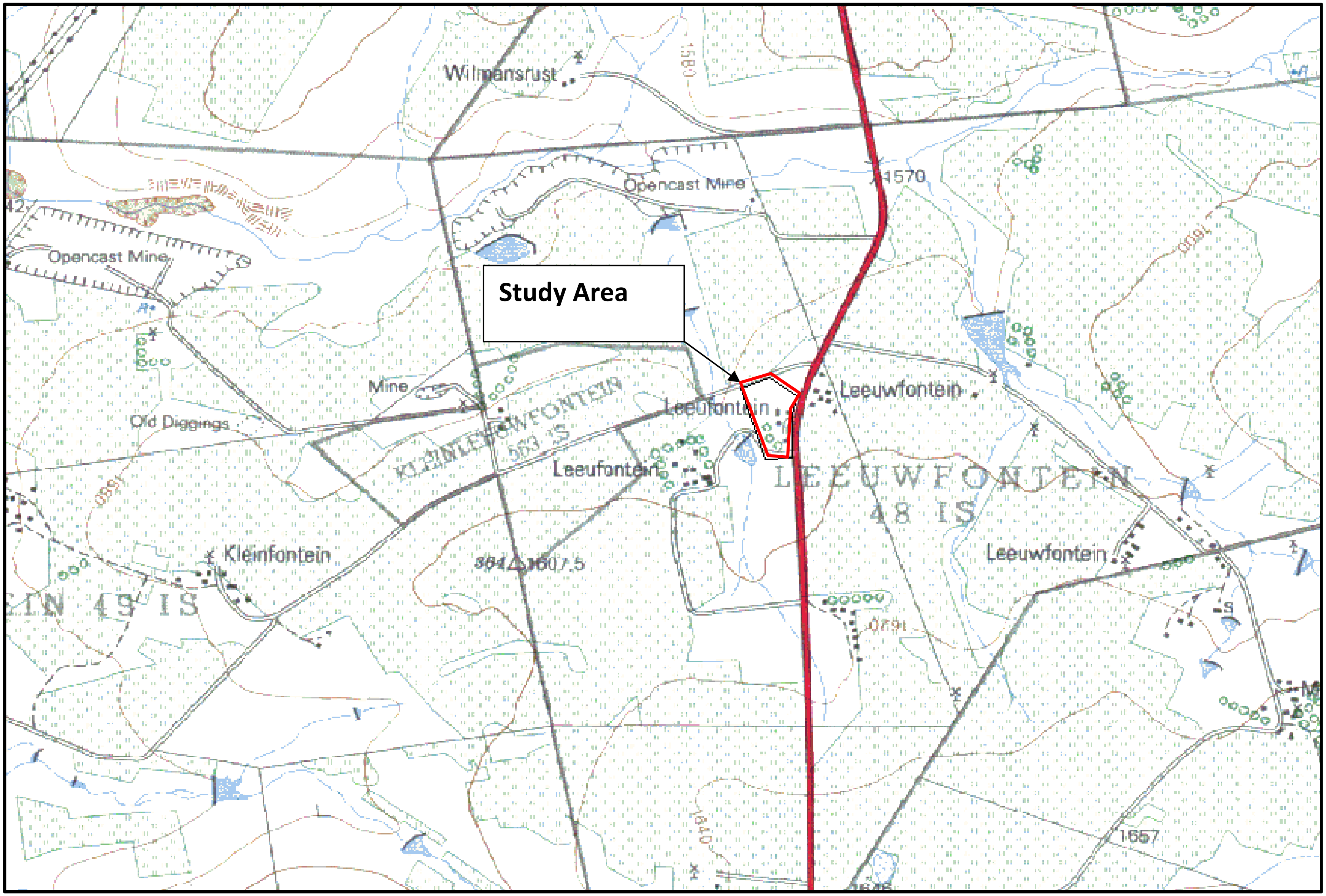
ANNEXURE A: Locality Map


Study Area
Wilmansrust
Opencast Mine
Opencast Mine
1570
Mine
Old Diggings
Leeufontein
Leeuwfontein
Leeufontein
LEEUWFONTEIN
48 IS
Kleinfontein
Leeuwfontein
1657