

---

# Archaeological Impact Assessment

## APPLICATION FOR MINING PERMIT FOR BP 31 ON THE REMAINDER OF THE FARM KRYNAAUWS LUST 275 RD, FREE STATE PROVINCE.

---

Prepared For

**EIMS Environmental Impact Services**

By



wits enterprise

**Wits Commercial Enterprise (Pty) Limited**

(Registration No: 2002/008461/07)

5<sup>th</sup> floor, Senate House, Jorissen Street, 2001 Braamfontein  
Private Bag 3, 2050 Wits  
South Africa

Service provider



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

**VERSION 1.0  
17 SEPTEMBER 2009**

## BORROW PIT 31 - AIA

---

### KNOWLEDGEMENT OF RECEIPT

**CLIENT:**

Environmental Impact Management Services

**CONTACT PERSON:**

Liam Whitlow

EIMS

Block 5 Fernridge Office Park,

5 Hunter Road, Ferndale, Randburg.

P O Box 2083, Pinegowrie 2123, South Africa.

Tel: (011) 789-7170 Fax: (011) 787- 3059E-mail:

liam@eims.co.za

**SIGNATURE:**

\_\_\_\_\_

**LEADING CONSULTANT:**

Wits Heritage Contracts Unit



**CONTACT PERSON:**

Jaco van der Walt

Wits Heritage Contracts Unit

Professional Member of the Association of Southern  
African Professional Archaeologist (#159)



**SIGNATURE:**

\_\_\_\_\_

## Executive summary

**Site name and location:** Borrow Pit 31 on the remainder of the Farm Krynaauws Lust 275 RD, Free State Province.

**Provincial district:** Free State Province, Phumelela Local Municipality.

**Developer:** Transnet

**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.

**1:50 000 map number:** 2729 AC

**Date of Report:** 17 September 2009

**Findings of the Assessment:** No sites of heritage significance were found at the proposed locations of the borrow pit. A search on the archaeological Wits data base yielded no known sites in or close to the study area. From a Heritage point of view there is no reason why the mining for fill material can not commence at this location.

How ever, low ground visibility is present on portions of the study area due to exceptional high vegetation growth and the possibility of the occurrence of unmarked graves and subsurface finds can not be excluded. 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 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.*

**Copyright:** Copyright in all documents, drawings and records whether manually or electronically produced, which form part of the submission and any subsequent report or project document shall vest in Wits Heritage Contracts Unit. None of the documents, drawings or records may be used or applied in any manner, nor may they be reproduced or transmitted in any form or by any means whatsoever for or to any other person, without the prior written consent of Wits Heritage Contracts Unit. The Client, on acceptance of any submission by Wits Heritage Contracts Unit and on condition that the Client pays to Wits 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.

## CONTENTS

EXECUTIVE SUMMARY .....	3
1. INTRODUCTION.....	5
1.2 TERMS OF REFERENCE .....	6
1.3 NATURE OF THE DEVELOPMENT .....	7
1.4 DESCRIPTION OF STUDY AREA .....	7
2. APPROACH AND METHODOLOGY .....	7
2.1 PHYSICAL SURVEYING .....	7
3. ABBREVIATIONS AND DEFINITIONS.....	8
3.1 ABBREVIATIONS .....	8
3.2 DEFINITIONS.....	8
4. ARCHAEOLOGICAL LEGISLATION AND BEST PRACTICE.....	10
5. ASSESSMENT CRITERIA .....	12
5.1 EVALUATION OF HERITAGE SITES .....	12
5.1.1 HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES.....	13
6. ARCHAEOLOGICAL CONTEXT OF STUDY AREA .....	14
5.2 PROBABILITY OF OCCURRENCE OF SITES .....	15
6. SITES OF SIGNIFICANCE.....	17
7. ASSUMPTIONS AND LIMITATIONS .....	19
8. ASSESSMENT AND RECOMMENDATIONS .....	19
9. LIST OF PREPARES .....	20
10. REFERENCES .....	20

## ANNEXURE

Annexure A – Locality Map

## FIGURES

<i>Figure 1: General site conditions .....</i>	<i>17</i>
<i>Figure 2: Google Image of borrow pit location.....</i>	<i>18</i>

### 1. INTRODUCTION

Wits Heritage Contracts Unit was contracted by EIMS to conduct an Archaeological Impact Assessment for the proposed mining of fill material for the proposed Transnet pipeline. The report forms part of the mining rights application for the proposed project.

The aim of the study is to identify 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 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:**

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**

Arup Transnet NMPP Alliance wishes to apply for a mining permit to undertake the necessary mining for fill material. Fill material will be utilized during the anticipated construction of the NMPP pipeline. The borrow-pit footprint consists of an area less than 1.5 hectares.

### **1.4 Description of study area**

Refer to main environmental 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. Wits Heritage Contract Unit was appointed to conduct a survey of the proposed locations of the borrow pit. The impact area of approximately 1.5 was surveyed by means of vehicle and extensive surveys on foot in the company of Mr. David Hoare an ecologist, and two staff members from EIMS Mr. Ronnie and Miss. Awelani.

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&amp;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&amp;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> : Palaeontological 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;



## BORROW PIT 31 - AIA

---

### **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;
- 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.

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

## BORROW PIT 31 - AIA

---

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.

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 (2006) 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.

<b><i>FIELD RATING</i></b>	<b><i>GRADE</i></b>	<b><i>SIGNIFICANCE</i></b>	<b><i>RECOMMENDED MITIGATION</i></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

## 6. Archaeological Context of study area

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  $\pm 2.5$  million yrs -  $\pm 250\,000$  yrs ago. Acheulean stone tools are dominant.

*Middle Stone Age:* Various lithic industries in SA dating from  $\pm 250\,000$  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  $\pm 25\,000$ -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.

### **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 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

## 5.2 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. PALAEOONTOLOGICAL 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: Medium Probability*
- *MSA: Medium Probability*
- *LSA: Medium Probability*
- *LSA –Herder: Low Probability*

#### Iron Age Finds

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

## BORROW PIT 31 - AIA

---

### Historical finds

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

### Military Finds

- *Battle and military sites: Low Probability*

### Burial/Cemeteries

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

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



### 6. SITES OF SIGNIFICANCE

Borrow pit 31 is the extension of an large existing pit on a small hill. The proposed borrow pit is located on the remainder of the Farm Krynaauws Lust 275 RD at Coordinates  $27^{\circ}27'33.63''$  S and  $29^{\circ}08'02.98''$  E. Ground visibility is high and no heritage sites were noted during the survey.

Heritage significance: <i>No sites of significance</i>
--



*Figure 1: General site conditions*

## BORROW PIT 31 - AIA

---



*Figure 2: Google Image of borrow pit location*

## 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 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**

No sites of heritage significance were found during the study. A search on the archaeological Wits data base also yielded no known sites in or in close proximity to the study area.

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

### **General**

Low ground visibility is present on parts of the sites due to high vegetation growth and the possibility of the occurrence of unmarked graves and subsurface finds can not be excluded. 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.

## 9. LIST OF PREPARES

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

## 10. REFERENCES

Australian Historic Themes. A Framework for use in Heritage Assessment and Management. Australian Heritage Commission. 2001.

Australia ICOMOS. The Burra Charter (The Australian ICOMOS charter for places of cultural significance). 2002

Bergh, J.S. (red.) 1998. *Geskiedenisatlas van Suid Afrika. Die vier noordelike provinsies*. J.L. van Schaik: Pretoria.

Documents on Cultural Heritage Protection. 2002.

Evers, M. 1981. The Iron Age in the Eastern Transvaal, South Africa. In Voigt (ed.) *Guide to the archaeological sites in the northern and eastern Transvaal*. Pretoria: Southern African Association of Archaeologists.

Huffman, T.N. 2007a. *A Handbook to the Iron Age: The Archaeology of Precolonial Farming Societies in Southern Africa*. Pietermaritzburg: Kwazulu-Natal University Press.

Inskeep, R.R. 1978. *The peopling of Southern Africa*. David Philip: Cape Town.

International Council of Monuments & Site Documents. Conventions, Charters and Guidelines. 2002.

International Council of Monuments & Site Documents. Guidelines to the Burra Charter: Conservation Policy. 1985.

International Council of Monuments & Site Documents. Guidelines to the Burra Charter: Cultural Significance. 1984.

Klein, R.G. 1984. Southern African Prehistory and Paleoenvironments. A.A. Balkema

Standard and Guidance for Archaeological Desk-Based Assessment. 1994.

# **ANNEXURE A:**

## **Locality Map**

## BORROW PIT 31 - AIA

