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**DIGBY WELLS &
ASSOCIATES**

**NUCOAL MINING
ARCHAEOLOGICAL
IMPACT ASSESSMENT**

**Proposed coal mining
on portions of the
farm Op Goedenhoop
205 IS, Hendrina,
Mpumalanga
Province**

Version 1.0

30 August 2007

Service provider



MATAKOMA - ARM
HERITAGE CONTRACTS UNIT

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- The technology described in any report
- Recommendations delivered to the Client.

EXECUTIVE SUMMARY

As we know from legislation the surveying, capturing and management of heritage resources is an integral part of the greater management plan laid down for any major development or historic existing operation. With the proclamation of the National Heritage Resources Act 1999 (Act 25 of 1999) this process has been laid down clearly. This legislation aims to underpin the existing legislation, which only addresses this issue at a glance, and gives guidance to developers and existing industries to the management of their Heritage Resources.

The importance of working with and following the guidelines laid down by the South African Heritage Resources Agency cannot be overemphasised. This document forms part of the Environmental Impact Assessment for the proposed Nucoal Mining operation on portions of the farm Op Goedenhoop 205IS, Hendrina, Mpumalanga Province.

The following outline the findings of the report:

During the survey two sites of heritage value were found within the close proximity to the proposed opencast and haul road footprint of the proposed mining area.

MHC001

It is recommended that the cemetery be fenced with a 15 meter buffer to protect it from accidental damage.

In the event that the haul road is to impact on the graves, the relocation of the graves must be considered and be done with a full social consultation process and the relevant authorisations.

MHC002

If the mining and haul road necessitates the destruction of any buildings of the farmstead it is recommended that the buildings be evaluated by a conservation architect prior to destruction applications.

If these recommendations are adhered to there is from a Heritage point of view no reason why the development can not commence.

General

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.

A heritage resources management plan must be developed for managing the heritage resources in the study area during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations and communication routes to follow in the case of a discovery.

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1. INTRODUCTION

MATAKOMA-ARM Heritage Contracts Unit was contracted by Digby Wells & Associates to conduct an Archaeological Impact Assessment of the proposed Nucoal Mining operation on portions of the farm Op Goedenhoop 205IS, Hendrina, Mpumalanga Province.

The aim of the study is to identify all heritage sites, document, and assess their importance within Local, Provincial and national context. From this we aim 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 utilised before and during the survey, which includes in Phase 1: Information collection from various sources and public 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, three sites associated with historical mining activities 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 scrutiny.

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 occur below surface, a physical walk through of the study area was conducted. Matakoma - ARM Heritage Contract Unit were appointed to conduct a survey of the footprint of the proposed development. The study area (15ha) was surveyed over one day, by means of vehicle and extensive surveys on foot.

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

3. WORKING WITH LEGISLATION

It is very important that cultural resources be evaluated according to the National Heritage Recourse Act. In accordance with the Act, we have found the following:

These sites are classified as important based on evaluation of the National Heritage Recourses Act 1999 (Act No 25 of 1999) section 3 (3).

A place or object is to be considered part of the national estate if it has cultural significance or other special value because of-

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;

- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- (i) sites of significance relating to the history of slavery in South Africa.

(Refer to Section 9 of this document for assessment)

These sites should be managed through using the National Heritage Recourses Act 1999 (Act No 25 of 1999) sections 4,5 and 6 and sections 39-47.

Please refer to Section 9 for Management Guidelines.

4. ASSESSMENT CRITERIA

This chapter describes the evaluation criteria used for the sites listed below.

The significance of archaeological sites was based on four main criteria:

- **site integrity** (i.e. primary vs. secondary context),
 - **amount of deposit, range of features** (e.g., stonewalling, stone tools and enclosures),
 - **uniqueness** and
 - **potential** to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

A - No further action necessary;

B - Mapping of the site and controlled sampling required;

- C - Preserve site, or extensive data collection and mapping of the site; and
- D - Preserve site

Impacts on these sites by the development will be evaluated as follows

4.1 IMPACT

The potential environmental impacts that may result from the proposed development activities.

4.1.1 Nature and existing mitigation

Natural conditions and conditions inherent in the project design that alleviate (control, moderate, curb) impacts. All management actions, which are presently implemented, are considered part of the project design and therefore mitigate against impacts.

4.2 EVALUATION

4.2.1 Site Significance

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.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
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	Grade	High Significance	Mitigation (Part of site

(LS)	3B		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

4.2.2 Impact Rating

VERY HIGH

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment, and usually result in **severe** or **very severe** effects, or **beneficial** or **very beneficial** effects.

Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.

Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with a VERY HIGH significance.

HIGH

These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.

Example: The change to soil conditions will impact the natural system, and the impact on affected parties (in this case people growing crops on the soil) would be HIGH.

MODERATE

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by society as constituting a fairly important and usually medium term

change to the (natural and/or social) environment. These impacts are real but not substantial.

Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.

Example: The provision of a clinic in a rural area would result in a benefit of MODERATE significance.

LOW

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

Example: The temporary change in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.

Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people who live some distance away.

NO SIGNIFICANCE

There are no primary or secondary effects at all that are important to scientists or the public.

Example: A change to the geology of a particular formation may be regarded as severe from a geological perspective, but is of NO significance in the overall context.

4.2.3 Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of impact occurring.

POSSIBLE: Only over 40% sure of a particular fact or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact or likelihood of an impact occurring.

4.2.4 Duration

SHORT TERM: 0 to 5 years

MEDIUM: 6 to 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

Example

Evaluation

Impact	Impact Significance	Heritage Significance	Certainty	Duration	Mitigation
Negative	Moderate	Grade GP.B	Possible	Short term	B

5. HISTORICAL BACKGROUND OF AREA

As heritage surveys deal with the locating of heritage resources in a prescribed cartographic landscape, the study of archival and historical data, and especially cartographic material, can represent a very valuable supporting tool in finding and identifying such heritage resources.

The historical background and timeframe 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.

Earlier 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 – 22 000 yrs before present.

Later Stone Age: The period from \pm 22 000-yrs before present to the period of contact with either Iron Age farmers or European colonists.

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

6. SITES OF SIGNIFICANCE

The area is characterised by old agricultural fields and grazing pastures.

6.1 2629BB-MHC001

Description of Site:			
Site Number	2629BB-MHC001		
Map reference	Topo-sheet number	Number of Map in report	
	2629BB	Annexure B	
GPS coordinates: <i>Indicate Model and datum - WGS 84</i>	X	Y	
Garmin 38, WGS 84	S26.1671820	E29.833532	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	Cemetery consisting of two stone packed graves		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
<i>Cultural affinities, approximate age and significant features of the site;</i>	Possible association with nearby farming community.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	None		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible		

<p>Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.</p>	<p>None</p>
<p>Photographs and diagrams (Figure numbers)</p>	 <p>• Figure 1: Grave in cemetery</p>
<p>Statement of Significance (Heritage Value)</p>	<p>The site is of high heritage significance</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>Generally protected (GP.A)</p>
<p>Impact Evaluation of development on site</p>	<p>Impact on site is seen as possibly high negative, through possible destruction of site</p>

Recommendations <i>including:</i>	Fencing with 15 meter buffer zone or relocation of graves through proper consultation process.				
Summary					
Field Rating	Impact	Impact Significance	Certainty	Duration	Mitigation
Grade GP.A	Negative	High	Possible	Long term	B

6.2 2629BB -MHC002

Description of Site:			
Site Number	2629BB-MHC002		
Map reference	Topo-sheet number	Number of Map in report	
	2629BB	Annexure B	
GPS coordinates: <i>Indicate Model and datum - WGS 84</i>	X	Y	
Garmin 38, WGS 84	S26.1677274	E29.832038	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	Historic farmstead		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
<i>Cultural affinities, approximate age and significant features of the site;</i>	Early 1900 to mid 1900's		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	The farmstead is characterised by numerous outbuildings primarily constructed with stone and cement. Newer structures including the main house is constructed with brick and mortar.		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible		
<i>Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i>	None		

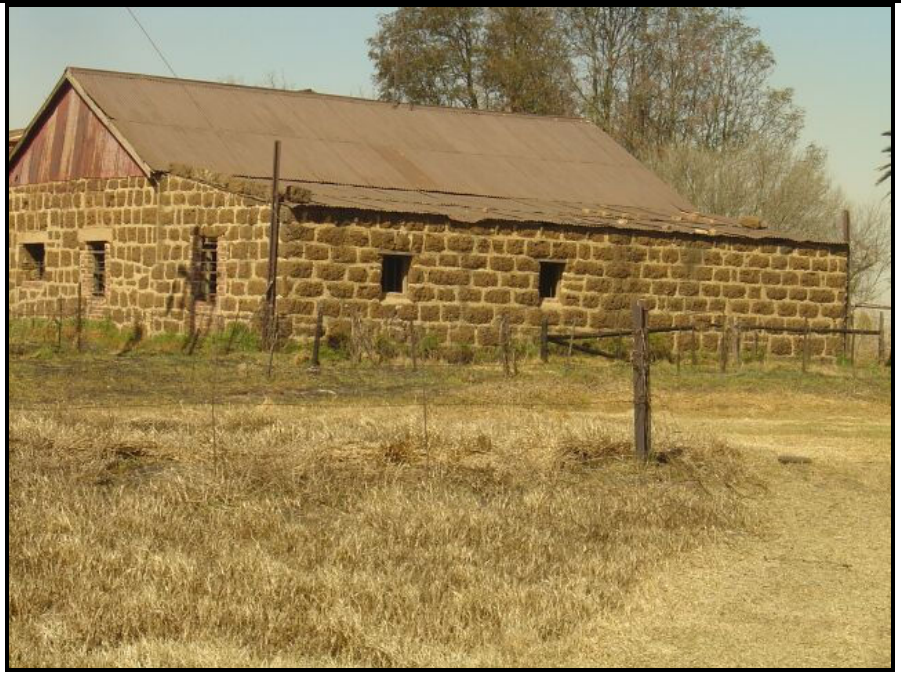


Figure 2: Outbuildings

Photographs and diagrams (Figure numbers)



Figure 3: Main dwelling

<p>Statement of Significance (Heritage Value)</p>	<p>The site is of low possibly medium heritage significance</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>Generally protected (GP.B)</p>

Impact Evaluation of development on site	Impact on site is seen as low to possible medium negative, through possible destruction of site if haul road impacts on structures				
Recommendations including:	Assessment of building by a conservation architect prior to possible destruction of structure.				
Summary					
Field Rating	Impact	Impact Significance	Certainty	Duration	Mitigation
Grade GP.B	Negative	Low to medium	Possible	Long term	None

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. Although MATAKOMA-ARM 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. LEGAL AND POLICY REQUIREMENTS

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In the new legislation, permits are required to damage, destroy, alter, or disturb them. People who already possess material are required to register it.

The management of heritage resources are integrated with environmental resources and this means that before development takes place heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves, which are older than 60 years and are not

in a cemetery (such as ancestral graves in rural areas), are protected. The legislation protects the interests of communities that have interest in the graves: they may be consulted before any disturbance takes place.

The graves of victims of conflict and those associated with the liberation struggle will be identified, cared for, protected and memorials erected in their honour.

Anyone who intends to undertake a development must notify the heritage resource authority and if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the developer's cost. Thus developers will be able to proceed without uncertainty about whether work will have to be stopped if a heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32) it is stated that:

An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

If it is necessary to refer to any of the above-mentioned objects, the National Heritage Act (Act 25 of 1999 Sections 31-38) is included in Appendix 2.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with, and offer protection, to all historic and pre-historic cultural remains, including graves and human remains.

- Graves younger than 60 years fall 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).

- 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 administered by a local authority. Graves in the category located inside a formal cemetery administered 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.

9. ASSESSMENT AND RECOMMENDATIONS

*A locality map is provided in **Annexure A** and Heritage Sites in **Annexure B***

A summary of the recommendations for each of the main heritage sites follows:

During the survey two sites of heritage value were found within the close proximity to the proposed opencast and haul road footprint of the proposed mining area.

MHC001

It is recommended that the cemetery be fenced with a 15 meter buffer to protect it from accidental damage.

In the event that the haul road is to impact on the graves, the relocation of the graves must be considered and be done with a full social consultation process and the relevant authorisations.

MHC002

If the mining and haul road necessitates the destruction of any buildings of the farmstead it is recommended that the buildings be evaluated by a conservation architect prior to destruction applications.

If these recommendations are adhered by there is from a Heritage point of view no reason why the development can not commence.

General

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.

A heritage resources management plan must be developed for managing the heritage resources in the study area during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations and communication routes to follow in the case of a discovery.

10. LIST OF PREPARES

Wouter Fourie, BA (Hon) Archaeology (UP)

11. REFERENCES

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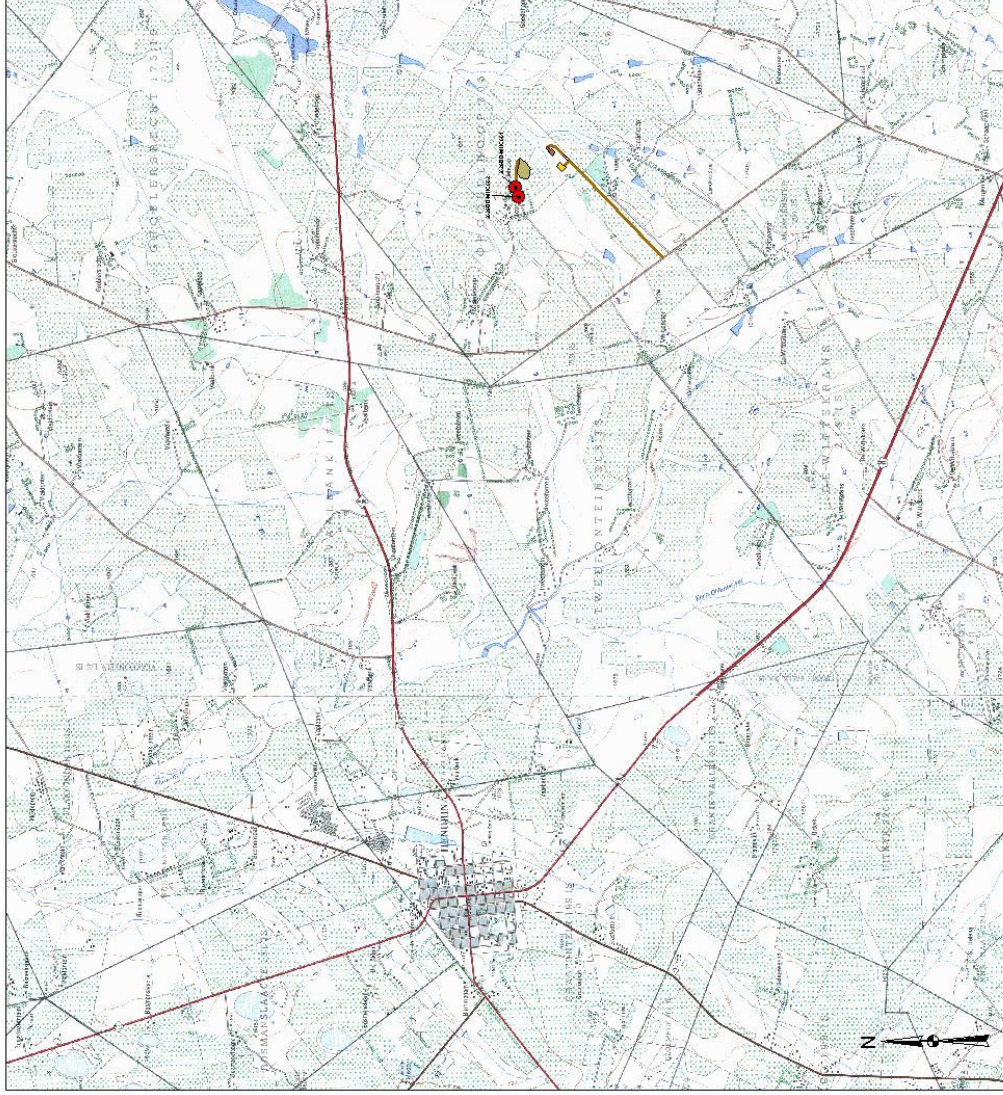
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ANNEXURE A: Locality Map

Nucoal Mining Locality Map

Legend

- Heritage sites
- Adit footprint
- Adit
- Office Yard
- Opencast
- Weigh Bridge
- Proposed roads



ANNEXURE B:

Heritage Sites

Nucoal Mining Heritage Sites

