



Phase 1 Heritage Impact Assessment for the proposed upgrade of the Mafarana to Burgersdorp roads from gravel to tar, Burgersdorp, Limpopo Province.



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Archaeology and Heritage Services

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DECLARATION OF INDEPENDENCE

This report has been compiled by Makhosazana Mngomezulu, principal archaeologist and heritage consultant. The views expressed in this report are independent of the author and no other interest was displayed during the decision making process for the Borrow Pits.

SIGNATURE:

A handwritten signature in black ink, appearing to read 'M. Mngomezulu', is written over a horizontal line.

TERMINOLOGY

BP	Before Present
EIA	Early Iron Age
MIA	Middle Iron Age
LIA	Late Iron Age
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
ya	years ago
Ibid	<i>Ibidem</i> , Latin word meaning same as the previous source
HIA	Heritage Impact Assessment
LPHRA	Limpopo Provincial Heritage Resources Authority
SAHRA	South African National Resources Agency
NHRA	National Heritage Resources Act
SAPS	South African Police Services

DEFINITIONS

ESA dates between 2 million ya to 2 00 000 BP. Industries associated with this time period includes Oldowan, Acheulean and Fauresmith. ESA stone tools include hammer stones, flakes, cores, handaxes and cleavers (Pelsler 2009).

MSA dates between 2 00 000 and 25 000 to 20 000 BP, this varies with location. Industries associated with this time period includes the Howieson's Poort. The stone tools which characterise this period include scrapers, blades, points and flake.

LSA which dates between 25 000 and 20 000 to 2 000 BP. Stone tools of this period are characterised by their small size; this includes backed knives and borers (Pelsler 2009).

EIA dates to AD 200 – 900 (Huffman 2007).

MIA dates to AD 900 – 1300 (ibid).

LIA dates to AD 1300 – 1840 (ibid).

EXECUTIVE SUMMARY

The Greater Tzaneen Local Municipality has embarked on a rural development program that will see the upgrading of the D3769 (Myakayaka – Burgersdorp –Mafarane) and the D5014 (Tickyline –Makudiburg) roads from gravel to tar (Draft 2014/15 IDP), more specifically the upgrade of 15.1km road from tickyline, Myakayaka, Mineview, Burgersdorp to Mafarana. The proposed road upgrades requires aggregate material from the surrounding area and to fulfill this requirement, the establishment and utilization of two borrow pits has been proposed which requires a mining permit.

According to Section 38 of the National Heritage Resources Act (Act 25 of 1999) “(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

“...(c) any development or other activity which will change the character of a site—

- (i) exceeding 5 000 m² in extent;...” (see Appendix A for Section 38 of the Act), should conduct a Phase 1 Heritage Impact Assessment. This is to determine if there are any heritage resources within the existing operational site and how they will be impacted. If any resources are found, mitigation measures and recommendations for the protection of such resources needs to be provided. The report will be submitted to the Provincial Heritage Resources Authority of Gauteng Province for comments and for a decision as per the National Heritage Resources Act (Act No 25 of 1999).

During the physical survey two graves and a foundation of what seemed to be a homestead was found. Grave 1 was found approximately 218m north of Borrow Pit 1 and approximately 162m southeast of Borrow Pit 2. Grave 2 was found approximately 76m south of Borrow Pit 2. The foundation was found approximately 29m from Grave 2 (see figure 13).

The age of the graves is not known however they are still protected by the NHRA, Act 25 of 1999 Section 34 National Heritage Resources Act (Act 25 of 1999)(see Appendix A for the Legislation).

These graves are currently not impacted on, but in a position to be possibly impacted if mitigation measures proposed are not applied.

Impact Assessment

The following conclusions were made on the evaluation of graves found on site in relation to the project.

Heritage Resource Identified	Field Rating & Grading	Significance	Recommended Mitigation	Coordinates
Grave 1	Local Significance Grade 3A	High	Conservation, mitigation not advised	24°01'31.2"S 30°19'07.2"E
Grave 2	Local Significance Grade 3A	High	Conservation, mitigation not advised	24°01'30.3"S 30°19'04.8"E
Foundation	Generally Protected C	Low	destruction	24°01'29.9"S 30°19'04.4"E

Without mitigation measures the results showed >60; which means without mitigation measures, the graves will definitely be impacted and its impact may render the project unacceptable.

With mitigation measures the results showed >20≤40; which means with mitigation measures, the impact on the graves may be possibly eliminated however; the score may not be brought down to below 20 given that the graves are close to the borrow pits. The impact is limited to an extent, and though it may not interfere with the progress of the project, it still requires management intervention.

Recommendation

- During the construction phase of the project, the contractor should keep within the operational boundaries to avoid impacting on the aforementioned graves.
- The applicant has two options in dealing with the graves found on site; namely, adjusting/keeping them within the operational site or relocating them.

- The preferred decision is to adjust the development so that the graves may remain undisturbed. If this is done, the developer must satisfy SAHRA that adequate arrangements have been made to protect the graves on site from the impact of the development. This usually involves fencing the grave and writing a site management plan indicating who will be responsible for maintaining the graves and how this is legally tied into the development. It is recommended that a fence is placed within 10-20 m around the graves.
- Should the applicant choose to remove the graves, the process of graves relocation must be followed as stated in Section 36 (4); (5)(a)(b) of the NHRA (Act No. 25 of 1999) (see appendix A).
- The applicant should induct employees on the importance of these heritage resources and that they should not be impacted in any way.
- Should any heritage resources be found on site in areas that could not be thoroughly accessed due to thick vegetation, be it archaeological artifacts such as stone tools and pottery; graves and structures older than 60 years old; the applicant should immediately cease with the activity that would have exposed such and report the incident to the relevant authorities. A heritage expert should be called on site to assess the significance, the impacts and provide mitigation measures.
- The possibility of uncovering unearthed burial grounds and graves within or around the operational area is possible. Should potential human remains be found on site, the contractor should immediately cease construction and the South African Police Service and the Greater Tzaneen Local Municipality should also be contacted.

Conclusion

It is concluded based on the findings of the survey (being that the operational area will not directly impact on the identified graves on site) that the excavation may proceed provided mitigation measures provided are adhered to and implemented. The final report will be submitted to the Limpopo Provincial Heritage Resources Authority for review and based on the findings we recommend that LPHRA grant the Greater Tzaneen Local Municipality the approval to proceed with the excavation of borrow pit 1 & 2 for the purposes of a road construction in terms of the Heritage Resources Act (Act No.25 of 1999).

Project Structure

Introduction	<ul style="list-style-type: none">• Report background• Methodology• Assumptions & limitations
Project locality	<ul style="list-style-type: none">• Location (include mapping)• Heritage Background
Findings	<ul style="list-style-type: none">• Types of findings• Mapping of findings• Assessment of findings• Level of significance• Possible impacts
Discussion	<ul style="list-style-type: none">• Evaluation of findings in relation of the historical background of the study area
Recommendations & conclusion	<ul style="list-style-type: none">• Mitigation measures
Additional Information	<ul style="list-style-type: none">• Applicable Legislation

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1. INTRODUCTION

Vungandze Projects was appointed by NTC Environmental Services to conduct a heritage impact study for the establishment of Borrow Pits for the purposes of road construction. The Greater Tzaneen Local Municipality has embarked on a rural development program that will see the upgrading of the D3769 (Myakayaka – Burgersdorp –Mafarane) and the D5014 (Tickyline – Makudiburg) roads from gravel to tar (Draft 2014/15 IDP), more specifically the upgrade of 15.1km road from tickyline, Myakayaka, Mineview, Burgersdorp to Mafarana.

The existing road layers do not contain sufficient material for the upgrade thus the building material will be sourced from two borrow pits. The location of the borrow pits is on the farm Burgersdorp 19 KT.

According to Section 38 of the National Heritage Resources Act (Act 25 of 1999) “(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

“...(c) any development or other activity which will change the character of a site—

- (i) exceeding 5 000 m² in extent;...” (see Appendix A for Section 38 of the Act), should conduct a Phase 1 Heritage Impact Assessment. This is to determine if there are any heritage resources within the proposed site and how they will be impacted. If any resources are found, mitigation measures and recommendations for the protection of such resources need to be provided. The study area is 4 ha, hence the requirement to conduct an HIA.

The aim of this report is to provide a guideline on the heritage resources found. Furthermore, it will provide anticipated impacts of the proposed project on these findings and mitigation measures as a way forward.

2. TERMS OF REFERENCE (TOR)

The approach used for this report was:

- Undertake a Phase 1 HIA in accordance with the National Heritage Resources Act, 1999 (Act no. 25 of 1999);

- Identify and map all heritage resources in the area affected and surroundings, as defined in Section 3 of the National Heritage Resources Act (Act No. 25 of 1999), including archaeological sites on or close (within 100m) to the proposed area;
- Assess the significance of any identified resources in terms of the heritage assessment criteria as set out in the SAHRA regulations;
- Provide mitigation measures to safeguard heritage resources identified on site; and
- Comply with specific requirements and guidelines of the Limpopo Provincial Heritage Resources Authority (LPHRA) and the South African Heritage Resources Agency (SAHRA).

3. METHODOLOGY

The physical survey was conducted and completed on 23 April 2016. This report was prepared according to the National Heritage Resources Act (Act No 25 of 1999). Background research of the study area was conducted using literature such as books, journals, previously conducted Heritage Impact Assessments (HIAs) on the study area and the internet before and after the site visit. The purpose of the research prior to the physical survey was to acquire information as to what to expect in the study area, the site visits were completed to identify heritage resources that may be impacted on due to the construction and operational phase of the proposed establishment of the borrow pits.

Heritage resource means any place or object of cultural significance [NHRA1999 Act No. 25 of 1999)]. The National Heritage Resources Act 1999 (Act No. 25 of 1999) was used as a source of reference to identify what is known as a heritage resource (see Appendix A Section 3 for list of heritage resources).

The surveys were conducted on foot in order to record and locate any heritage resources within the sites. The table from SAHRA Regulations will be used to grade the significance and evaluate the level of impact on the heritage resources identified.

Table 1: Site significance rating according to SAHRA.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
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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 (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.A)	-	Low Significance	Destruction

The determination of the effects of environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the environmental practitioner through the process of the EIA. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts. This is in line with specialist requirements as required by the client. For example, the request that:-

The impact methodology (should) concentrate on addressing key issues. This methodology to be employed in the report thus results in a circular route, which allows for the evaluation of the efficiency of the process itself.

The following Assessment Criteria is used for Impact Assessment

Impacts can be defined as any change in the physical-chemical, biological, cultural and or socio-economic environmental system that can be attributed to humans. The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

Probability: describes the likelihood of the impact actually occurring

- **Improbable:** the possibility of the impact occurring is very low, due to the circumstances, design or experience.
- **Probable:** there is a probability that the impact will occur to the extent that provision must be made therefore.
- **Highly probable:** it is most likely that the impact will occur at some stage of the development.
- **Definite:** the impact will take place regardless of any prevention plans and there can only be relied on mitigation measures or contingency plans to contain the effect.

Duration: the lifetime of the impact

- **Short Term:** the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- **Medium Term:** the impact will last up to the end of the phases, where after it will be negated.
- **Long Term:** the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent:** the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: the physical and spatial size of the impact

- **Local:** the impacted area extends only as far as the activity, e.g. footprint
- **Site:** the impact could affect the whole or measurable portion of the above mentioned property.
- **Regional:** the impact could affect the area including the neighbouring residential areas.

Magnitude/Severity: Does the impact destroy the environment, or alter its function

- **Low:** the impact alters the affected environment in such a way that natural processes are not affected.
- **Medium:** the affected environment is altered, but functions and processes continue in a modified way.
- **High:** function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

- **Negligible:** the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- **Low:** the impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
- **Moderate:** the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
- **High:** The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

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

Sum (Duration, Scale, Magnitude) x Probability (*Table -2*)

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

Table 2: The significance weighing for each potential impact are as follows:

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2

	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

The significance of the graves will be rated without mitigation measures (WOM) and with mitigation (WM) measures for the operational phase.

3.1 Assumptions

It is assumed that on the study areas there might be other burial grounds and graves given that prior to the site visit, the client brought it to our attention that there were informal graves discovered during the excavation of Borrow Pit 1, and that was confirmed by the physical survey.

3.2 Limitations

No limitations were encountered on the study area however, during the physical survey some parts of the study area were difficult to access due to dense vegetation. This made it difficult to identify any other heritage resources (apart from the identified graves) that could possibly be on site.

4. LOCALITY AREA

The Borrow Pits are located on the Farm Burgersdorp 19 KT, Mopani District in the Limpopo Province (see figures 1- 3). From Tzaneen, the site can be accessed through the R36 next to a residential area.

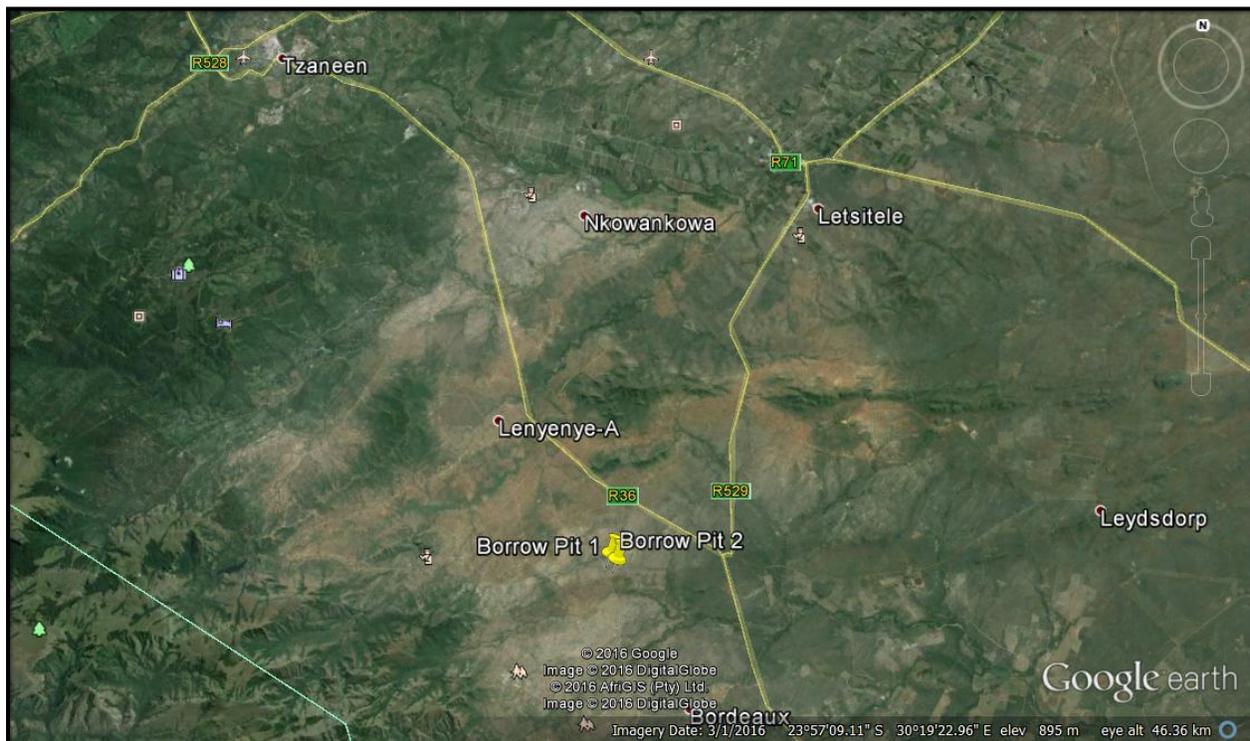


Figure 1: Aerial view of the greater study area.

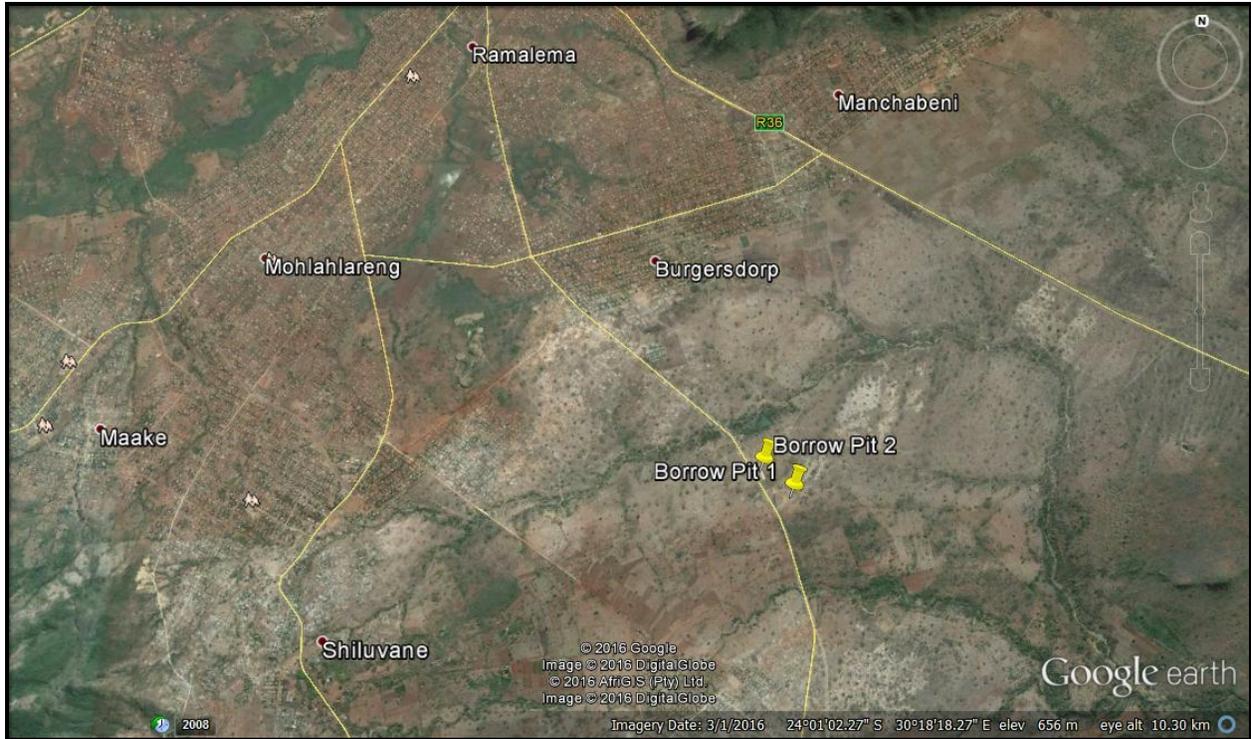


Figure 2: Aerial view of surrounding villages.

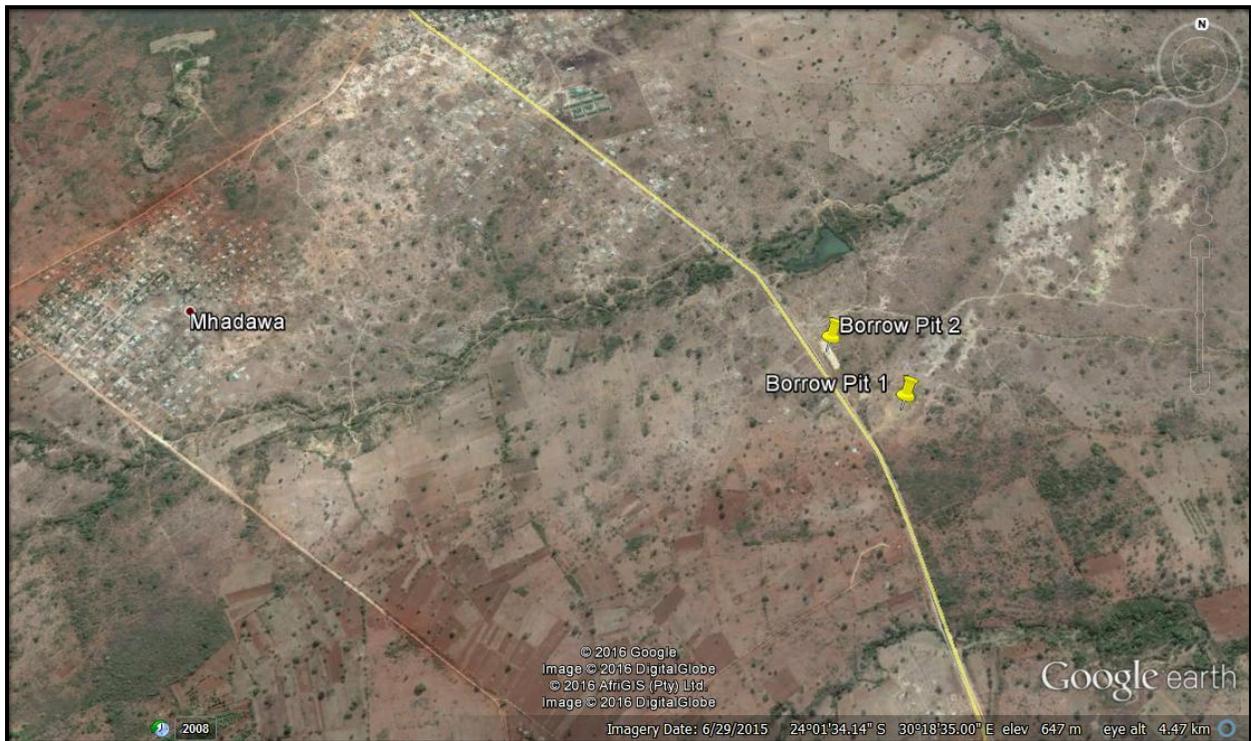


Figure 3: Aerial of the study area and the nearest village.

5. IMAGES OF THE STUDY AREA



Figure 4: South view of the study area



Figure 5: Activities noted on site



Figure 6: Old borrow Pit found on site next to grave 1



Figure 7: North view of the study area



Figure 8: Vegetation on site

6. HISTORICAL BACKGROUND OF THE STUDY AREA

History of human activity in South Africa, as in all parts of the world, dates back to millions of years. It is important to elaborate as far back in time to enable the reader to understand what is meant by archaeological material and why is it declared a heritage resource. Archaeological materials are divided into two periods, the Stone Age and the Iron Age. Late Iron Age marks the transition between prehistory and history, a period of colonial era until recent.

6.1 Stone Age Archaeology:

The Stone Age is a time period that dates between 2 million years ago (ya) to 2000 ya. Due to the vast character found within stone tools of this period, it was then divided into three phases; Early Stone Age (ESA), Middle Stone Age (MSA) and the Late Stone Age (LSA). ESA dates between 2 million ya and 200 000 Before Present (BP). Industries associated with this time

period includes Oldowan, Acheulean and Fauresmith. ESA stone tools include hammer stones, flakes, cores, handaxes and cleavers (Pelser 2009). The more refined stone tools appeared during the MSA. MSA dates between 200 000 and 25 000 to 20 000 BP, this varies with location. Industries associated with this time period includes the Howieson's Poort. The stone tools which characterise this period include scrapers, blades, points and flake. Lastly is the LSA which dates between 25 000 and 20 000 to 2 000 BP. Stone tools of this period are characterised by their small size; this includes backed knives and borers (Pelser 2009).

6.2 Iron Age Archaeology

According to Huffman (2007) Iron Age marks the early evidence of farming community in Southern Africa. Animal husbandry, crop farming, pottery and metal working were introduced which in due time liberated hunter gatherers to change their way of life which is less mobile (Carruthers 1990). Due to vast technological discrepancies and settlement pattern within this period, it was divided into three. The Early Iron Age (EIA) dates to AD 200 – 900, Middle Iron Age (MIA) dates to AD 900 – 1300, and the Late Iron Age (LIA) dates to AD 1300 – 1840 (Huffman 2007).

No historical record has been found of the study area that is considered to be of heritage significance. The previous study conducted on the area by Vhubvo Archaeo-Heritage Consultants Cc, November 2015, also confirm these findings.

7. FINDINGS

During the physical survey two graves and a foundation of what seemed to be a homestead were identified. Grave 1 was found approximately 218m north of Borrow Pit 1 and approximately 162m southeast of Borrow Pit 2. Grave 2 was found approximately 76m south of Borrow Pit 2. The foundation was found approximately 29m from Grave 2 (see figure 13). Grave 1 had a headstone and the writing: 'Ntsunana Mavulwana' but no date; whereas Grave 2 had no marking. Both graves were covered in concrete.

The age of the graves is not known, however they are still protected by the NHRA, Act 25 of 1999 Section 34 (see Appendix A the legislation).



Figure 9: Grave 1 found on site.



Figure 10: Grave 2 found on site.



Figure 11: Foundation of a possible homestead found on site.



Figure 12: Aerial map depicting the location of graves and Foundation in relation to Borrow Pit 1 & 2.

8. IMPACT ASSESSMENT

The excavations have a high possibility of impacting the heritage resources found on site. This section evaluates the extent of these impacts WITH and WITHOUT mitigation measures in relation to the project under study.

Using table 1 from the methodology which is now labeled table 3, the heritage resources identified on site can be rated as follows:

Table 3: Rating of the heritage resource found on site.

Heritage Resource Identified	Field Rating & Grading	Significance	Recommended Mitigation	Coordinates
Grave 1	Local Significance Grade 3A	High	Conservation, mitigation not advised	24°01'31.2"S 30°19'07.2"E

Grave 2	Local Significance Grade 3A	High	Conservation, mitigation not advised	24°01'30.3"S 30°19'04.8"E
Foundation	Generally Protected C	Low	destruction	24°01'29.9"S 30°19'04.4"E

Table 4: Evaluation of the impacts of the borrow pit on the graves **WITHOUT** mitigation measures.

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60

	High	>60
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Results: $5+2+8 \times 5 = 75$ i.e >60

This means without mitigation measures, the graves will definitely be impacted and its impact may render the project unacceptable

Table 5: Evaluation of the impacts of borrow pit on the graves **WITH** mitigation measures.

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤ 20
	Low	$>20 \leq 40$
	Moderate	$>40 \leq 60$
	High	>60

Results: $4+1+6\times 2 = 22$ i.e. $>20\leq 40$

This means with mitigation measures the impact on the graves may be possibly eliminated however; the score may not be brought down to below 20 given that the graves are close to the borrow pits. The impact is limited to an extent, and though it may not interfere with the progress of the project, it still requires management intervention.

8.1 Site Significance

The level of significance of the site and the cultural resources varies between social, historical, spiritual, scientific and aesthetic value.

Social value is when a place has become a focus of spiritual, political, national, or other cultural sentiments to a majority or minority group. This may be because the site is accessible and well known, rather than particularly well preserved or scientifically important (SAHRA Regulations). There was no physical evidence of religious activities such as well-used areas where people worship; white-washed stones that designate areas of worship, etc. The study area does however have social value. The family whom graves belongs to; identify the place as having social value. It has spiritual significance due to ancestral beliefs.

Historical value refers to areas where historical events took place, and such events have high significance either locally, regionally, provincially or nationally. The area showed no historical significance.

Scientific value refers to the importance of the study area for research purposes. The study area seemed to have no scientific value.

Aesthetic value refers to the unique beauty of the site. The study area showed no structures of aesthetic value.

Based on the above conclusions, the site yield heritage significance and social value with spiritual attachment, therefore the heritage resources found will be impacted by the proposed activity.

9. RECOMMENDATIONS

Two graves were found next to borrow pit 1 and borrow pit 2. Graves are of high significance. The age of the two graves is unknown but they are still protected by the National Heritage Resources Act (Act 25 of 1999) Section 36 (see Appendix A for the Legislation).

These graves are currently not impacted, however they may be impacted if the proposed mitigation measures are not applied. The following mitigation measures are proposed:

- During the construction phase of the project, the contractor should keep within the operational boundaries to avoid impacting on the aforementioned graves.
- The applicant has two options in dealing with the graves found on site; namely, adjusting/keeping them within the operational site or relocating them.
 - The preferred decision is to adjust the development so that the graves may remain undisturbed. If this is done, the developer must satisfy SAHRA that adequate arrangements have been made to protect the graves on site from the impact of the development. This usually involves fencing the grave and writing a site management plan indicating who will be responsible for maintaining the graves and how this is legally tied into the development. It is recommended that a fence is placed within 10-20 m around the graves.
- The applicant should induct employees on the importance of these heritage resources and that they should not be impacted in any way.
- Should any heritage resources be found on site in areas that could not be thoroughly accessed due to thick vegetation, be it archaeological artifacts such as stone tools and pottery; graves and structures older than 60 years old; the applicant should immediately cease with the activity that would have exposed such and report the incident to the relevant authorities. A heritage expert should be called on site to assess the significance, the impacts and provide mitigation measures.
- The possibility of uncovering unearthed burial grounds and graves within or around the operational area is possible. Should potential human remains be found on site, the contractor should immediately cease construction and the South African Police Service and the Greater Tzaneen Local Municipality should also be contacted.

10. CONCLUSION

It is concluded based on the findings of the survey (being that the operational area will not directly impact on the identified graves on site) that the excavation may proceed provided mitigation measures provided are adhered to and implemented. The final report will be submitted to LPHRA for review and based on the findings we recommend that LPHRA grant the Greater Tzaneen Local Municipality the approval to proceed with the excavation of borrow pit 1 & 2 for the purposes of a road construction in terms of the Heritage Resources Act (Act No.25 of 1999).

11. REFERENCES

Huffman, T. N 2007. *Handbook to the Iron Age*. The archaeology of Pre-Colonial farming societies in southern Africa. University of KwaZulu Natal Press. South Africa.

National Heritage Resources Act (Act No. 25 of 1999).

Pelser, A. 2009. Travelling through Time: Archaeology and the Vredefort Dome. In: Reimold, U. & Gibson, R. (eds) *Meteorite Impact! The Danger from Space and South Africa's Mega-Impact, the Vredefort Structure (Third Edition)*: 164-178. Johannesburg: Springer.

APPENDIX A

LIST OF LEGISLATION APPLICABLE TO THE SITE

12. LEGISLATION

National Heritage Resources Act 25 of 1999

12.1 Section 3 of the NHRA 25 of 1999

According to Section 3 under **National Estate** of the National Heritage Act 25 of 1999 the heritage resources in South Africa includes the following:

“(1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

(2) Without limiting the generality of subsection (1), the national estate may include –

(a) places, buildings, structures and equipment of cultural significance;

(b) places to which oral traditions are attached or which are associated with living heritage; (c) historical settlements and townscapes;

(d) landscapes and natural features of cultural significance;

(e) geological sites of scientific or cultural importance;

(f) archaeological and paleontological sites;

(g) graves and burial grounds, including—

(i) ancestral graves;

(ii) royal graves and graves of traditional leaders;

(iii) graves of victims of conflict;

(iv) graves of individuals designated by the Minister by notice in the Gazette;

(v) historical graves and cemeteries; and

(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);

(h) sites of significance relating to the history of slavery in South Africa;

(i) movable objects, including:

(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;

(ii) objects to which oral traditions are attached or which are associated with living heritage;

(iii) ethnographic art and objects;

(iv) military objects;

(v) objects of decorative or fine art;

(vi) objects of scientific or technological interest; and

(vii) books, records, documents, photographic positives and negatives, graphic, film or video material 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).

(3) Without limiting the generality of subsections (1) and (2), 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”.

12.2 Section 36 of NHRA 25 of 1999

According to Section 36 under **Burial grounds and graves** of the National Heritage Act 25 of 1999 the graves in South Africa are protected as follows:

- (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.
- (2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.
- (3)(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
 - (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the

exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

- (5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—
 - (a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
 - (b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.
- (6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—
 - (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
 - (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.
- (7)(a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.
 - (b) The Minister must publish such lists as he or she approves in the Gazette.

- (8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.
- (9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

12.3 Section 38 of NHRA 25 of 1999

According to Section 38 under **Heritage resources management** of the National Heritage Act 25 of 1999 the heritage resources in South Africa should be managed in the following:

“(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site—
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

(2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection (1)—

(a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or

(b) notify the person concerned that this section does not apply.

(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(c) an assessment of the impact of the development on such heritage resources;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development.

(4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development, decide—

(a) whether or not the development may proceed;

(b) any limitations or conditions to be applied to the development;

- (c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
- (d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
- (e) whether the appointment of specialists is required as a condition of approval of the proposal.
- (5) A provincial heritage resources authority shall not make any decision under subsection (4) with respect to any development which impacts on a heritage resource protected at national level unless it has consulted SAHRA.
- (6) The applicant may appeal against the decision of the provincial heritage resources authority to the MEC, who—
- (a) must consider the views of both parties; and
- (b) may at his or her discretion—
- (i) appoint a committee to undertake an independent review of the impact assessment report and the decision of the responsible heritage authority; and
- (ii) consult SAHRA; and
- (c) must uphold, amend or overturn such decision.
- (7) The provisions of this section do not apply to a development described in subsection (1) affecting any heritage resource formally protected by SAHRA unless the authority concerned decides otherwise.
- (8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

(9) The provincial heritage resources authority, with the approval of the MEC, may, by notice in the Provincial Gazette, exempt from the requirements of this section any place specified in the notice.

(10) Any person who has complied with the decision of a provincial heritage resources authority in subsection (4) or of the MEC in terms of subsection (6) or other requirements referred to in subsection (8), must be exempted from compliance with all other protections in terms of this Part, but any existing heritage agreements made in terms of section 42 must continue to apply.