HERITAGE SCOPING REPORT

FOR THE PROPOSED NEW KHULU TAILINGS STORAGE FACILITY AND ASSOCIATED INFRASTRUCTURE PROJECT, LIMPOPO PROVINCE.

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2021/06/18	21908	Revised to include Site option B

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EXECUTIVE SUMMARY

Site name and location: Khulu TSF located at the Dwarsrivier Mine, Steelpoort, Limpopo Province

1: 50 000 Topographic Map: 2430 CC

EIA Consultant: Envirogistics (Pty) Ltd

Developer: Dwarsrivier Chrome Mine

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).
Contact person: Jaco van der Walt, Tel: +27 82 373 8491, Email: jaco@heritageconsultants.co.za.

Date of Report: 25 March 2019. Revised 18 June 2021

Findings of the Assessment:

The scope of work comprises a Heritage Scoping Report for the proposed Khulu TSF and associated infrastructure located at the Dwarsrivier Chrome Mine, Limpopo Province. This report was conducted based on a desktop study of available data regarding cultural heritage resources of the area and a brief site visit to the selected TSF options. The mine identified seven sites initially, which have been reduced to four (Site B, C, D and F) that were considered as part of this report.

This brief background study indicates that the general area under investigation has a wealth of heritage sites and a cultural layering with known sites dating to the following periods:

- The Stone Age;
- The Iron Age;
- Declared Geological sites and;
- Graves can be expected anywhere on the landscape.

None of these known sites are located within or close to the project area but provides an indication of sites that can be expected in the study area. During the site visit of the four proposed locations Stone Age material of low significance was recorded with several Iron Age sites of varying heritage significance.

Most of the areas visited have been previously disturbed by cultivation and mining activities (apart from TSF Option F) and it is expected that identified impacts on heritage resources within the study area is low and can be mitigated. The study area is also of low and insignificant paleontological sensitivity according to the SAHRIS palaeontological sensitivity map and no additional studies are required for this aspect. .

From an archaeological point of view the proposed project is considered to be viable and no fatal flaws are expected.

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ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
EAP: Environmental Assessment Practitioner
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency
SAHRIS: South African Heritage Resources Information System

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

GLOSSARY

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

Early Stone Age (2 million to 300 000 years ago)

Middle Stone Age (300 000 to 30 000 years ago)

Late Stone Age (30 000 years ago until recent)

Historic (approximately AD 1840 to 1950)

Historic building (over 60 years old)

Lithics: Stone Age artefacts

1. INTRODUCTION

HCAC was contracted by Envirogistics to conduct a heritage scoping study for the Khulu TSF and associated infrastructure at the Dwarsrivier Mine. Dwarsrivier is situated approximately 60km northwest of Lydenburg, 25km south of Steelpoort and 63km northeast of Roossenekal in the Limpopo Province. The mine currently holds the mining rights for Portion 1 (Remaining Extent) and Portion 0 (Remaining Extent) of the farm and surface rights for the said portions, as well as Portion 4 portion of Portion 3 of the farm de Grootteboom 373KT. The operation is in the Greater Tubatse Local Municipality, within the boundaries of the Sekhukhune District Municipality (Figure 1). The heritage scoping report forms part of the Environmental Impact Assessment process for the project and will be followed by a Heritage Impact Assessment report.

The aim of the scoping report is to conduct a desktop study to identify possible heritage resources within the project site. The study furthermore aims to assess the impact of the proposed project on non - renewable heritage resources and to submit appropriate recommendations with regards 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 Heritage legislation.

This report outlines the approach and methodology utilised for the scoping phase of the project. The report includes information collected from various sources and consultations. Possible impacts are identified, and mitigation measures are proposed in the following report. It is important to note a heritage walk through was conducted as part of the scoping phase.

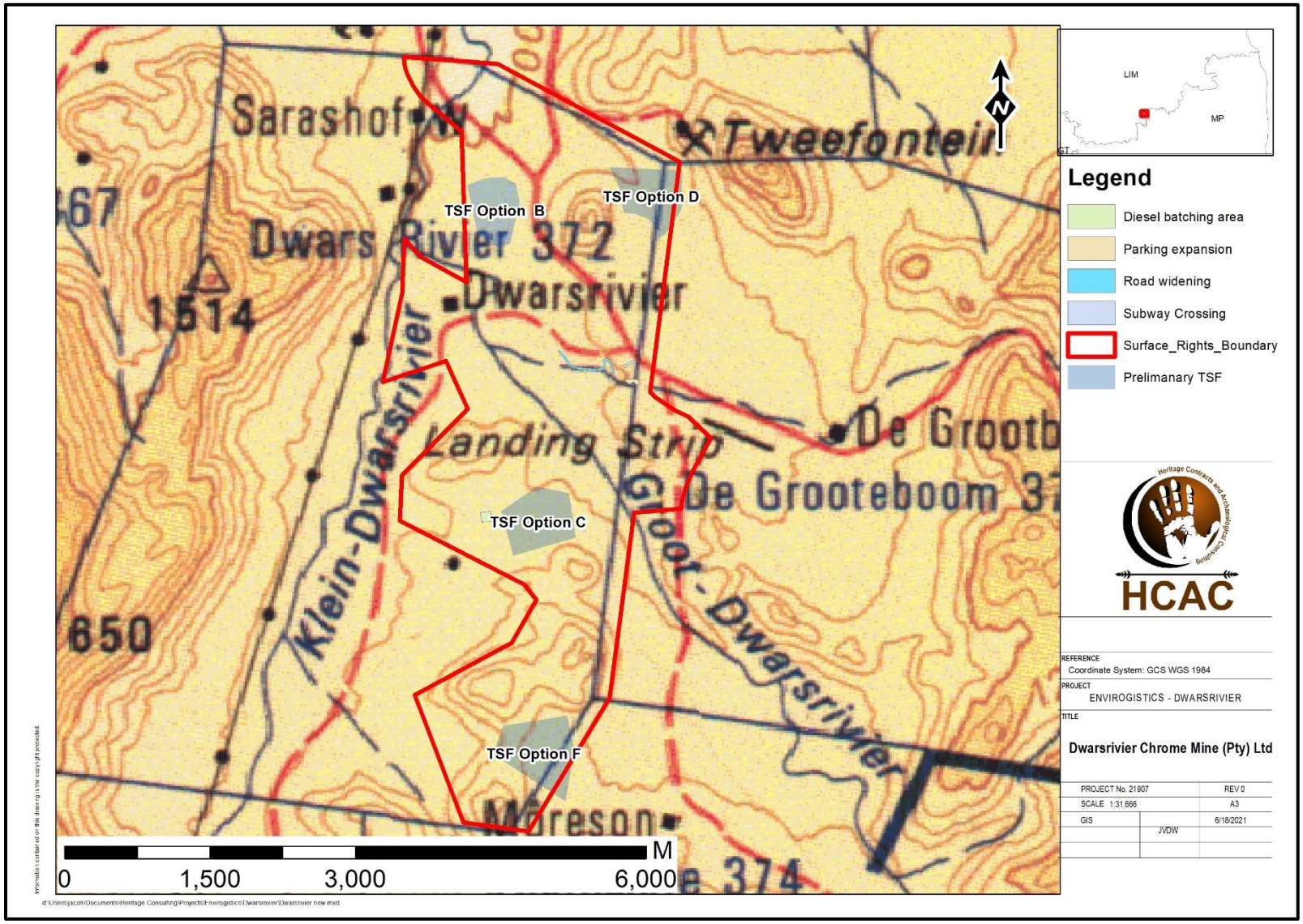


Figure 1. Regional setting (1:250 000 Topographical map) indicating the alternatives in blue.

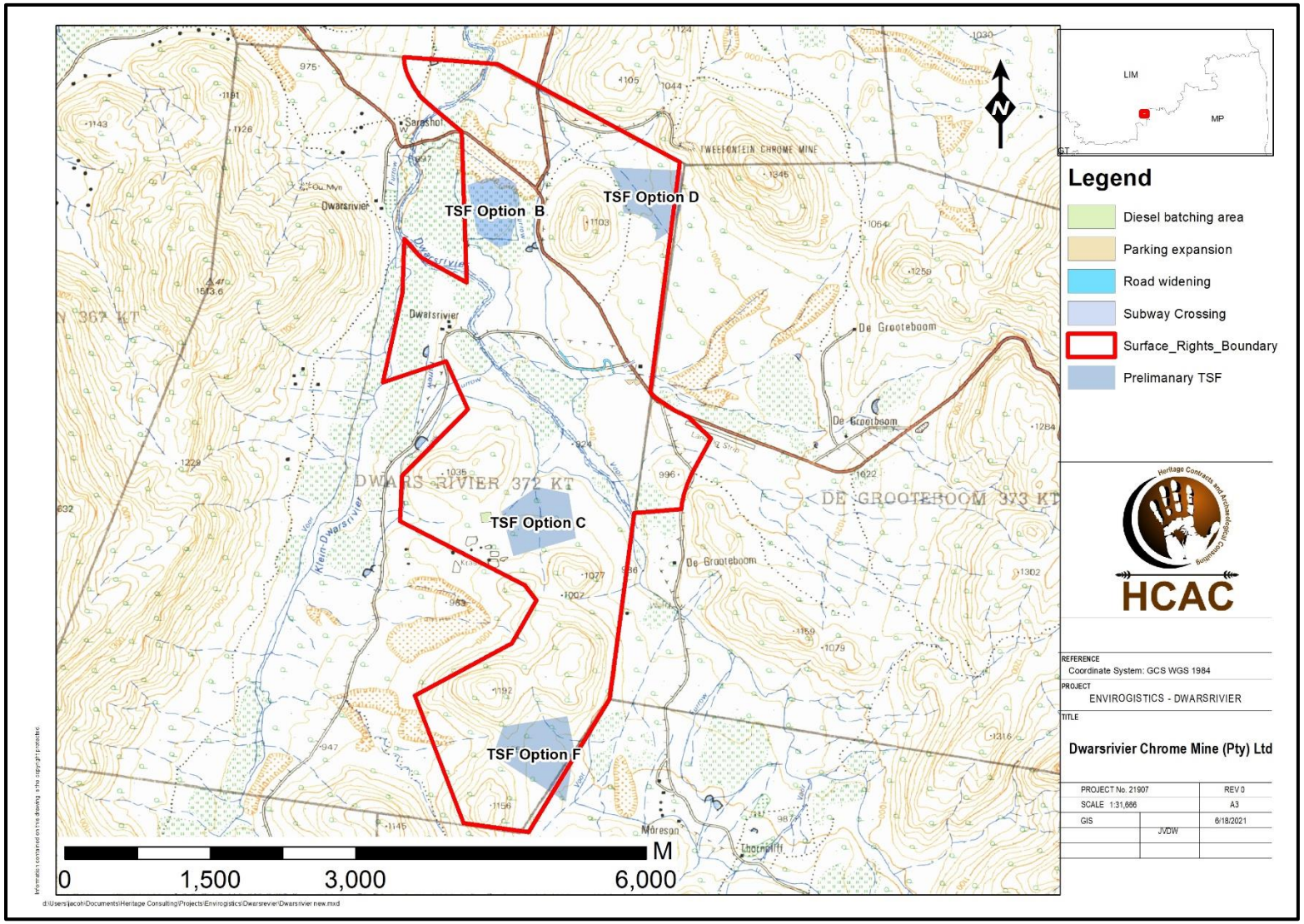


Figure 2. Local setting (1:50 000 Topographical map) of the alternatives for the TSF.

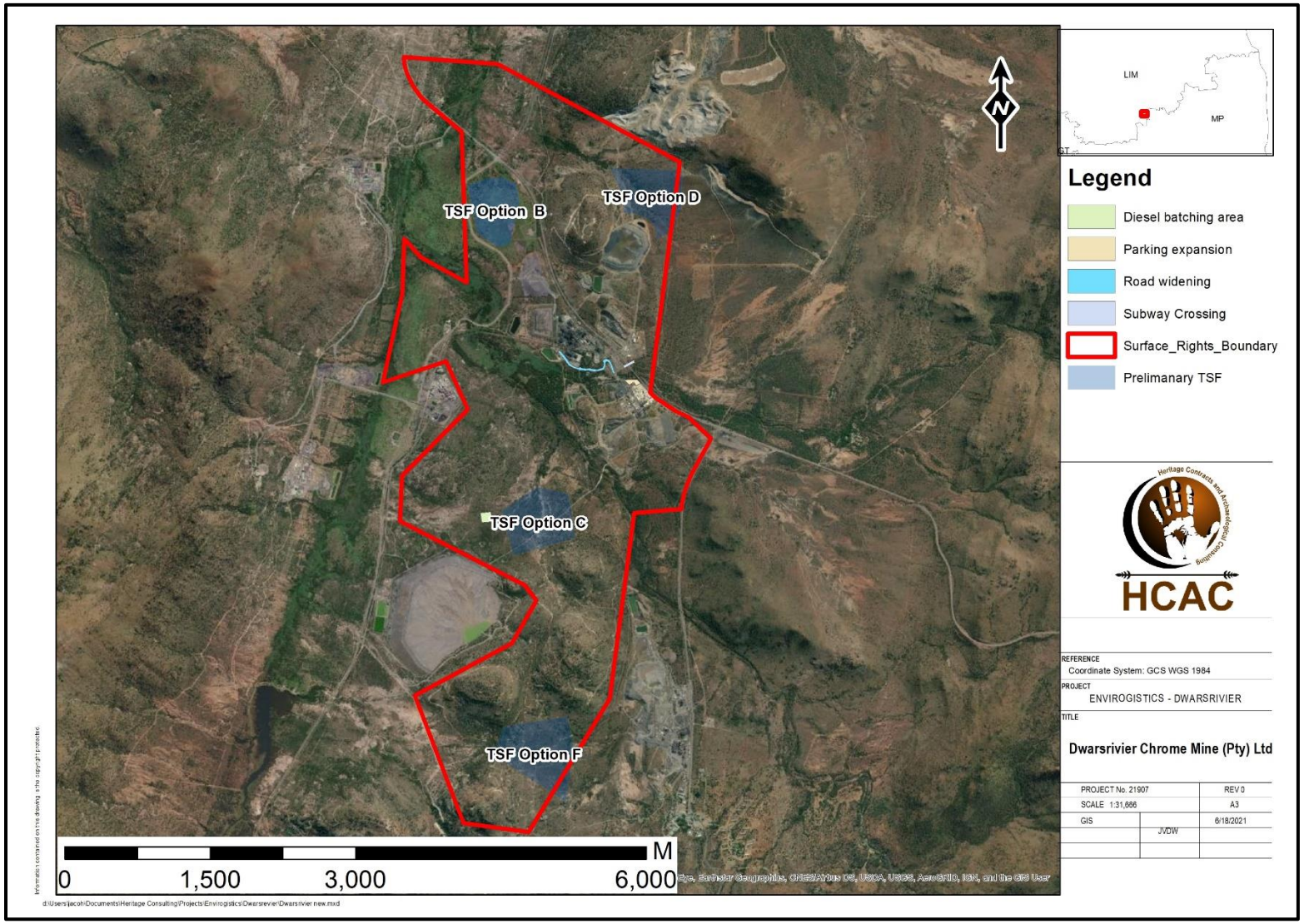


Figure 3. Aerial image of the study area

1.1 Terms of Reference

The main aim of this scoping report is to determine if any known heritage resources occur within the project site. The objectives of the scoping report were to:

- Conduct a desktop study:
  - Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area;
  - Identify 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.
- Compile a specialist Heritage Scoping Report in line with the requirements of the EIA Regulations, 2014, as amended on 07 April 2017.

The reporting of the scoping component is based on the results and findings of a desktop study and brief field visit to the selected TSF options. Potential issues associated with the proposed project will be identified, and those issues requiring further investigation through the IA Phase, highlighted. Reporting will aim to 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 development stages of the project, i.e. construction, operation and decommissioning. Reporting will also consider alternatives should any significant sites be impacted on by the proposed project. This is done 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 Heritage Legislation.

During the next phase, the following terms apply:

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

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

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

1.2 Nature of the development

The project includes the proposed new KHULU Tailings Storage Facility and associated infrastructure as detailed below:

Project 1 – Khulu TSF

Farm Dwarsrivier 372KT RE (TSF and ancillary infrastructure):

- TSF Option B: 24ha (preferred)
- TSF Option D: 19ha

Farm Dwarsrivier 372KT Remainder of Portion 1:

- TSF Option C: 21ha
- TSF Option F: 17ha

Farm Dwarsrivier 372KT Remainder of Portion 6 (location can still change to Dwarsrivier 372KT RE):

- Proposed Return Water Dam for Option B: 1.7ha

Project 2 – Diesel and Emulsion Batching

Farm Dwarsrivier 372KT Remainder of Portion 1: 1.6ha

- Emulsion Batching: 0.9ha
- Diesel Batching: 0.66ha (clearance of about 0.37ha)
- Road: 80m at 6m width: 0.048ha (480m2) (clearance of about 288m2)

Project 3 – Extension of Main Parking Area

Farm Dwarsrivier 372KT Remainder of Portion 1: 0.5ha

Project 4 - Widening of Access Road between South Shaft/Main Offices and Plant

Mainly on Farm Dwarsrivier 372KT Remainder of Portion 1: 0.3ha

Project 5: Access Crossing between Plant and North Mine

Farm Dwarsrivier 372KT RE: 0.2ha.

1.3 The receiving environment

The study area is situated approximately 60km northwest of Lydenburg, 25km south of Steelpoort and 63km northeast of Roossenekal in the Limpopo Province. The study area forms part of the Dwarsrivier Valley part of the Bushveld Igneous Complex. The greater area has been transformed over the years firstly by agricultural fields and more recently by mining related activities like roads water pipelines and power lines.

2. APPROACH AND METHODOLOGY

The assessment is to be undertaken in two phases, a scoping phase and an HIA (Heritage Impact Assessment). This report concerns the scoping phase. The aim of the scoping phase is to cover available data regarding archaeological and cultural heritage to compile a background history of the study area in order to identify possible heritage issues or fatal flaws that could possibly be associated with the project and should be avoided during development.

This was accomplished by means of the following phases (the results are represented in section 4 of this report):

2.1 Literature review

A review was conducted utilising data for information gathering from a range of sources on the archaeology and history of the area. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

2.2 Information collection

The South African Heritage Resources Information System (SAHRIS) was consulted to further collect data from CRM practitioners who undertook work in the area to provide the most comprehensive account of the history of the area where possible. In addition, the archaeological database housed at the University of the Witwatersrand was consulted.

2.3 Public consultation

No public consultation was conducted during this phase by the author.

2.4 Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological sites might be located.

2.5 Genealogical Society of South Africa

The database of the genealogical society was consulted to collect data on any known graves in the area.

2.6. Restrictions

It is assumed that information obtained for the wider area is applicable to the study area. The authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey, similarly the possible occurrence of graves and other cultural material cannot be excluded. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this scoping report.

3. LEGISLATION

- For this project, the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the Kwazulu-Natal Heritage Act, No. 4 of 2008 are of importance and the following sites and features are protected:

    a. Archaeological artefacts, structures and sites older than 100 years;
    b. Ethnographic art objects (e.g., prehistoric rock art) and ethnography;
    c. Objects of decorative and visual arts;
    d. Military objects, structures and sites older than 75 years;
    e. Historical objects, structures and sites older than 60 years;
    f. Proclaimed heritage sites;
    g. Graveyards and graves older than 60 years;
    h. Meteorites and fossils; and
    i. Objects, structures and sites or scientific or technological value.

The national estate includes the following:

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 features of cultural significance;
e. Geological sites of scientific or cultural importance;
f. Archaeological and palaeontological importance;
g. Graves and burial grounds;
h. Sites of significance relating to the history of slavery; and
i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.).

Section 34 of the NHRA deal with structures that are older than 60 years. Section 35(4) of the NHRA deals with archaeology, palaeontology and meteorites. Section 36 of the NHRA, deal with human remains older than 60 years. Unidentified/unknown graves are also handled as older than 60 years until proven otherwise.

3.1 Heritage Site Significance and Mitigation Measures

The presence and distribution of heritage resources define a Heritage Landscape. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. National and Provincial Monuments are recognised for conservation purposes. The following interrelated criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage 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; and
- Potential to answer present research questions.

The criteria above will be used to place identified sites within the South African Heritage Resources Agency's (SAHRA's) (2006) system of grading of places and objects that form part of the national estate. This system is approved by the Association of South African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region. The recommendations for each site should be read in conjunction with Section 10 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 (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

4. REGIONAL OVERVIEW

4.1 General Information

4.1.1. Database search

In anticipation of other mining activities in the greater study area, archaeologists have completed numerous heritage surveys including Huffman & Schoeman 2001, 2002 a and b; van Schalkwyk 2005; Roodt 2003a, 2003b, 2003c, 2005, 2008a, 2008b; Van der Walt & Fourie 2006; Van der Walt & Celliers 2009; Van der Walt 2009; 2016 and Pistorius 2007, 2010, 2011 for various Environmental Impact Assessment Reports (EIAs) and Environmental Management Programmes (EMPs). These studies provide a good understanding of the archaeology of the area and use of the wider landscape. Since 2001, heritage surveys have recorded more than 240 sites in the greater study area, ranging from the Middle Stone Age to the recent households of farm labourers.

The distribution of the sites on the landscape shows different land use patterns. Many agriculturally orientated societies (making Eiland, Leolo and Marateng pottery) built their villages in the valleys near cultivatable alluvium. Others (probably Ndebele) built terraced settlements on basal slopes of the valley edge, while farm labourers usually lived in the valleys as well.

During the 19th Century, farmers lived around the edge of high meadows as a measure of protection. A few Middle Iron Age Eiland sites were also cited in this plateau environment. Grave sites can be expected anywhere on the landscape.

4.1 2. Public consultation

No public consultation was conducted by the heritage consultant during the scoping phase.

4.1.3. Google Earth and mapping survey

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological sites might be located.

4.1.4. Genealogical Society of South Africa

No grave sites are on record for the study area.

4.1.5. Known sites.

Based on the desktop study several known sites were identified and mapped in relation to the proposed TSF options. None of the previously known sites occur within the proposed site alternatives (Figure 4).

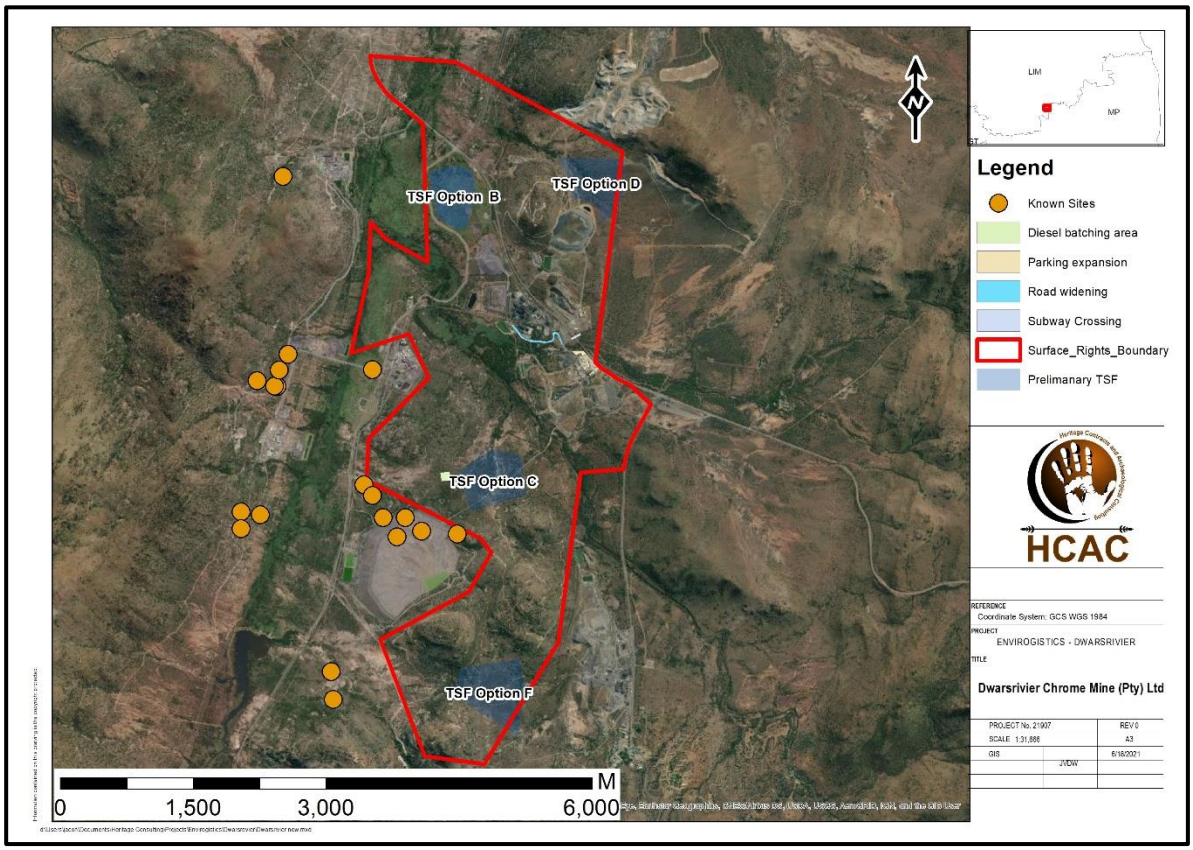


Figure 4. Known sites in relation to the study area.

5. ARCHAEOLOGICAL AND HISTORICAL INFORMATION AVAILABLE ON THE STUDY AREA

5.1 Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2012). The three main phases can be divided as follows:

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

Middle Stone Age isolated artefacts are found scattered over the landscape. Finds typically include radial cores, triangular points and flakes. These artefacts are scattered too sparsely to be of any significance (Van der Walt 2016).

5.2. The Iron Age

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

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

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. Most of the decorated pottery found in the study area belongs to the stylistic facies known as *Eiland*. This style dates to between 1550 AD and 1750 AD and was made by Sotho-Tswana people (Huffman 2007: 186-189). These Middle Iron Age Sites do not have any stone walling associated with them and is found close to cultivatable soil. Some stylistic *Marateng* pottery were also recorded presumably in association with Late Iron Age stone walled settlements. *Marateng* pottery dates to between 1650 AD and 1840 AD (Huffman 2007: 207).

5.3. Historical Information

European occupation began in 1845 when trekkers established Ohrigstad and then Lydenburg a few years later. Originally, the trekkers were interested in ivory, but they also needed land and labour for agriculture. Tensions with African communities over these needs rose to such a point that the Trekkers attacked the Pedi capital in 1852. They failed, however, to destroy Pedi authority. Somewhat later, they negotiated a peace with Sekwati and traded cattle for land. Boers then started to establish farms in the region. GS Maree, for example, settled on Mareesburg in 1871. Tensions over land and labour increased again until the ZAR attacked the Pedi capital in 1876: this battle also failed to break Pedi resistance.

This brief historical outline helps to date some other sites in the study area. In particular, a number of settlements located around high meadows probably date from 1860 to 1880, when tensions were high but before major European occupation of local farms.

5.4. Anglo-Boer War Sites

The Anglo-Boer War was the greatest conflict that had taken place in South Africa up to date. No sites relating to the war are known to occur in the study area.

5.5. Cultural Landscape

The cultural landscape is characterised by an area that has been extensively disturbed by mining activities and in the past by agricultural activities.

5.6. Built Environment

No structures occur in the development footprint, and no further mitigation is required in terms of Section 34 of the NHRA.

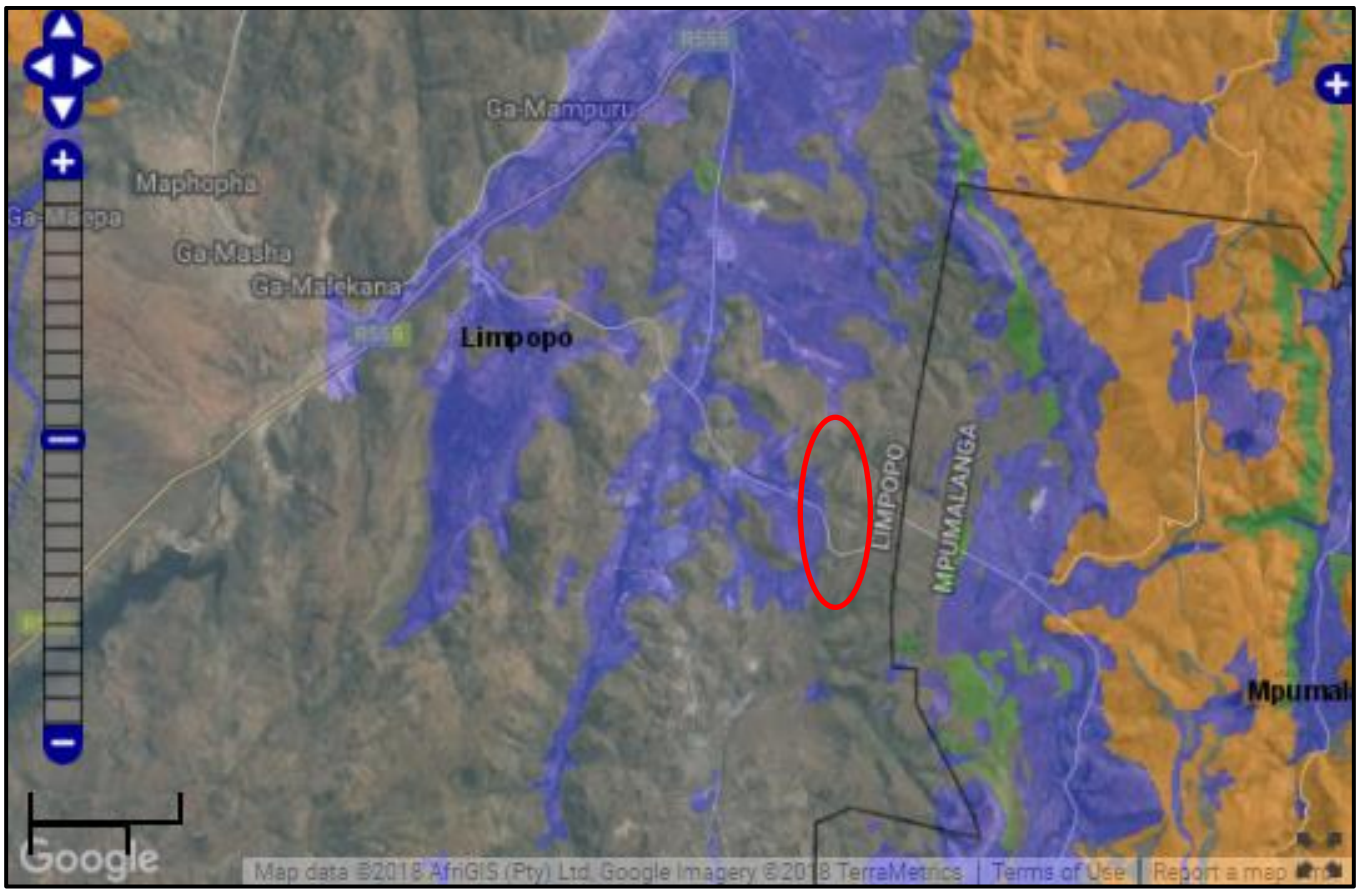
5.7. Graves and Burial Sites

Graves and cemeteries are widely distributed across the landscape and can be expected anywhere.

5.8. Known Battles in relation to the study area

No battles took place in the study area.

5.9. Paleontological Significance



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No paleontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 5. Paleontological Sensitivity of the study area is indicated as insignificant and low.

6. PROBABILITY OF OCCURRENCE OF SITES

Based on the above information, it is possible to determine the probability of finding archaeological and cultural heritage sites within the study area to a certain degree. For the purposes of this section of the report the following terms are used – low, medium and high probability. Low probability indicates that no known occurrences of sites have been found previously in the general study area. Medium probability indicates some known occurrences in the general study area are documented and can therefore be expected in the study area. A high probability indicates that occurrences have been documented close to or in the study area and that the environment of the study area has a high degree of probability for the occurrence of sites.

» Archaeological and Cultural Heritage Landscape

NOTE: *Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface*.

*Archaeologica*l remains dating to the following periods can be expected within the study areas:

» Stone Age finds
ESA: *Low Probability*
MSA*: Medium Probability*
LSA: Medium Probability
LSA –Herder: Low Probability
Shell Middens – No Probability.

» Iron Age finds
EIA: *Medium Probability*
MIA*: Medium to high Probability*
LIA: Medium to high Probability

» Historical finds
Historical period: *Low-Medium Probability*
Historical dumps: *Low-Medium Probability*
Structural remains: *Low-Medium Probability*

» Living Heritage
For example, rainmaking sites: *Low Probability*

» Burial/Cemeteries
Burials over 100 years: *Medium Probability*
Burials younger than 60 years*: Medium Probability*

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

7. ASSUMPTIONS AND LIMITATIONS

It is assumed that information obtained for the wider area is applicable to the study area. Additional information could become available in future that could change the results of this report. It is assumed that the EAP will upload all relevant documents to the SAHRIS.

8. FINDINGS

The study areas were subjected to a heritage walk down and the following sites were noted in the proposed TSF alternatives (Figure 5)

Feature	Longitude	Latitude	Label	Impact area
Feature 1	30° 07' 14.7145" E	24° 54' 50.4719" S	Cemetery	Adjacent to TSF D
Feature 2	30° 06' 43.5744" E	24° 56' 58.5204" S	Iron Age	TSF C
Feature 3	30° 06' 47.1851" E	24° 56' 58.4664" S	Iron Age	TSF C
Feature 4	30° 06' 53.2044" E	24° 56' 55.9464" S	Iron Age	TSF C
Feature 5	30° 06' 59.8283" E	24° 56' 53.7108" S	Iron Age	TSF C
Feature 6	30° 06.713' E	24° 54.935' S	Stone wall foundations	TSF C
Feature 7	30° 06.641' E	24° 55.234' S	Iron Age	TSF B

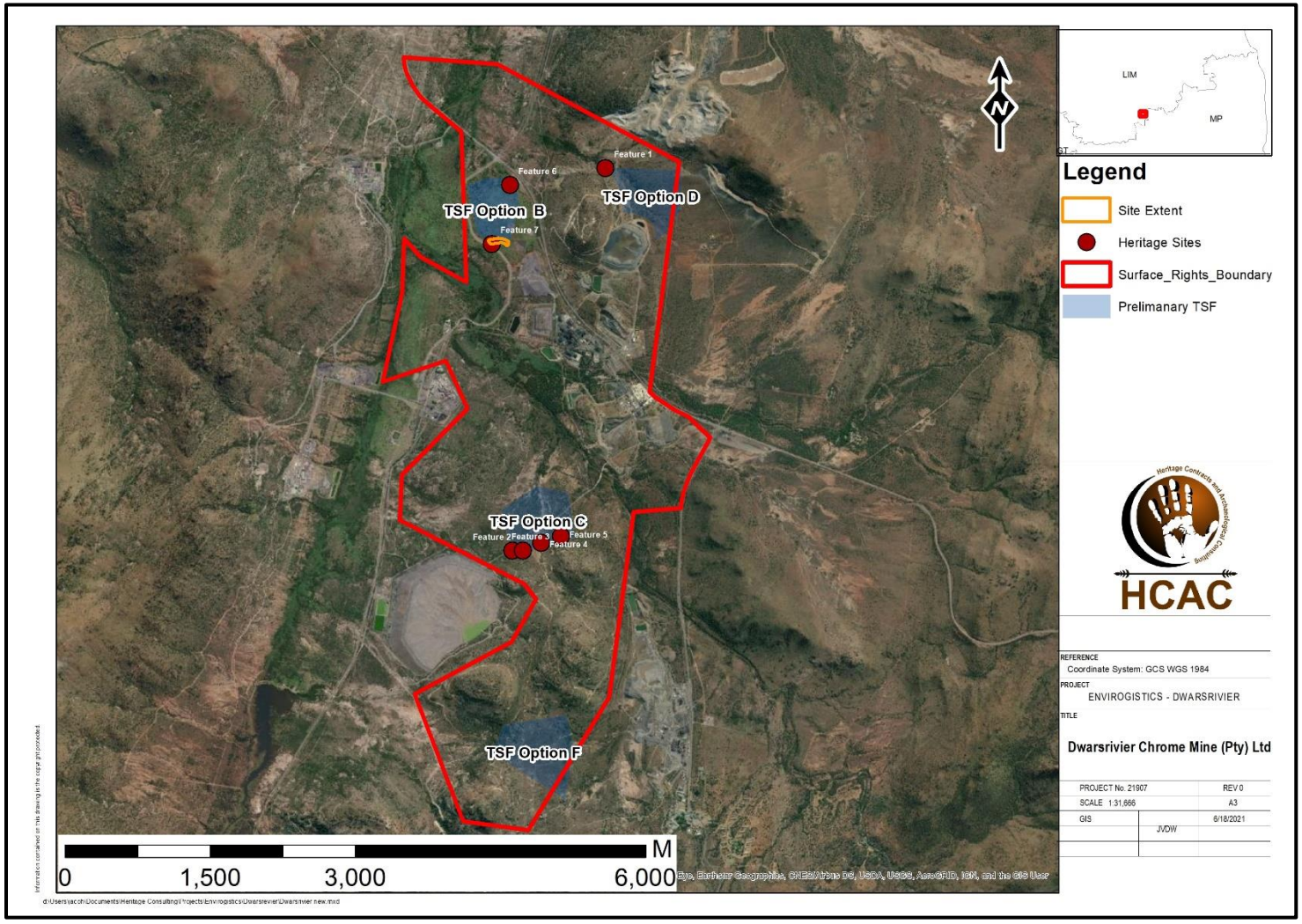


Figure 6. Site distribution.

8.1. Archaeology

8.1.1 Archaeological finds

Finds are limited to Iron Age stone walled sites in TSF Option C and an Early Iron Age cattle kraal site in TSF Option B. Impacts to heritage resources will occur primarily during the construction phase and no impacts are expected during the operation and decommissioning phase (Table 1 and 2). Similar sites can occur within other project areas.

8.1.2 Nature of Impact

The construction phase of the project could directly impact on surface and subsurface archaeological sites.

8.1.3 Extent of impact

The project could have a low impact on a local scale.

8.2. Historical period

8.2.1 Historical finds:

Historical finds include structural remains and the cultural landscape. Impacts to heritage resources will occur primarily during the construction phase and no impacts are expected during the operation and decommissioning phase.

8.2.2 Nature of Impact

Due to the large-scale mining and previous agricultural development of the study area and surrounds no impacts of any magnitude are expected as the proposed development is in line with the surrounding land use.

8.2.3 Extent of impact

The construction of the project could have a low impact on a local scale.

8.3. Burials and Cemeteries

8.3.1 Burials and Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape, during the site visit no grave sites are expected to be directly impacted on. Cognisance should be taken of the cemetery adjacent to TSF Option D to avoid accidental impacts to the site. Although no burial sites were identified in the TSF areas cemeteries can occur within other project areas.

8.3.2 Nature of Impact

The construction and operation of the proposed project could impact on unmarked graves.

8.3.3 Extent of impact

The project could have a low to medium impact on a local scale.

Table 1. Expected impact on heritage resources.

Impact on Heritage resources The construction of the proposed project could directly impact on graves, archaeological sites and historical sites.			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Disturbance and destruction of archaeological sites, historical sites and graves.	Construction activities could cause irreversible damage or destroy heritage resources and depletion of the archaeological record of the area.	Low to Medium on a local scale.	NA
Description of expected significance of impact Significance of sites, mitigation and significance of possible impacts can only be determined after the HIA but based on the current information the impact on precolonial heritage is considered low.			
Gaps in knowledge & recommendations for further study It is recommended that an HIA should be conducted to comply with Section 38 (8) of the National Heritage Resources Act.			

Table 2. Site selection rating and Heritage Constraints

TSF Option	**Heritage constraints and numerical rating based on preference**
Site B	The stone wall foundations of a ruin and a possible Early Iron Age site was recorded within Site B. The study area is however disturbed, possibly by previous cultivation reducing the significance of the recorded finds. The recorded sites will require limited mitigation and Site B is therefore the third option from a heritage point of view (3).
Site C	From a heritage point of view the heritage sensitivity associated with Site C is high due to the Iron Age sites recorded in the impact area and this option is therefore the least suitable for the proposed development (4).
Site D	Site D is from a heritage point of view the preferred site (1). Site D has previously been disturbed and no heritage resources were identified inside the footprint area of the proposed TSF. It should be noted that a cemetery occurs on the periphery of the site, and this area should be demarcated and avoided.
Site F	Site F is also considered to be acceptable if the correct management and mitigation measures are implemented (2). Site F is however located in a pristine Greenfields area and therefore less suitable than Site D.

9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area it is anticipated that any sites that occur within the proposed development area will have a Generally Protected B (GP. B) or lower field rating and all sites should be mitigatable. No red flags have been identified.

10. CONCLUSIONS AND RECOMMENDATIONS

This brief background study indicates that the general area under investigation has a wealth of heritage sites and a cultural layering with known sites dating to the following periods:

- The Stone Age;
- The Iron Age;
- Declared Geological sites and;
- Graves can be expected anywhere on the landscape.

None of these known sites are located within or close to the project area but provides an indication of sites that can be expected in the study area. During the site visit of the four proposed locations Stone Age material of low significance was recorded with several Iron Age sites of varying heritage significance.

Most of the areas visited have been previously disturbed by cultivation and mining activities (apart from TSF Option F) and it is expected that identified impacts on heritage resources within the study area is low and can be mitigated. The study area is also of low and insignificant paleontological sensitivity according to the SAHRIS palaeontological sensitivity map and no additional studies are required in this regard.

Every site is relevant to the Heritage Landscape, but it is anticipated that few sites in the study area could have conservation value. Therefore, the following conclusions are applicable:

» Archaeological and Palaeontological sites

Four Iron Age sites were identified in the TSF Option C and an Early Iron Age site in TSF Option B. It is expected that these sites can be mitigated either in the form of conservation of the sites within the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development. The study area is low and insignificant paleontological sensitivity and according to the SAHRIS palaeontological sensitivity map no further studies are required.

» Historical finds and Cultural landscape

The remains of a rectangular stone wall dwelling were identified in TSF Option B. It is expected that these sites can be mitigated either in the form of conservation of the sites within the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development.

» Burials and cemeteries

Formal and informal cemeteries as well as pre-colonial graves occur widely across Southern Africa. One cemetery was identified during this study. It is generally recommended that burial sites are preserved *in situ* and within a development. The cemetery can however be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable. The presence of any additional grave sites

must be confirmed during the public consultation process, however due to the extent of development of the study area no grave sites are expected for the study area.

» General

From a heritage viewpoint, the proposed project is considered to be viable. This will however be confirmed through the Heritage Impact Assessment to be undertaken.

11. PLAN OF STUDY

The development triggers the NHRA in the following areas and therefore a Phase 1 Heritage Impact Assessment (HIA) is recommended:

Action Trigger	**Yes/No**	**Description**
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300 m in length.	Nos	
Construction of a bridge or similar structure exceeding 50 m in length.	No	
Development exceeding 5000 m²	Yes	Footprint of impact area exceeds 5000m²
Development involving more than 3 erven or sub divisions	No	
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	
Re-zoning of site exceeding 10 000 m²	Yes	Unknown
Any other development category, public open space, squares, parks or recreational grounds	No	

With cognisance of the recorded archaeological sites in the wider area and in order to comply with the National Heritage Resources Act (Act 25 of 1999) it is recommended that a field-based impact assessment should be conducted. During this study sites of archaeological, historical or places of cultural interest must be located, identified, recorded, photographed and described. During this study, the levels of significance of recorded heritage resources must be determined and mitigation proposed should any significant sites be impacted upon, ensuring that all the requirements of the SAHRA are met.

11.1 Reasoned Opinion

If the above recommendations are adhered to, HCAC is of the opinion that the impact of the development on heritage resources can be mitigated. This will be confirmed through the Heritage Impact Assessment to be undertaken.

If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded.

12. LIST OF PREPARERS

Jaco van der Walt (Archaeologist and project manager).

13. STATEMENT OF COMPETENCY

The author of the report is a member of the Association of Southern African Professional Archaeologists and is also accredited in the following fields of the Cultural Resource Management (CRM) Section, member number 159: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. Jaco is also an accredited CRM Archaeologist with SAHRA and AMAFA.

Jaco has been involved in research and contract work in South Africa, Botswana, Mozambique, Zimbabwe, Tanzania, Guinea, Afghanistan and the DRC and conducted well over 500 AIAs since he started his career in CRM in 2000. This involved several mining operations, Eskom transmission and distribution projects and infrastructure developments. The results of several of these projects were presented at international and local conferences.

14. STATEMENT OF INDEPENDENCE

I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which the client was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.

SIGNATURE: _____

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