MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship

PHASE 1 HERITAGE IMPACT ASSESSMENT REPORT

APPLICATION FOR ENVIRONMENTAL AUTHORISATION

THE PROPOSED UNDERGROUND MINING AND A BOX SHAFT ON REMAINING EXTENTS OF PORTIONS 18, 21, 55, 64, 69, 85, 213 OF FARM TENBOSCH 162 JU, PORTIONS 2, 5 AND 6 OF FARM TURFBELT 593 JU AND FARM TECKLENBURG 548 JU. OPEN CAST MINING WILL ONLY BE DONE ON SOME PORTIONS OF TENBOSCH 162 JU WITHIN BARBERTON MANAGERIAL DISTRICT WITHIN MPUMALANGA PROVINCE.

FEBRUARY 2022

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The report was authored by Roy Muroyi, a professional Archaeologist. Roy has over five years' industry experience having practiced in three Southern African countries namely Zimbabwe, Botswana and South Africa. He has been involved in a range of Cultural Resources Management (CRM) projects and exhumed over 500 historical burials as a professional archaeologist in the Western Cape.

Roy holds an Honours Degree in Archaeology, Cultural Heritage and Museum Studies (Midlands State University). An MA CDS (with specialization in Archaeology) at the University of Witwatersrand. He also attended further training as a Laboratory Specialist for Human anatomy and human skeletal analysis through the University of Cape-Town human biology department in-conjunction with Cape Archaeological Surveys.

He is accredited with the Association of Southern African Archaeologists (ASAPA-Southern Africa) under the Cultural Heritage Resources Management section (CRM) Professional No 453 for Industrial Archaeology, Iron Age, Colonial archaeology Human skeletal analysis and Grave relocations. He is also a member the Association of Professional Heritage Practitioners (APHP-Western Cape), International Association of Impact Assessments (IAIA- South Africa) and the Society of Black Archaeologists (SBA- International).

DECLARATION OF INDEPENDENCE: -

Tsimba Archaeological Footprints (Pty) Ltd is an independent service provider and apart from their fair remuneration for services rendered have no financial interest in the proposed development. We have disclosed any material information that have or may have the potential to influence the objectivity of any report or decisions base thereon; and are very much aware that a false declaration is misleading and constitutes an offense in terms of *Regulation 71 of GN No. R. 543*.

I, _____ Roy Muroyi_____, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

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EXECUTIVE SUMMARY: -

BACKGROUND: -

Tsimba Archaeological Footprints (Pty) Ltd was appointed by Myezo Environmental Management Services (Pty) Ltd (Pty) Ltd (Myezo) on behalf of the applicant Tenbosch Mining (Pty) Ltd to carry out a Phase 1 Heritage Impact Assessment for the proposed underground mining and a box shaft, on Remaining Extents of Portions 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 Ju, Portions 2, 5 and 6 of Farm Turfbelt 593 JU and Farm Tecklenburg 548 JU.

Commented [LM1]: Roy, please add a section that specifies what a Phase 1 Heritage Impact Assessment is and indicate if it is sufficient for authorisation.

The aim of the survey was to identify and document archaeological sites, cultural resources, sites associated with oral histories (intangible heritage), graves, cultural landscapes, and any structures of historical significance (tangible heritage) that may be affected within the footprint of the proposed development. The field survey was undertaken in December 2021 when ground visibility was poor due to vegetation cover.

The appointment of Tsimba Archaeological Footprints (Pty) Ltd is in *terms of the National Heritage Resources Act (NHRA), No. 25 of 1999 read together with the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA*). The HIA is completed in accordance to requirements of *Section 38 (1) (c) of the NHRA, No. 25 of 1999*. This is due to the nature of the proposed development, linear development which involves:

- *c) Any development or other activity which will change the character of a site exceeding 5 000 m^2 in extent.*

The development may also impact on Cultural Heritage Resources such as graves, structures, archaeological and paleontological resources that are protected in terms of Sections 34, 35, and 36 of the NHRA. The field assessment followed a systematic survey of the farm Tecklenburg 548 JU portions of 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 JU. The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the proposed project area. The Phase I Archaeological and Cultural Heritage Impact Assessment field survey for the proposed project did not find any cultural heritage resources within the proposed development site.

CONCLUSIONS: -

This project: Directly contributes to South Africa's economic growth and reduces the alarming rate of unemployment mostly induced by the Covid-19 pandemic. It is therefore important that the provincial heritage authority exercise its discretion and offer the project the green light as it is beneficial to the community.

Site Significance: The SAHRA database for archaeological and historical impact assessments was consulted and revealed a few reports for the Komatipoort region, which are listed below. One report for Bushbuckridge J. Van Schalkwyk (2008), and one for Acornhoek JP Celliers (2012) revealed no archaeological sites of significance close to the proposed development site. Two reports by Dr. J. Van Schalkwyk carried out in (2012) revealed only historical sites close to the Komatipoort – Mozambique border. There has been very little recent research on prehistoric African settlements in the study region. Pottery and microlith stone tools have been found at locations in the Kruger National Park dating back to the last 2500 years. Apart from those in the Kruger National Park, the Plaston site to the west, which dates from around 900 AD, is the only professionally excavated Early Iron Age site in the nearby vicinity. The broader region also offers a critical piece of South African coal mining history. However, the proposed development site did not yield any cultural heritage resources during the field survey.

RECOMMENDATIONS: -

Reasoned Opinion: - It is the reasoned opinion of the author of this report that no visible material remains pertaining to heritage resources occur within the proposed development footprint. Subject to adherence of the recommendations and approval by the provincial heritage authority, the proposed development may be allowed to continue under the recommended condition given here. The impact of the proposed project on heritage resources is low and any impact to accidental finds can be mitigated to an acceptable level with the implementation of the recommendations in this report and based on approval from SAHRA. Furthermore, the socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures (i.e. chance find procedure) are implemented for the project.

Section 36 (6) of the National Heritage and Resources Act, 25 of 1999 also states that

should culturally significant material be discovered during the course of the said development, all activities must be suspended pending further investigation by a qualified archaeologist:

(i) Due to the lack of apparent significant heritage resources no further mitigation is required prior to construction. Should skeletal or archaeological remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted. A Chance Find Procedure should be included in the Environmental Management Programme (EMPr) should any site be identified during the construction phase.

(ii) Guidelines for inclusion re given in Appendix E below.

(iii) An archaeological induction should be carried out before drilling, clearing and any other mining activities begin.

(iv) Environmental Management Programme (EMPr), a qualified archeologist should be appointed to monitor the project at regular intervals and submit Archaeological Watching briefs to the Provincial Heritage Authority.

(v) The community should be notified of the need to report any graves and burials grounds that may be affected by the proposed development during the construction and operational phases

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LIST OF ABBREVIATIONS: -

Abbreviation	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
BAR	Basic Assessment Report
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPR	Environmental Management Programme
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
LIA	Late Iron Age
LSA	Late Stone Age
MIA	Middle Iron Age
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PHRA	Provincial Heritage Resources Act
PWP	Prospecting Work Programme
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

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1. INTRODUCTION: -

1.1 PROJECT BACKGROUND: -

Myezo Environmental Services (Pty) Ltd, the independent Environmental Assessment Practitioner (EAP), has been appointed by Tenbosch Mining (Pty) Ltd to apply for an environmental authorisation for the proposed underground mining and a box shaft on on the remaining extents of Portions 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 JU, Portions 2, 5 and 6 of Farm Turfbelt 593 JU and Farm Tecklenburg 548 JU.

The proposed activities will involve opening a box cut shaft, open cast mining, on Farm Portions of Farm Tenbosch 162 JU. The Regulation 2.2 map shows that the proposed activities will cover an area of about 8 528.95 hectares, As indicated above, the proposed activities will be undertaken on remaining extents of Portions 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 JU, Portions 2, 5 and 6 of Farm Turfbelt 593 JU and Farm Tecklenburg 548 JU. Open cast mining will only be done on some Portions of Tenbosch 162 JU.

The Heritage Impact Assessment was conducted as part of the *National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)* requirements and it also follows the requirements of the *National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).* The Environmental Screening Tool was used to access the applicability of a Heritage Impact Assessment report on proposed development site. The screening tool revealed that a Heritage Impact Assessment was applicable in this area.

The terminology used and the methodology followed with regards to the compilation of the Heritage Impact Assessment (HIA) are explained and the legal framework stated (see **APPENDIX A**). International conventions regarding the protection of cultural resources have also been followed. The *ICOMOS Burra Charter (1979)* was also largely consulted for international heritage principles and policies applicable to this project.

1.2 Risk assessment of the proposed project activities

Cultural heritage resources are valuable assets, and this underlying value can be a threat to conservation. Development at all scales exerts direct pressure on heritage places. The proposed development involves making changes to existing infrastructures. This may

affect land, require removal of existing ecosystems or cultural sites, or introduce uses that are incompatible with heritage values. The proposed development may result in total destruction or removal of heritage resources. Pressures also arise where developments have an adverse effect on the heritage setting, or restrict access or use.

Heritage Impact Assessment is a statutory requirement in a project of this nature. The National Heritage Resources Act (No 25: 1999) applies, the relevant regulations of which are Section 38 (Heritage Impact Assessment process), Section 34 (Buildings and Structures older than 60 years) Section 35 (Archaeological and Palaeontological sites) and Section 36 (Graves and Burial Grounds). The ranking system below uses a four-colour code to highlight sites that are expected before or during the construction phase of the project. The ranking system shows the importance assigned to each of the resources expected for this project site and the degree of importance they should be dealt with;

	Ranking	**Explanation**	**Colour Code**
1	Very High	**Grade I**: Sites (Section 7 of NHRA), graves and burial grounds (Section 36 of NHRA). They must be protected. Stakeholder consultations required before graves can be relocated or other mitigation measures considered.	
2	High	**Grade II**: Sites (Section 7 of NHRA), Iron Age Archaeological Sites	
3	Medium	**Grade II**: Sites (Section 7 of NHRA), Historic Buildings and substantial archaeological deposits. They require mitigation	
4	Low	**Grade III**: Sites (Section 7 of NHRA), Other heritage typologies	

Table 1: Table showing the expected/sensitivities heritage resources before or during the construction phase of the project

Commented [LM2]: Please indicate the site sensitivities clearly, like identified sensitivities are 1,2… and if none then indicate please.

The table below assesses and evaluates some of the risks associated with the proposed projects on cultural heritage resources within the proposed development footprint.

Risk assessment/ evaluation

EVALUATION CRITERIA	RISK ASSESSMENT
Description of potential impact	Negative impacts range from partial to total destruction of surface and under-surface movable/immovable relics.
Nature of Impact	Negative impacts can both be direct or indirect.
Legal Requirements	Sections 34, 35, 36, 38 of National Heritage Resources Act (No. 25 1999).
Stage/Phase	Construction phase (Excavations)
Nature of Impact	Negative, both direct & indirect impacts.
Extent of Impact	Excavations and ground clearing has potential to damage archaeological resources above and below the surface not seen during the survey.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.

Table 2: Table showing the risks associated with the proposed development

1.3 ASSUMPTIONS AND LIMITATIONS

- We assumed that the public consultation process undertaken as part of the Environmental Impact Assessment is sufficient and adequate and does not require repetition as part of the heritage impact assessment
- The investigation was influenced by the unpredictability of buried

Commented [LM3]: Roy, I suggest we add a section that talks on public participation only. You will include that public participation was held as part of environmental authorisation. Also indicate that there was no specific information requested by the competent authority at the moment. SAHRA might provide comments in the future that might need to be addressed and this section will then be updated.

archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level.

- Should artefacts or skeletal material be revealed at the site during mining phase, such activities should be halted immediately, and a competent heritage practitioner, SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6)
- Recommendations contained in this document do not exempt the developer from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA.
- The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.
- Portions 2, 5 and 6 of Farm Turfbelt 593 JU could not be surveyed due to access issues.

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2. PROJECT LOCATION-

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LOCATION: -

The proposed activities will be undertaken on remaining extents of Portions 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 JU, Portions 2, 5 and 6 of Farm Turfbelt 593 JU and Farm Tecklenburg 548 JU. Project Locality is shown on Figure 1.1. A box cut will only be opened on some Portions of Tenbosch 162 JU within Barberton Managerial District within Mpumalanga Province.

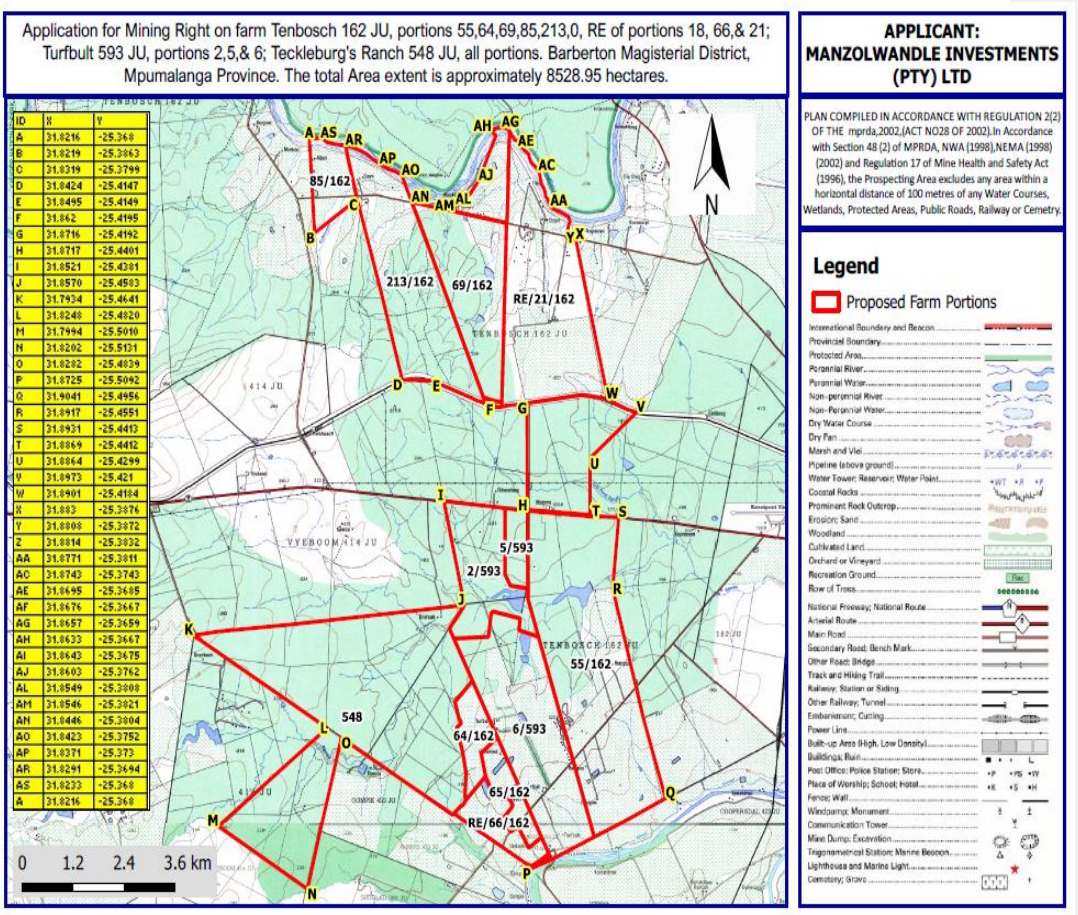


Figure 1: Locality Map

3. METHODOLOGY: -

3.1 LITERATURE REVIEW: -

The background information search of the proposed development area was conducted following the site maps from the client. Sources used in this study included:

- Published academic papers and HIA studies conducted in and around the region where the proposed infrastructure development will take place;
- Available archaeological literature covering the broader region and the entire Mpumalanga province area was also consulted;
- The SAHRIS website and the National Data Base was consulted to obtain background information on previous heritage surveys and assessments in the area; and
- Map Archives - Historical maps of the proposed area of development and its surrounds were assessed to aid information gathering of the proposed area of development and its surrounds.

3.2 FIELD SURVEY: -

The field survey lasted for two days. It was conducted by an archaeologist from Tsimba Archaeological Footprint through driving and walking. A ground survey, following standard and accepted archaeological procedures, was conducted.

The survey also paid special attention to Farm Tecklenburg 548 JU. Tsimba Archaeological Footprints is gratefully for the help and assistance offered by Mr. Elliot Ngwenya in facilitating and providing access to the different farm portions surveyed. Certain portions of 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 JU, were also surveyed as per appointment. Portions 2, 5 and 6 of Farm Turfbelt 593 JU could not be surveyed due to access issues. It should however be noted that the field survey covered the bulk of the proposed development footprint including mist areas where the mining will only happen underground and where there will be no subsurface drilling.

Disturbed and exposed layers of soils such as eroded surfaces were assessed for possible archaeological finds. These surfaces and exposed layers are likely to expose or yield archaeological and other heritage resources that may be buried underneath the soil and be brought to the surface by animal and human activities including animal burrow pits and human excavated grounds (King, 1978). The surface was also inspected for possible Stone Age scatters as well as exposed Iron Age implements

and other archaeological resources.

The survey followed investigation of the cultural resources onsite using the best possible technologies for archaeological field surveys. *The project area was surveyed, and findings were documented through photographs using a Nikon Camera (with a built-in GPS). A Samsung GPS Logger (2018) was used to record the archaeological finds on site.*

3.3 DATA CONSOLIDATION AND REPORT WRITING: -

Data captured on the development area (during the field survey) by means of a desktop study and physical survey is used as a basis for this HIA. This data is also used to establish assessment for any possible current and future impacts within the development footprint. This includes the following:

- Assessment of the significance of the cultural resources in terms of their archaeological, built environment and landscape, historical, scientific, social, religious, aesthetic and tourism value (see **Appendix B)**;
- A description of possible impacts of the proposed development, especially during the construction phase, in accordance with the standards and conventions for the management of cultural environments;
- Proposal of suitable mitigation measures to minimize possible negative impacts on the cultural environment and resources that may result during construction;
- Review of applicable legislative requirements that is the *NEMA (together with the 2014 EIA Regulations), the NHRA of 1999.*
- The consolidation of the data collected using the various sources as described above;
- Acknowledgement of impacts on heritage resources (such as unearthed graves) predicted to occur during construction;
- Geological Information Systems mapping of known archaeological sites and maps in the region, and
- A discussion of the results of this study with conclusions and recommendations based on the available data and study findings.

4. LEGISLATIVE FRAMEWORK

Tenbosch Mining (Pty Ltd (Tenbosch Mining) is required to obtain an *Environmental Authorization (EA) in terms of the National Environmental Management Act, 1998 (NEMA, Act No. 107 of 1998)* which involves the submission of an Environmental Impact Assessment Report. Myezo Environmental Management Services (Pty) Ltd (Myezo) has been appointed to assist in complying with these requirements. As part of the process Myezo also requested Tsimba Archaeological Footprints to conduct a heritage impact assessment (HIA) (with a Full Paleontological Impact Assessment) as part of the EA process. This HIA study is informed and conducted to fulfil the requirements of the *National Heritage Resources Act (No 25 of 1999).* The development also triggered the regulations applicable under the *National Environmental Management Act 107 of 1998* and other environmental management acts of South Africa.

As such, the full scoping and Environmental Impact Assessment study includes a Heritage Impact Assessment specialist study, recommendations from the HIA report require Heritage Authority review and comments to be incorporated into the final EA or Record of Decision. This particular Development triggered the following Sections of the Heritage Legislation;

Section 38 (1) of the National Heritage Resources Act requires that where relevant, an Impact Assessment is undertaken in case where a listed activity is triggered. Such activities include:

(a) the construction of a road, wall, power line, 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; and

(c) any development or other activity which will change the character of an area of land, or water -

- *(i) exceeding 5 000 m² in extent;*
- *(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.

Section 3 of the National Heritage Resources Act (25 of 1999) lists a wide range of national resources protected under the act as they are deemed to be national estate. When conducting Heritage Impact Assessment (HIA) the following heritage resources have to be identified:

(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;

(vi) Other human remains which are not covered by 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) Moveable objects, including - 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; and

(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 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)

5. ARCHELOGICAL AND HISTRORICAL BACKGROUND: -

Since the 4th century AD, farming communities have lived in northeastern South Africa. In reconstructing the temporal and spatial distribution of these farming community settlements in the Lowveld, on the Great Escarpment, and on the Central Plateau, archaeologists employ ceramic style and radiocarbon dates. Early Farming Community sites are mostly found in the Lowveld and river valleys, whereas Middle and Late Farming Community sites can be found all over the country. Until the establishment of chiefdoms near the end of the first millennium, early farming communities lived in scattered homesteads. Settlements were primarily made up of larger, clustered units. Larger-scale agglomeration began around the 16th century, culminating in sprawling, dense populations like the stonewalled Bokoni cities. Small-scale home operations to specialist hunting and intense farming were used to produce and get food. The extraction and manufacturing of salt and metals were also key parts of the regional economy.

Salt was first produced in households, but Middle Farming Communities turned it into a specialized industry. Metal production was not industrialized, and while the size of metal production grew through time, it was still done by individuals in their homes. These indigenous firms have crossed with worldwide trade systems since the early 10th century AD, connecting the interior of South Africa to global commercial networks. When European colonial forces expanded their grip over southern Africa, these indigenous networks were disturbed, and at times purposefully disarticulated.

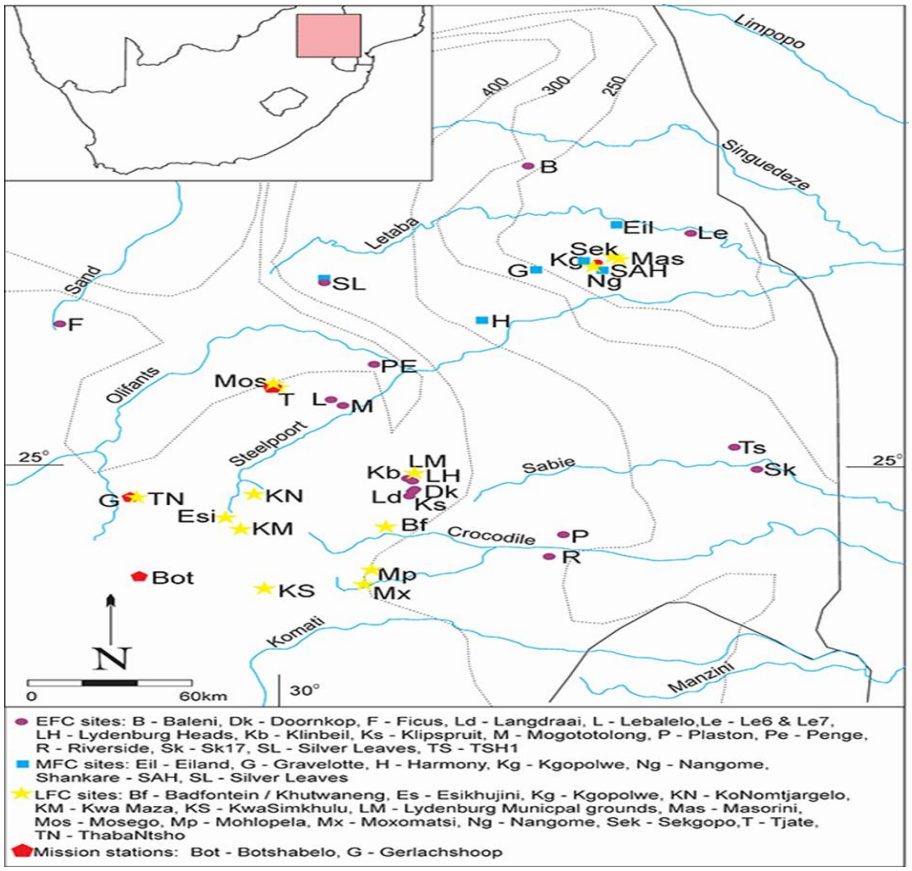


Figure 2: Archaeological map showing the locations of farming communities recorded in the Lowveld, on the Great Escarpment, and on the Central Plateau

The most complete constructed trace of pre-colonial society in southern Africa can be found in Mpumalanga Province, South Africa. Furthermore, the evidence of precolonial intense agriculture is part of a larger pattern of "islands" of intensive agriculture in Africa, which contrasts sharply with many stereotypes of precolonial African agriculture as backward and dependent mostly on widespread and shifting cropping.

Additional mapping and excavations of two Stonewalled and terraced sites in the Komati Gorge will contribute to the Bokoni project's broader goals, as outlined in this proposal. The proposed project will take place along the river and further upslope with the goal of better understanding the sites' construction and collecting samples for dating as well as scientific soil and microfossil investigations. Contrary to many established ideas about sub-Saharan African pre-colonial agriculture there are, and have been, several instances

of intensive agriculture (flood retreat cultivation, irrigation, terracing, manuring, etc.) alongside with the better-known shifting agriculture. The relation between intensive and extensive agriculture is still however an insufficiently explored theme, which has important significance for the understanding of pre-colonial political and economic history. Furthermore, there is a historic relation between the intensity of agriculture and the labour division between men and women. Historical studies of intensive agriculture have therefore a potential for highlighting gender relations, an aspect that has been largely overseen since the discussions in the first part of the 20th century.

5.1 HISTORICAL BACKGROUND: -

The name Komati first appears in historical documents in the form Macomates in 1589. A traveler on board the Portuguese ship Sao Thome[1], which went from Cochin, South India, and ran aground on the shores of the Land of the Makomati, near Lake Sibayi, in what is now KwaZulu Natal, documented it. Makomati's territory stretched from the Limpopo River in the north to St Lucia in the south, and the Drakensberg escarpment in the west. Long before the arrival of the first Portuguese in 1498, it was the trading zone of the Komati gold and ivory dealers, who established themselves at Delagoa Bay (which was known as Makomati until the 17th century)[2].

The name "Komati" comes from the Komati River, whose original Swazi name is Nkomazi, which means "river of cows." It is the confluence of the Crocodile and Komati Rivers, which flow into Mozambique through the Lebombo Mountains' mountain pass. The Netherlands – South African Railway Company (NZASM) built the Pretoria – Delagoa Bay Line in the South African Republic (ZAR), with the first train crossing the border from the ZAR to Portuguese East Africa at Komatipoort on 1 July 1891 after the completion of the rail bridge over the Komati River[3].

During the Anglo-Boer War, Major F. von Steinaecker and his "Steinaecker's Horse" utilized the town as a base between 1900 and 1902. They were mercenaries hired by the British to battle insurgents in South Africa. The former President of the Mozambique, Samora Machel, died in a plane crash in the Lebombo mountain range near Komatipoort. Primary and secondary sources were used to position the areas in and around Komatipoort to Nelspruit and north to Bushbuckridge in an archaeological context.

Early ethnographic and linguistic investigations, such as those by Ziervogel and Van Warmelo, gave information on the cultural groups existing in the area since AD1600. Historic and academic sources by Küsel, Meyer, Voight, Bergh, De Jongh, Evers, Myburgh, Thackeray and Van der Ryst were consulted, as well as historic sources by Makhura and Webb. The Pilgrim's Rest Museum Archives has some information about

[1] https://www.theheritageportal.co.za/article/tragic-fate-great-ship-sao-joao
De Klerk,S.J. The Tragic Fate of the Great Ship Sao Joao.2021.

[2] • BERGH J.S., Swart gemeenskappe voor die koms van die blankes, in J.S. Bergh (red)., Geskiedenis Atlas van Suid Afrika: Die vier Noordelike Provinsies. J.L. van Schaik, 1999.
[3] 5 Van Wyk, B., & Van Wyk P., Field Guide to Trees of Southern Africa, 1997, p. 500

the study area's prehistory and history. The author worked on a Desktop Study for Proposed Eskom Powerlines, Hazyview – Dwarsloop in 2008, an inspection of Umbhaba Stone-walled settlement, Hazyview, in 2001, a Phase 1 Archaeological and Heritage Impact Assessment for 132 kV Powerlines from Kiepersol substation (Hazyview) to the Nwarele substation (Dwarsloop (2002), and a Phase 1 Archaeological and Heritage Impact Assessment for a (2013).

The SAHRA database for archaeological and historical impact assessments was consulted and revealed a few reports for the Komatipoort region, which are listed below. One report for Bushbuckridge by J. Van Schalkwyk (2008) and one for Acornhoek by JP Celliers (2012) revealed no archaeological sites of significance. Two reports by A. Van Vollenhoven (2012) revealed only historical sites close to the Komatipoort – Mozambique border. There has been very little recent research on prehistoric African settlements in the study region. Pottery and microlith stone tools have been found at locations in the Kruger National Park dating back to the last 2500 years. Apart from those in the Kruger National Park, the Plaston site to the west, which dates from around 900 A D, is the only professionally excavated Early Iron Age site in the nearby vicinity.

There have been no previous archaeological excavations in the studied area until date, as academic institutions and experts in the field have confirmed. C. van Wyk (Rowe) discovered a stone walled hamlet with terracing at Hazyview, which is a hundred kilometers north west of the proposed development site. There are also many other sites further west and north-west,10 outside the study area. The Pilgrim's Rest Museum has done research on San rock art as well as rock art created by Bantu speakers in the Escarpment area, but none has been found in the Komatipoort area. From before the 18th century, early ethnographic and linguistic investigations by early scholars like D. Ziervogel and N.J. Van Warmelo revealed that the study area was populated by Eastern Sotho groups (Pulana, Kutswe, and Pai), as well as the Tsonga (Nhlanganu and Thangana). When focusing on ethnographic history, however, it is necessary to incorporate a slightly larger geographical area in order to make sense.

The Drakensberg Escarpment divides the district in two, with the Low Veld (where the study area is located) in the west and the Drakensberg Escarpment in the east. Today, we discovered that group boundaries are intersecting and overlapping. Zulu, Xhosa, Swazi, Nhlanganu, Nkuna, sePedi, hiPau, and seRôka are among the languages spoken

in this region[4].

During the middle of the 18th century some Sotho and Swazi groups combined under a fighting chief Simkulu. The tribe so formed became known as the BakaNgomane. The principal settlement of Simkulu was in the vicinity of the confluence of the Crocodile and Komati Rivers. It is believed that the BakaNgomane Chiefs were buried there. The Swazi under Mswati II (1845), commenced on a career of large-scale raids on the prosperous tribal lands to the north of Swaziland. His regiments such as the Nyatsi and the Malelane brought terror to African homes as far afield as Mozambique. During their northern expansion they forced the local inhabitants out of Swaziland or absorbed them. There is evidence of resistance, but the Eastern Sotho groups who lived in the northern parts of Swaziland, moved mainly northwards. This appears to have taken place towards the end of the 18th century, when these groups fled from Swaziland to areas such as Nelspruit, Bushbuckridge, Klaserie, Blyde River and Komatipoort. Mswati II built a line of military outposts from west to east of the upper Komati River and the Mlambongwane (Kaap River).

At each outpost he stationed regiments to watch and stop the BaPedi returning to their old haunts. Shaka in the course of his military actions, came into conflict with Zwide Mkhatshwa (1819). Nonwithstanding Zwide's numerical superiority, Shaka defeated him. The remnants of Zwide's tribe fled into the Eastern Transvaal where they settled. They ultimately found a new kingdom in Gaza land, which extended from just north of the current Maputo, up the east coast as far as the Zambezi River. Soshangane was a very powerful chief of the Gaza people, even though he was under the rule of Zwide. Soshangane decided to leave and was given full passage through Swaziland. He passed on his way through the Komati gorge, today known as Komatipoort, taking with him a great booty of cattle and women[5].

Meanwhile more Shangane arrived and by 1896 some 2 000 refugees settled between Bushbuckridge and Acornhoek where they are still living today. With the establishment of the Sabie Game Reserve (later known as the Kruger National Park), the BakaNgomane, their Shangaan protégés and Swazis who lived within its borders, were evicted in 1902,

[4] Celliers, J.P (2012) Report on Phase 1 Archaeological Impact assessment on erven at Komatipoort 182 JU Extension 4, Komatipoort– Revealed two pieces of
[5] National Cultural History Museum, J. Van Schalkwyk: Archaeological survey of a section of the Secunda- Mozambique Gas pipeline, Barberton District, Mpumalanga (2002), revealed one historic structure

and went westward into Klaserie and Bushbuckridge areas, or south of the Crocodile River and established themselves in the Tenbosch and Coal Mine (Strijdom Block) areas (part of the current study area), west and south of Komatipoort. The Swazi of Khandzalive moved to Mjejane or Emjejane, the current name for Hectorspruit. Several circular stone-walled complexes and terraces as well as graves have been recorded in the vicinity of Hazyview, Bushbuckridge, Graskop and Sabie, clay potsherds and upper as well as lower grinding stones, are scattered at most of the sites.

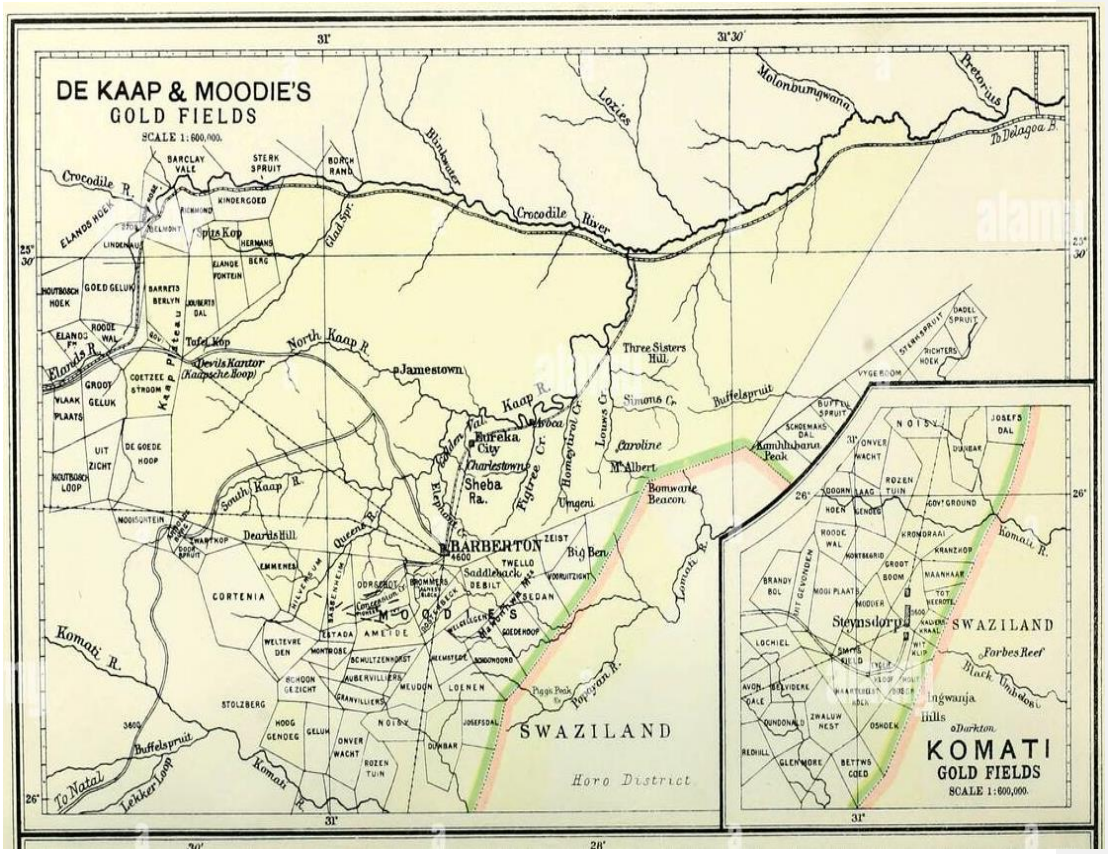


Figure 3: A historical map showing gold fields around the proposed mining area

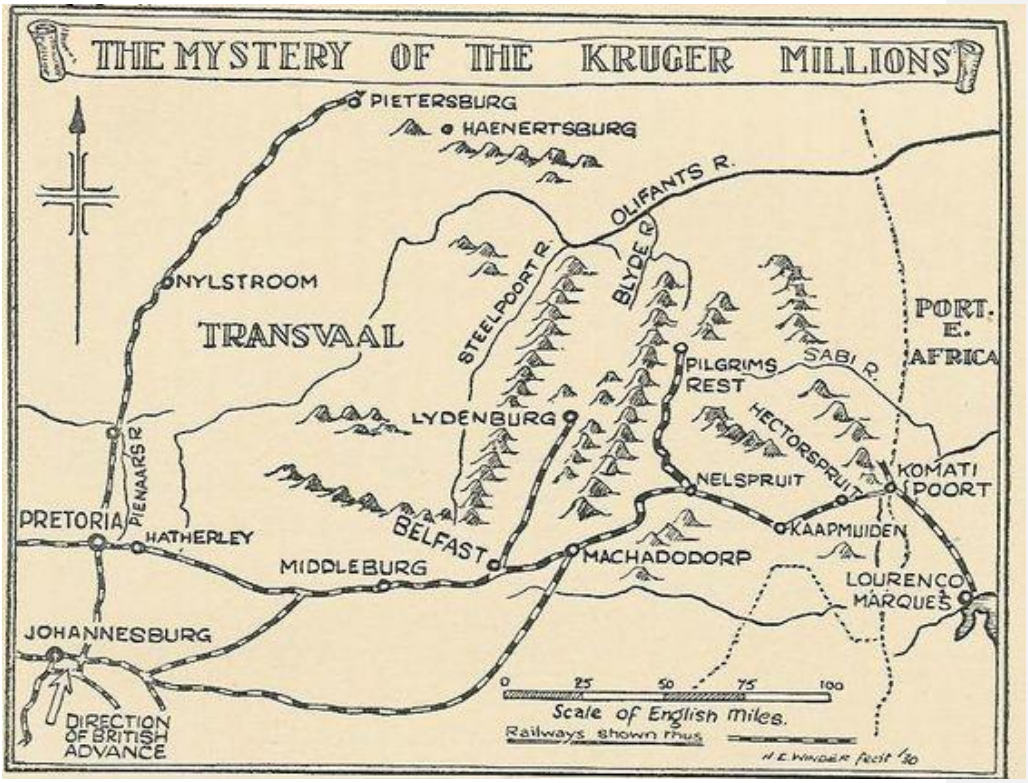


Figure 4: A historical map showing the various places which Kruger's train passes in 1900 passing through close to the proposed mining area

Many of these occur in caves as a result of the Swazi attacks on the smaller groups. The only early trade route mentioned, which crossed this section, was a footpath used by the African groups from Delagoa Bay towards Bushbuckridge (Magashulaskraal as it was previously named), along the Sabie River, up the Escarpment, and further north to the Soutpansberg. There is however, no physical evidence left of this early route.

Some of the Cultural Resources Management Reports on the SAHRA database for archaeological and historical impact assessments around the Komatipoort include:-

- *National Cultural History Museum, J. Van Schalkwyk: Archaeological survey of a section of the Secunda- Mozambique Gas pipeline, Barberton District, Mpumalanga (2002), revealed one historic structure.*

- *J. Van Schalkwyk: Proposed new Lebombo Port of Entry and upgrade of Komatipoort railway station between Mpumalanga (SA) and Mozambique (2008) – Some historic buildings were identified but no archaeological remains;*
- *A. Van Vollenhoven: Report on a cultural Heritage Impact Assessment for the proposed Kangwane Antracite Mine, Komatipoort (2012) – An archaeological site with Middle and Late Stone Age tools were identified as well as some Iron Age artifacts and decorated pottery. Mitigation measures were recommended by exclusion from the development or a Phase 2 study;*
- *JP Celliers: Report on Phase 1 Archaeological Impact assessment on erven at Komatipoort 182 JU Extension 4, Komatipoort (2012) – Revealed two pieces of undecorated sherds of pottery which was of low significance. It was recommended that any earthmoving activities be monitored by a qualified archaeologist.*
- *A. Van Vollenhoven: Archaeological Impact Assessment for Border site at Komatipoort (2012) – Revealed historic remains linked to the Steinaeker's Horse regiment during the South African War*

African groups that lived around the area during the historical period: -

- The Nhlanganu and Tšhangana The Nhlanganu and Tšhangana (also generally known as the Shangaan-Tsonga) form part of the larger Tsonga group of which the original group occupied the whole of Mozambique (Portuguese East Africa), and it has been recorded that by 1554, they were already living around the Delagoa Bay area (Maputo).They fled from the onslaughts of the Zulu (Nguni) nation from the Natal area, and great numbers of emigrants sought safety in the "Transvaal" as recently as the 19th century, especially in the greater Pilgrim's Rest district (including the study area that we are concerned with).

- The Tsonga also moved west from Mozambique into the "Transvaal". They have never formed large powerful tribes but were mostly always subdivided into loosely-knit units, and absorbed under the protection of whichever chief would give them land. They were originally of Nguni origin. The term "Shangaan" is commonly employed to refer to all members of the Tsonga division. The Nhlanganu occupied the Low Veld area in their efforts to escape the Zulu raids during 1835-1840. They lived side by side with the Tšhangana, and the differences between the two are inconsiderable.

- They have mixed extensively with other tribes. The Tšhangana are also of Nguni origin who fled in the same way as the Nhlanganu and settled in the “Transvaal” a little later than the former. Most of the Tsonga were subjects to Soshangane, who came from Zululand. The downfall of Ngungunyana (son of Soshangane) saw his son seeking sanctuary in the “Transvaal”, and the latter became known as Thulamahashi, the name that is still used for the area east of Busbuckridge.

- The historical background of the study area confirmed that it was occupied since the 17th century by the Tsonga groups (Nhlanganu and Tšhangana). These groups have intermarried extensively or were absorbed by other groups in time.

- The Swazi people descend from the southern Bantu (Nguni) who migrated from central Africa in the 15th and 16th centuries. The differences between the Swazi and the Natal Nguni were probably never great, their culture as far as is known from the comparatively little research being carried out, does not show striking differences. Their language is a ‘Tekeza’ variation of Zulu, but through having escaped being drawn into the mainstream of the Zulus of the Shaka period, they became independent and their claim to be grouped apart as a culture is now well founded.

The table below is a pictographic presentation of some of the historical characters and places mentioned in the passage above: -

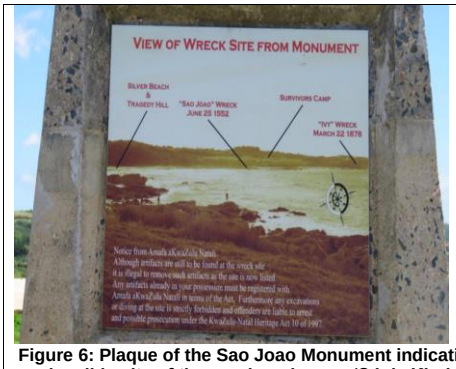


Figure 6: Plaque of the Sao Joao Monument indicating plausible site of the survivors' camp (SJ de Klerk)

Figure 5: Zwide King of the Ndwandwe (Doubell)

Figure 8: Komati River

Figure 7: Samora Moisés Machel of Mozambique

6. DESCRIPTION AND DOCUMENTS OF THE CULTURAL HERITAGE RESOURCES: -

In terms of the national estate as defined by the NHRA, no sites of significance were found during the survey as described below.

The surveyed area is an undulating piece of land which is characterised by spread-out grass veldt in some sections, crop farming, banana plantations in some farm portions and cattle rearing in some sections of the farms. The site is flanked by farming fields, rivers such as the Komati River, Crocodile River and some small tributaries in and around the proposed mining areas. The proposed development site is mostly disturbed by different human activities such as farming and mining. These activities alter the cultural landscape of any area, making it difficult for archaeological artefacts and sites to survive in such an environment.

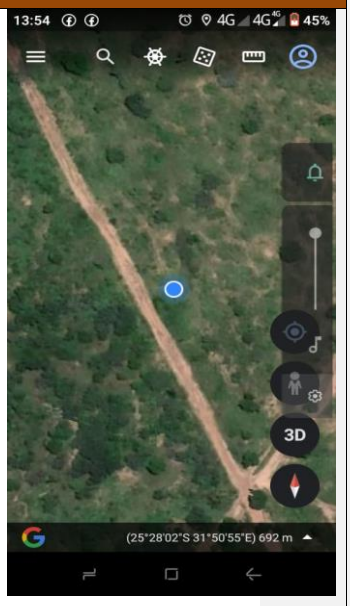
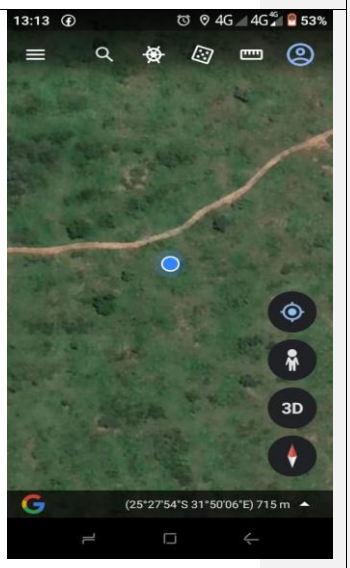
PICTOGRAPHIC PRESENTATION OF THE DRILLHOLE AREAS	REAL TIME PRESENTATION OF THE SURVEY
	
Figure 9: View of the area proposed for drillhole One	
	
Figure 10 View of the area proposed for drillhole Two	

 **Figure 11** : **View of the area proposed for drillhole Three**	**Not Captured**
 **Figure 12: View of the area proposed for drillhole four**	**Not Captured**

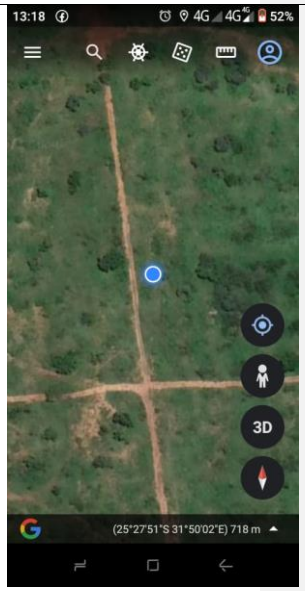
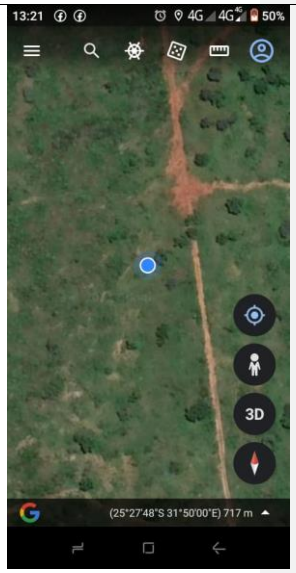
	
Figure 13: View of the area proposed for drillhole Five A	
	
Figure 14 : View of the area proposed for drillhole Five B	
	Not Captured

Figure 15: View of the proposed are for proposed drill hole six

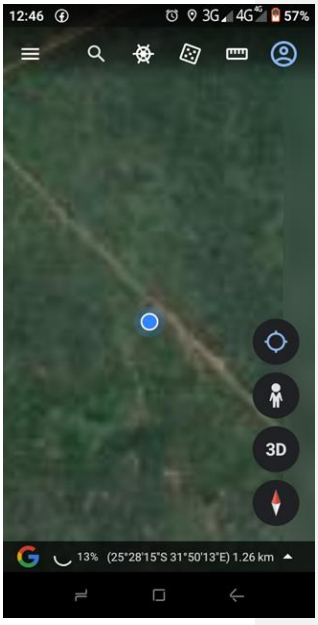


Figure 16: View of the area proposed for drillhole Seven

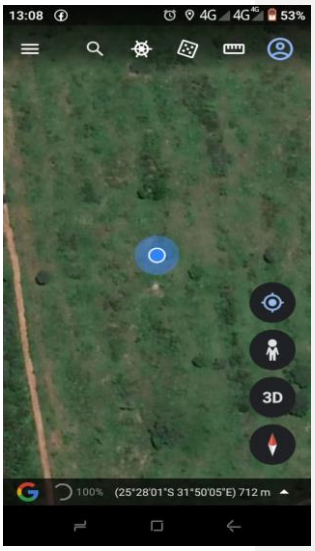


Figure 17: View of the area proposed for drillhole Eight

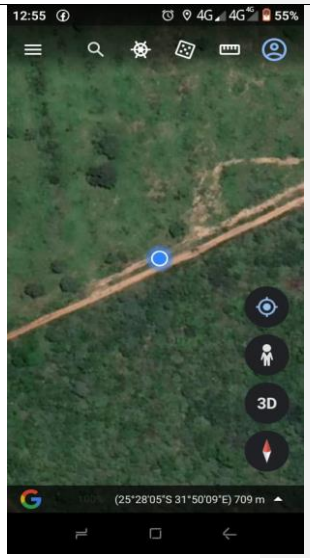


Figure 18: View of the area proposed for drillhole Nine

Pictographic presentation of the general landscape: -

Figure 19: View of the tributary river crossing within Tecklenburg farm. Farming communities were known to settle in close proximity to water sources hence this tributary was accessed for possible Iron Age artefacts

Figure 20: View of a water source (borehole)

Figure 21: View of an access road in within the proposed development footprint

Figure 22: A cattle pen used by the resettled farmers within a portion of Tecklenburg

Figure 23: View of a Tributary River within the proposed development footprint

Figure 24: View of a railway siding within the proposed development footprint

Figure 25: View of some structures suspected of being old building over 60 years old. After consultations with the local community, it was concluded that the structures are recent structures with less than 40 years of existence

Figure 26: View of a banana plantation. Note this is just a representation of the many banana plantations within the proposed development footprint

6.1 BUILT ENVIRONMENT: -

Section 34(1) of National Heritage Resources Act of 1999 protects these structures against any altering.

- No structures over 60 years old

6.2 ARCHAEOLOGICAL RESOURCES: -

Section 35 (4) No person may, without a permit issued by the responsible heritage resources authority

- During the survey, no archaeological sites were recorded.

6.3 CULTURAL LANDSCAPES, INTANGIBLE AND LIVING HERITAGE: -

Section 3 (3) of the National Heritage Resources Act, No. 25 of 1999 makes provisions of such places of spiritual significance to individuals.

- Long term impact on the cultural landscape is considered to be negligible as the surrounding area consists of farms and homesteads. Visual impacts to scenic routes and sense of place are also considered to be low due to the nonexistence of any notable scenic route structures within the study area.

6.4 BURIAL GROUNDS AND GRAVES: -

36(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority.

- No graves or burial grounds were recorded within the surveyed areas of portions of 18, 21, 55, 64, 69, 85, 213 of Farm Tenbosch 162 JU. There is a possibility that graves may be available in portions 2, 5 and 6 of Farm Turfbelt 593 JU , these could not be surveyed due to access issues.

6.5 PUBLIC MONUMENTS AND MEMORIALS: -

37. Public monuments and memorials must, without the need to publish a notice to this effect be protected in the same manner as places which are entered in a heritage register referred to in section 30.

- No public monuments and memorials exist within the proposed development area.

7. RISK ASSESSMENT OF THE PROPOSED PROJECT AREA: -

Table 3: Risk Assessment / Evaluation

EVALUATION CRITERIA	RISK ASSESSMENT
1. Description of Potential Impact	Negative impacts range from partial to total destruction of surface and under-surface movable/immovable relics
2. Nature of Impact	Negative impacts can both be direct or indirect.
3. Legal Requirements	Sections 34, 35, 36, 38 of National Heritage Resources Act (No. 25 1999).
4. Stage/Phase	Construction phase Operational phase
5. Nature of Impact	Negative, both direct & indirect impacts.
6. Extent of Impact	Excavations, drilling and ground clearing has potential to damage archaeological resources above and below the surface not seen during the survey.
7. Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible but can be mitigated.

8. ASSESSMENT OF SIGNIFICANCE: -

8.1 SITE SIGNIFICANCE CLASSIFICATION

Article 26(2) of the Burra Charter emphasizes that written statements of cultural significance for heritage resources should be prepared, justified and accompanied by supporting evidence. Site significance classification standards prescribed by *SAHRA (2006)*, and acknowledged by *ASAPA for the SADC Region*, were used for the purposes of this report.

Table 4: Site Significance Classification

SAHRA'S SITE SIGNIFICANCE MINIMUM STANDARDS			
Filed Rating	**Grade**	**Classification**	**Recommendation**
1. National Significance (NS)	Grade 1		Conservation; National Site nomination
2. Provincial Significance (PS)	Grade 2		Conservation; Provincial Site nomination
3. Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
4. Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
5. Generally Protected A (GP.A)		High/ Medium Significance	Mitigation before destruction
6. Generally Protected B (GP.B)		Medium Significance	Recording before destruction
7. Generally Protected C (GP.A)		Low Significance	Destruction

8.2 SITE SIGNIFICANCE CALCULATION FORMULA: -

Site significance is calculated by combining the following concepts in the given formula:

S= (E+D+M) P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

8.3 SIGNIFICANCE WEIGHTINGS FOR EACH POTENTIAL IMPACT: -

The significance weightings for each potential impact are as presented in and Table 3.

Table 5: Significance weightings for each potential impact

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

8.4 IMPACT SIGNIFICANCE: -

Table 6:Impact Significance

Significance		
It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. (S) is formulated by adding the sum of numbers assigned to Extent (E), Duration (D), and Intensity (I) and multiplying the sum by the Probability. S= (E+D+M) P		
<30	Low	Mitigation of impacts is easily achieved where this impact would not have a direct influence on the decision to develop in the area.
30-60	Medium	Mitigation of impact is both feasible and fairly easy. The impact could influence the decision to develop in the area unless it is effectively mitigated.
>60	High	Significant impacts where there is difficult. The impact must have an influence on the decision process to develop in the area.

8.5 IMPACT ASSESSMENT: -

Table 7: Impact Assessment

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low(2)
Probability	Not Probable (2)	Not probable (2)
Significance	Low (16)	Low(16)
Status	Negative	Negative
Reversibility	Not irreversible	Not irreversible
Irreversible loss of resources	No resources were recorded	No resources were recorded
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: - (1) Due to the lack of apparent significant heritage resources no further mitigation is required prior to construction. Should skeletal or archaeological remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process. (2) An archaeological induction should be carried out before drilling, clearing and any other mining activities begin. (3) A qualified archeologist should be appointed to monitor the project at regular intervals and submit Archaeological Watching briefs to the Provincial Heritage Authority.		

(4) The community should be notified of the need to report any graves and burials grounds that may be affected by the proposed development during the construction and operational phases.

(5) There will be no costs associated with any relocation procedures since there were no findings made during the filed survey.

9. CONCLUSIONS

This project: Directly contributes to South Africa's economic growth and reduces the alarming rate of unemployment mostly induced by the Covid-19 pandemic. It is therefore important that the provincial heritage authority exercise its discretion and offer the project the green light as it is beneficial to the community.

Site Significance: The SAHRA database for archaeological and historical impact assessments was consulted and revealed a few reports for the Komatipoort region, which are listed below. One report for Bushbuckridge J. Van Schalkwyk (2008), and one for Acornhoek JP Celliers (2012) revealed no archaeological sites of significance close to the proposed development site. Two reports by Dr. J. Van Schalkwyk carried out in (2012) revealed only historical sites close to the Komatipoort – Mozambique border. There has been very little recent research on prehistoric African settlements in the study region. Pottery and microlith stone tools have been found at locations in the Kruger National Park dating back to the last 2500 years. Apart from those in the Kruger National Park, the Plaston site to the west, which dates from around 900 AD, is the only professionally excavated Early Iron Age site in the nearby vicinity. The broader region also offers a critical piece of South African coal mining history. However, the proposed development site did not yield any cultural heritage resources during the field survey.

10. RECOMMENDATIONS: -

Reasoned Opinion:- It is the reasoned opinion of the author of this report that no visible material remains pertaining to heritage resources occur within the proposed development footprint. Subject to adherence of the recommendations and approval by the provincial heritage authority, the proposed development may be allowed to continue under the recommended condition given here. The impact of the proposed project on heritage resources is low and any impact to accidental finds can be mitigated to an acceptable level with the implementation of the recommendations in this report and based on approval from SAHRA. Furthermore, the socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures (i.e. chance find procedure) are implemented for the project.

Section 36 (6) of the National Heritage and Resources Act, 25 of 1999 also states that should culturally significant material be discovered during the course of the said development, all activities must be suspended pending further investigation by a qualified archaeologist:

(i) Due to the lack of apparent significant heritage resources no further mitigation is required prior to construction. Should skeletal or archaeological remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted. A Chance Find Procedure should be included in the Environmental Management Programme (EMPr) should any site be identified during the construction phase.

(ii) Guidelines for inclusion re given in Appendix E below.

(iii) An archaeological induction should be carried out before drilling, clearing and any other mining activities begin.

(iv) A qualified archeologist should be appointed to monitor the project at regular intervals and submit Archaeological Watching briefs to the Provincial Heritage Authority.

(v) The community should be notified of the need to report any graves and burials grounds that may be affected by the proposed development during the construction and operational phases

Commented [LM6]: Please see Ms Babalw's comments in the PIA. Who should undertake an archaeological induction?

Commented [LM7]: Please include proposed intervals, monthly, yearly etc. In addition, I suggest that this be added as part of environmental authorisation conditions since it is not addressed in the report.

Commented [LM8]: Add to Environmental authorisation conditions too.

11. REFERENCES

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7. T N Huffman, J A Calabrese, A B Esterhuysen & S Hall Salvage Excavation at the Riverside Development, Nelspruit.(Mitigation report prepared for Environmental Design Partnership, 1997).
8. J. Van Schalkwyk: Archaeological survey of a section of the Secunda-Mozambique Gas pipeline, Barberton District, Mpumalanga (2002), revealed one historic structure.
9. J. Van Schalkwyk: Proposed new Lebombo Port of Entry and upgrade of Komatipoort railway station between Mpumalanga (SA) and Mozambique (2008) – Some historic buildings were identified but no archaeological remains;
10. A. Van Vollenhoven: Report on a cultural Heritage Impact Assessment for the proposed Kangwane Antracite Mine, Komatipoort (2012) – An archaeological site with Middle and Late Stone Age tools were identified as well as some Iron Age artifacts and decorated pottery. Mitigation measures were recommended by exclusion from the development or a Phase 2 study;
11. JP Celliers: Report on Phase 1 Archaeological Impact assessment on erven at Komatipoort 182 JU Extension 4, Komatipoort (2012) – Revealed two pieces of undecorated sherds of pottery which was of low significance. It was recommended that any earthmoving activities be monitored by a qualified archaeologist.
12. A. Van Vollenhoven: Archaeological Impact Assessment for Border site at

Komatipoort (2012) – Revealed historic remains linked to the Steinaeker's Horse regiment during the South African War

LIST OF LEGISLATURES USED: -

1. ICOMOS, 1996.International Charter for the Conservation and Restoration of Monuments and sites (the Venice charter).
2. ICOMOS, 1999. The Australia ICOMOS charter for places of cultural significance (the Burra Charter).
3. ICOMOS Charter, Principles for the analysis, conservation and structural restoration of architectural heritage (2003)
4. National Heritage and Resources Act of South Africa No.25 of 1999

APPENDIX A: DEFINITION OF TERMS ADOPTED IN THIS HIA

DEFINITION OF TERMS ADOPTED IN THIS HIA: -

The terminology adopted in this document is mainly influenced by the NHRA of South Africa (1999) and the Burra Charter (1979).

Adaptation: Changes made to a place so that it can have different but reconcilable uses.

Artefact: Cultural object (made by humans).

Buffer Zone: Means an area surrounding a cultural heritage which has restrictions placed on its use or where collaborative projects and programs are undertaken to afford additional protection to the site.

Co-management: Managing in such a way as to take into account the needs and desires of stakeholders, neighbours and partners, and incorporating these into decision making through, amongst others, the promulgation of a local board.

Conservation: In relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance as defined. These processes include, but are not necessarily restricted to preservation, restoration, reconstruction and adaptation.

Contextual Paradigm: A scientific approach which places importance on the total context as catalyst for cultural change and which specifically studies the symbolic role of the individual and immediate historical context.

Cultural Resource: Any place or object of cultural significance

Cultural Significance: Means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance of a place or object for past, present and future generations.

Feature: A coincidental find of movable cultural objects (also see Knudson 1978: 20).

Grading: The South African heritage resource management system is based on a grading system, which provides for assigning the appropriate level of management responsibility to a heritage resource.

***Heritage Resources Management*:** The utilization of management techniques to protect and develop cultural resources so that these become long term cultural heritage which are of value to the general public.

Heritage Resources Management Paradigm: A scientific approach based on the Contextual paradigm, but placing the emphasis on the cultural importance of archaeological (and historical) sites for the community.

***Heritage Site Management*:** The control of the elements that make up the physical and social environment of a site, its physical condition, land use, human visitors, interpretation etc. Management may be aimed at preservation or, if necessary at minimizing damage or destruction or at presentation of the site to the public.

Historic: Means significant in history, belonging to the past; of what is important or famous in the past.

Historical: Means belonging to the past, or relating to the study of history.

Maintenance: Means the continuous protective care of the fabric, contents and setting of a place. It does not involve physical alteration.

Object: Artifact (cultural object)

Paradigm: Theories, laws, models, analogies, metaphors and the epistemological and methodological values used by researchers to solve a scientific problem.

Preservation: Refers to protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary. Preservation is appropriate where the existing state of the fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

Protection: With reference to cultural heritage resources this includes the conservation, maintenance, preservation and sustainable utilization of places or objects in order to maintain the cultural significance thereof.

Place :means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Reconstruction: To bring a place or object as close as possible to a specific known state by using old and new materials.

Rehabilitation: The repairing and/ or changing of a structure without necessarily taking the historical correctness thereof into account (NMC 1983: 1).

Restoration: To bring a place or object back as close as possible to a known state, without using any new materials.

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artefacts, found on a single location.

Sustainable: Means the use of such resource in a way and at a rate that would not lead to its long-term decline, would not decrease its historical integrity or cultural significance and would ensure its continued use to meet the needs and aspirations of present and future generations of people

APPENDIX B: DEFINITION OF VALUES

Value	Definition
Historic Value	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Scientific Value	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Aesthetic Value	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Social Value	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
Rarity	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage
Representivity	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C: ENVIRONMENTAL CONTEXT FOR HERITAGE SPECIALIST STUDIES IN SOUTHERN AFRICA

This is a categorized by a temporal layering including a substantial pre-colonial, early contact and early colonial history as distinct from other regions. The following table can be regarded as a useful categorization of these formative layers:

Indigenous:

Palaeontological and geological:

- Precambian (1.2 bya to late Pleistocene 20 000 ya)

Archaeological:

- Earlier Stone Age (3 mya to 300 00ya) (ESA)
- Middle Stone Age (c300 000 to 30 000 ya) (MSA)
- Later Stone Age (c 30 000 to 2000 ya) (LSA)
- Late Stone Age Herder period (after 2000 ya) (LSA - Herder period)
- Early contact (c 1500 - 1652)

Colonial:

- Dutch East India Company (1652 - 1795)
- Transition British and Dutch occupation (1796-1814)
- British colony (1814 -1910)
- Union of South Africa (1911-1961)
- Republic of South Africa (1962 – 1996)

Democratic:

- Republic of South Africa (1997 to present)

It is also useful to identify specific themes, which are relevant to the Western Cape context. These include, *inter alia,* the following:

- Role of women
- Liberation struggle
- Victims of conflict
- Slavery
- Religion
- Pandemic health crisis
- Agriculture
- Water

Specific spatial regions also reveal distinct characteristics, which are a function of the interplay between biophysical conditions and historical processes. Such broad regions include the following:

- West Coast
- Boland
- Overberg
- Karoo

A large number and concentration of formally protected Grade 1, 2 and World Heritage Sites, also characterize the Western Cape. Such sites include:

- Robben Island
- Table Mountain National Park

APPENDIX D: RESOURCE LIKELY TO OCCUR WITHIN THESE CONTEXTS AND LIKELY SOURCES OF HERITAGE IMPACTS/ISSUES

HERITAGE CONTEXT	HERITAGE RESOURCES	SOURCES OF HERITAGE IMPACTS/ISSUES
A. PALAEONTOLOGICAL LANDSCAPE CONTEXT	Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations.	□ Road cuttings □ Quarry excavation
B. ARCHAEOLOGICAL LANDSCAPE CONTEXT NOTE: Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.	Archaeological remains dating to the following periods: ▪ ESA ▪ MSA ▪ LSA ▪ LSA - Herder ▪ Historical ▪ Maritime history Types of sites that could occur include: ▪ Shell middens ▪ Historical dumps ▪ Structural remains	▪ Subsurface excavations including ground leveling, landscaping, foundation preparation. ▪ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	□ Historical townscapes/streetscapes. □ Historical structures; i.e. older than 60 years □ Formal public spaces. □ Formally declared urban conservation areas. □ Places associated with social identity/displacement.	A range of physical and land use changes within this context could result in the following heritage impacts/issues: □ Loss of historical fabric or layering related to demolition or alteration work. □ Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development. □ Loss of social fabric

		related to processes of gentrification and urban renewal.

APPENDIX E: CHANCE FINDS PROCEDURE

What is a Chance Finds Procedure?

The purpose of Archaeological Chance Find Procedure (CFP) is to address the possibility of cultural heritage resources and archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required. A CFP is a tool for the protection of previously unidentified cultural heritage resources during construction and mining. The main purpose of a CFP is to raise awareness of all mine workers on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources.

Chance finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Archaeological sites are protected by The National Heritage Resources Act of 1999. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities.

What are the objectives of the CFP?

The objectives of this “Chance Find Procedure’ are to promote preservation of archaeological data while minimizing disruption of construction scheduling It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Where is a CFP applicable?

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits. Chance finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the mine manager must ensure that all personnel on the proposed mine site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance Find Procedure details the necessary steps to be taken if any culturally significant artefacts are found during mining or construction.

What is the CF Procedure?

The following procedure is to be executed in the event that archaeological material is discovered:

- All construction activity in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the site.
- Briefly note the type of archaeological materials you think you’ve encountered, its location, and if possible, the depth below surface of the find.
- Report your discovery to your supervisor or if they are unavailable, report to the project Environmental Control Officer (ECO) who will provide further instructions.
- If the supervisor is not available, notify the ECO immediately. The ECO will then report the find to the Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide a 25m buffer zone from all sides of the find.

- An archaeologist should give recommendations on the cause of action to be taken.

Appendix F: author's resume