



Integrated Specialist Services (Pty) Ltd

**PHASE 1 ARCHAEOLOGICAL AND HERITAGE
IMPACT ASSESSMENT REPORT FOR THE
PROPOSED MINING RIGHT APPLICATION ON
PORTIONS:1, 2, 3, REMAINING EXTENT OF
PORTION 5, 8, PORTION OF PORTION 4 AND
PORTION OF REMAINING EXTENT) OF THE FARM
VLAKLAAGTE 223 IS WITHIN MSUKALIGWA
(BETHAL) MAGISTERIAL DISTRICT,
MPUMALANGA PROVINCE WITHIN MSUKALIGWA
(BETHAL) MAGISTERIAL DISTRICT,
MPUMALANGA PROVINCE**

T Mlilo

DOCUMENT SYNOPSIS (EXECUTIVE SUMMARY)

Item	Description
Proposed development and location	Proposed Mining Right Application on Portions:1, 2, 3, Remaining Extent of Portion 5,8, Portion 4 and Portion of Remaining extent) of the Farm Vlaklaagte 223 situated within the Msukaligwa (Bethal) Magisterial District, Mpumalanga Province
Purpose of the study	The Phase 1 Archaeological Impact Assessment for the proposed Mining Right Application in Mpumalanga Province
1:50 000 Topographic Map	
Central Site Coordinates	26°15'10.47"S, 29°37'32.31"E
Municipalities	Msukaligwa Local Municipality, Gert Sibande District Municipality
Predominant land use of surrounding area	Agriculture and mining
Applicant	Moneybox Investments 156 (Pty) Ltd 25 Perth Avenue, Bryanston Bryanston,Gauteng 2126 Cell: 066 493 1120 Email: mtmagagula@gmail.com
DMRE	MP 30/5/1/2/2/10321MR
EAP	Singo Consulting (Pty) Ltd Office 870, 5 Balalaika Street, Tasbet Park Ext 2, Witbank, 1040 Tel: +27 13 6920 041Cell: +27 71 8952 436 Email: admin@singoconsulting.co.za
Heritage Practitioner	Integrated Specialist Services (Pty) Ltd Cell: 071 685 9247 Email: trust@issolutions.co.za
Authors	Trust Milo
Date of Report	10 December 2022

This report serves to inform and guide the applicant and contractors about the possible impacts that the proposed coal mining may have on heritage resources (if any) located in the study area. In the same light, the document must also inform the South African heritage authorities (SAHRA) about the presence, absence and significance of heritage resources located within the Farm Vlaklaagte 223 IS, earmarked for coal mining. This report is submitted in terms of Section 38 (8) of the National Heritage Resources Act 25 of 1999 as part of the Mining Right Application. The purpose of this study is to identify, record and if necessary, salvage the irreplaceable heritage resources that may be impacted upon by the proposed coal mining. In compliance with these laws, Singo Consulting (Pty) Ltd tasked Integrated Specialist Services (Pty) Ltd to conduct a Phase 1 Archaeological and Heritage Impact Assessment (AIA/HIA) for the proposed Mining Right Application on all Portions of the farm Vlaklaagte 223 IS, within Msukaligwa (Bethal) Magisterial District, Mpumalanga Province. Desktop studies, drive-throughs and fieldwalking were conducted in order to identify heritage landmarks within the Mining Right Application site. The study site is not on pristine ground, having seen significant transformations owing to previous and current land use activities. The general mining area is known for occurrence of archaeological and historical sites. It should be noted that archaeological material and unmarked graves may exist beneath the surface and when encountered during mining, work must be stopped forth-with, and the finds must be reported to the South African Heritage Resource Agency (SAHRA) or the heritage practitioner. This report must be submitted to the SAHRA for review in terms of Section 38 (4) of the NHRA.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed mining.
- The study identified burial sites within the mining right area that are under threat from the proposed mining activities.
- The identified burial sites trigger Section 36 of the NHRA, and no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority.
- The field survey was partially disturbed by rainfall

- The immediate project area is predominantly agriculture.
- Some sections of the proposed Mining Right site are severely degraded from previous and current agriculture activities.

The report sets out the potential impacts of the proposed coal mining on heritage matters and recommends appropriate safeguard and mitigation measures that are designed to reduce the impacts where appropriate.

The Report makes the following recommendations:

- 1 It is recommended that SAHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements
2. It is recommended that SAHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed Mining Right Application on condition that the site survey did not identify any significant archaeological and heritage sites.
- 3 The recorded burial sites are protected in terms of Section 36 of the NHRA, a 100m buffer zone must be provided for each burial site in accordance with SAHRA Regulations of 2020
- 4 No mitigation on recorded graves shall be done without the involvement of the affected families.
5. From a heritage perspective supported by the findings of this study, the Mining Right Application is supported. However, the mining right application should be approved under observation that mining does not extend beyond the area considered in this report/affect the identified heritage sites.
6. Should chance archaeological materials or human remains be exposed during mining on any section of the site, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption in mining scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the NHRA regulations.
7. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMP, there are no significant cultural heritage resources barriers to the

proposed Mining Right Application. The Heritage authority may approve the Mining Right Application as planned with special commendations to implement the recommendations made herein.

This report concludes that the impacts of the proposed coal mining on the cultural environmental values are not likely to be significant on the entire site if the EMP includes recommended safeguard and mitigation measures identified in this report.

NATIONAL LEGISLATION AND REGULATIONS GOVERNING THIS REPORT

This is a specialist report' and is compiled in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014.

DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence.

I, **Trust Mlilo**, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own, notwithstanding the fact that I have received fair remuneration from the client for preparation of this report.

Expertise:

Trust Mlilo, PhD *cand* (Wits), MA. (Archaeology), BA Hons, PDGE and BA & (Univ. of Pretoria) ASAPA (Professional affiliation member) and more than 15 years of experience in archaeological and heritage impact assessment and management. Mlilo is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA), Amafa akwaZulu Natali and Eastern Cape Heritage Resources Agency (ECPHRA). He has conducted more than hundred AIA/HIA Studies, heritage mitigation work and heritage development projects over the past 15 years of service. The completed projects vary from Phase 1 and Phase 2 as well as heritage management work for government, parastatals (Eskom) and several private companies such as BHP Billiton/South32/Seriti Power and Rhino Minerals.

Independence

The views expressed in this document are the objective, independent views of Mr Trust Mlilo and the survey was carried out under Integrated Specialist Services (Pty) Ltd. The company has no business, personal, financial or other interest in the Mining Right Application apart from fair remuneration for the work performed.

Conditions relating to this report

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Integrated Specialist Services (Pty) Ltd reserves the right to modify the report in any way deemed fit should new, relevant or previously unavailable or undisclosed information become known to the author from on-going research or further work in this field or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the author and Integrated Specialist Services (Pty) Ltd. This also refers to electronic copies of the report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

Authorship: This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist). The report is for the review of the Heritage Resources Agency (PHRA).


Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

Maps: Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

Disclaimer: The Authors are not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.

The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the approval of the Mining Right Application being submitted by Singo Consulting (Pty) Ltd.

Signed by



10/ 12/ 2022

ACKNOWLEDGEMENTS

The author acknowledges Singo Consulting (Pty) Ltd for their assistance with the project details and responding to technical queries related to the project.

TABLE OF CONTENTS

DOCUMENT SYNOPSIS (EXECUTIVE SUMMARY)	<i>i</i>
ACKNOWLEDGEMENTS	<i>vi</i>
TABLE OF CONTENTS	7
ABBREVIATIONS	- 11 -
KEY CONCEPTS AND TERMS	- 12 -
Periodization	- 12 -
Definitions	- 12 -
Assumptions and disclaimer	- 14 -
1 INTRODUCTION	- 15 -
1.1 Terms of Reference (ToR)	- 15 -
1.2 Project Location	- 16 -
2 LEGISLATIVE CONTEXT	- 22 -
3 METHODOLOGY	- 25 -
3.1 The Fieldwork survey	- 25 -
3.2 Visibility and Constraints	- 25 -
3.3 Consultations	- 26 -
4 ARCHAEOLOGICAL CONTEXT	- 35 -
4.1 Iron Age Archaeology	- 35 -
4.2 Historical Background	- 36 -
4.3 Mining History	- 37 -
4.4 Intangible Heritage	- 37 -
4.5 SAHRIS Database and Impact assessment reports in the proposed project area	- 38 -
5 RESULTS OF THE FIELD STUDY	- 39 -
5.1 Archaeology	- 39 -
5.2 Burial grounds and Graves	- 39 -
5.3 Public Monuments and Memorials	- 46 -
5.4 Buildings and Structures	- 47 -

5.5	Impact Statement.....	- 47 -
5.6	Assessment of development impacts.....	- 48 -
5.7	Cumulative Impacts.....	52
5.8	Mitigation.....	52
6	ASSESSING SIGNIFICANCE	53
6.1	Aesthetic Value.....	53
6.2	Historic Value.....	53
6.3	Scientific value.....	53
6.4	Social Value	53
7	DISCUSSION	54
8	CONCLUSION	55
9	RECOMENDATIONS	56
10	REFERENCES	57
11	APPENDIX 1: CHANCE FIND PROCEDURE FOR THE PROPOSED MINING RIGHT APPLICATION ON ALL PORTIONS OF THE FARM VLAKLAAGTE 223 IS, BETHAL WITHIN MSUKALIGWA (BETHAL)MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE	65
11.1	CHANCE FIND PROCEDURE	67
11.1.1	Introduction.....	67
11.1.2	Definitions.....	67
11.1.3	Background	67
11.1.4	Purpose	68
11.2	GENERAL CHANCE FIND PROCEDURE	69
11.2.1	General.....	69
11.2.2	Management of chance finds.....	70
12	APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED MINING RIGHT APPLICATION	- 72 -
13	APPENDIX 4: LEGAL PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA	73
13.1	Burial grounds and graves	74
13.2	General policy	76

TABLE OF PLATES [PHOTOGRAPHS]

Plate 1: showing the proposed Mining Right Application Site	- 26 -
Plate 2: showing ongoing mining activities on a portion of the farm.	- 27 -
Plate 3: Showing the proposed mining area is dominated by large sweeps of farmland.	- 27 -
Plate 4: showing the proposed coal mining site with dense grass cover	- 28 -
Plate 5: showing the proposed mining right application site is within an active farmland.	- 28 -
Plate 6: showing the proposed mining development site	- 29 -
Plate 7: showing the proposed mining area	- 29 -
Plate 8: showing dense grass cover within the proposed mining development site	- 30 -
Plate 9: showing the proposed development site	- 30 -
Plate 10: showing the proposed mining right application site along the road R38.	- 31 -
Plate 11: showing BKB Vlaklaagte Bunker within the proposed mining right application site	- 31 -
Plate 12: showing existing access roads within the proposed mining right area	- 32 -
Plate 13: showing grazing area within the proposed mining development site.	- 32 -
Plate 14: showing an existing river within the proposed mining area	- 33 -
Plate 15: showing electricity distribution infrastructure within the proposed mining development site.	- 33 -
Plate 16: showing the North-East boundary of the mining right application site.	- 34 -
Plate 17: showing ongoing crop farming in the proposed mining development site, Note the farmstead in the background.	- 34 -
Plate 18: showing identified burial site VBS01 within the mining right area	- 40 -
Plate 18: showing identified graves on site VBS01 within the mining right area	- 40 -
Plate 20: showing identified graves within the mining right area. Note the grave marker and grave goods	- 41 -
Plate 21: showing the proximity of the water reservoir to the grave site (Burial site indicated by blue arrow)	- 41 -
Plate 22: showing the grave identified on burial site VBS02 with an inscribed tombstone	- 42 -
Plate 23: showing the second grave identified on burial site VBS02	- 43 -
Plate 24: showing burial site VBS02 with overgrown and dense vegetation	- 43 -
Plate 25: showing burial site VBS03 with overgrown and dense vegetation	- 44 -
Plate 26: showing burial site VBS03 with overgrown and dense vegetation	- 45 -
Plate 27: showing burial site VBS03 with overgrown and dense vegetation	- 45 -
Plate 28: showing burial site VBS03 with overgrown and dense vegetation	- 46 -

TABLE OF FIGURES

Figure 1: Location of the proposed project site (Singo Consulting, 2022)	- 17 -
Figure 2: Location of mining site (Mlilo, 2022)	- 18 -
Figure 3: Locality map (Mlilo, 2022)	- 19 -
Figure 4: Tracklogs for the surveyed area (Mlilo, 2022)	- 20 -

Figure 5: Tracklogs for the surveyed area (Mlilo,2022).....- 21 -

LIST OF TABLES

Table 1: Evaluation of the proposed development as guided by the criteria in NHRA and NEMA- 24 -

Table 2: Summary of Findings.....- 48 -

Table 3: Criteria Used for Rating of Impacts.....- 48 -

Table 4: Criteria for Rating of Classified Impacts- 50 -

Table 6: Operational Phase.....- 51 -

ABBREVIATIONS

AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
EIA	Environmental Impact Assessment
EIA	Early Iron Age (<i>EIA refers to both Environmental Impact Assessment and the Early Iron Age but in both cases the acronym is internationally accepted.</i>)
EIAR	Environmental Impact Assessment Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
ICOMOS	International Council of Monuments and Sites
LIA	Late Iron Age
LFC	Late Farming Community
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act 107 of 1998
NHRA	National Heritage Resources Act 25 of 1999
PHRA	Provincial Heritage Resource Agency
SAHRA	South African Heritage Resources Agency
ToR	Terms of Reference

KEY CONCEPTS AND TERMS

Periodization

Periodization Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below.

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

Definitions

Definitions Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from South African heritage legislation and its ancillary laws, as well as international regulations and norms of best practice. The following aspects have a direct bearing on the investigation and the resulting report:

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, ecofacts and artefacts of importance associated with the history, architecture, or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social, or spiritual values for past, present, or future generations.

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually

exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Archaeological site/materials are remains or traces of human activity that are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures. According to the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority.

Historic material are remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Chance finds means archaeological artefacts, features, structures or historical remains accidentally found during development.

A grave is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

A site is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project which requires authorisation of permission by law, and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Impact is the positive or negative effects on human well-being and / or on the environment.

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the prehistorical, historical or the relatively recent past.

Study area or '**project area**' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

Assumptions and disclaimer

The investigation has been influenced by the unpredictability of buried 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 exposed during mining activities, such activities should be halted immediately, and a competent heritage practitioner and 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 applicant 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. Integrated Specialist Services (Pty) Ltd assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

1 INTRODUCTION

Integrated Specialist Services (Pty) Ltd was retained by Singo Consulting (Pty) Ltd on behalf of Moneybox Investments 156 (Pty) Ltd to carry out a Phase 1 AIA/ HIA for the Mining Right Application on Portions:1, 2, 3, Remaining Extent of Portion 5,8, Portion 4 and Portion of Remaining extent) of the Farm Vlaklaagte 223 situated within the Msukaligwa Local Municipality, Mpumalanga Province This study was conducted to fulfil the requirements of Section 38 (8) of the NHRA. The purpose of this heritage study is to identify, assess any heritage resources that may be located within the proposed mining site in order to make recommendations for their appropriate management. To achieve this, we conducted background research of published literature, maps, and databases (desktop studies) which was then followed by ground-truthing by means of drive-through surveys and field walking. Desktop studies revealed that the general project area is rich in Late Iron Age (LIA) and historical sites. It should be noted that while heritage resources may have been located in the entire study area, subsequent developments previous and current agricultural activities, settlements, road and boundary fence lines have either obliterated these materials or reduced them to isolated finds that can only be identifiable as chance finds during mining. The Mining Right Application may be approved subject to adopting recommendations and mitigation measures proposed in this report. Based on the findings there is no archaeological and heritage reasons why the Mining Right Application cannot be approved, taking full cognizance of clear procedures to follow in the event of chance findings. The identified burial sites must be protected, and adequate buffer zones provided before mining commences. However, should it be necessary to relocate the identified graves proper procedure in accordance with SAHRA Regulations 2020 must implemented and no mitigation work shall take place without involvement of descendant families.

1.1 Terms of Reference (ToR)

Integrated Specialist Services (Pty) Ltd was requested by Singo Consulting (Pty) Ltd to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed coal mining site including any known data on affected areas.
- Provide details on methods of study; potential and recommendations to guide the SAHRA to make an informed decision in respect of authorisation of the Mining Right Application
- Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located within the project site;

- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
- Describe the possible impact of the proposed coal mining on these cultural remains, according to a standard set of conventions;
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources; and
- Review applicable legislative requirements.

1.2 Project Location

The proposed Mining Right area is located on all the portions (Portions:1, 2, 3, Remaining Extent of Portion 5,8, Portion 4 and Portion of Remaining extent) of the Farm Vlaklaagte 223 situated within the Msukaligwa (Bethal) Magisterial District, Mpumalanga Province. The study area is located approximately 13,3km southwest of Hendrina, about 25,8 km Northeast of Ermelo

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

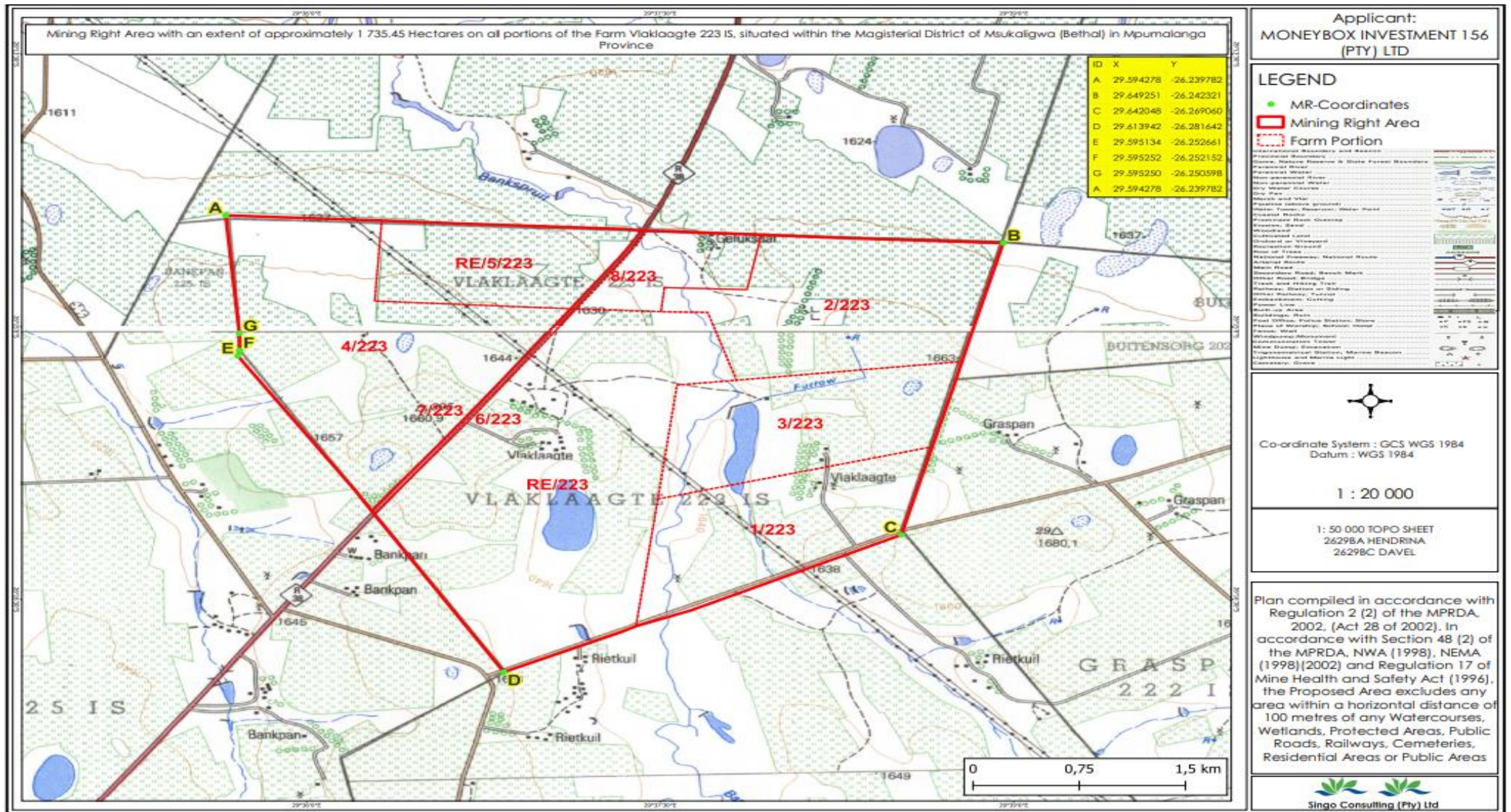


Figure 1: Location of the proposed project site (Singo Consulting, 2022)

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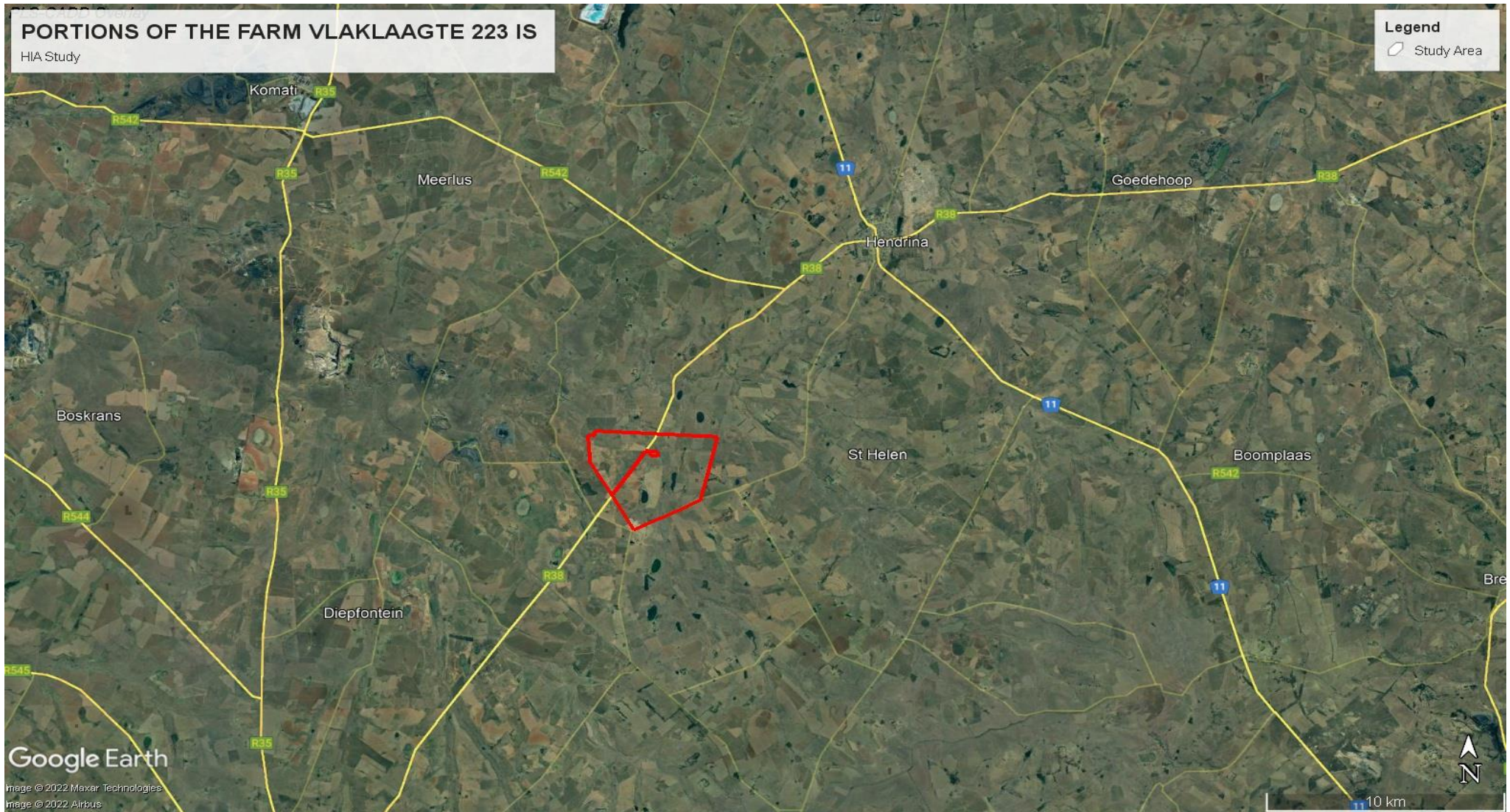


Figure 2: Location of the proposed mining development site (Mlilo, 2022))

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

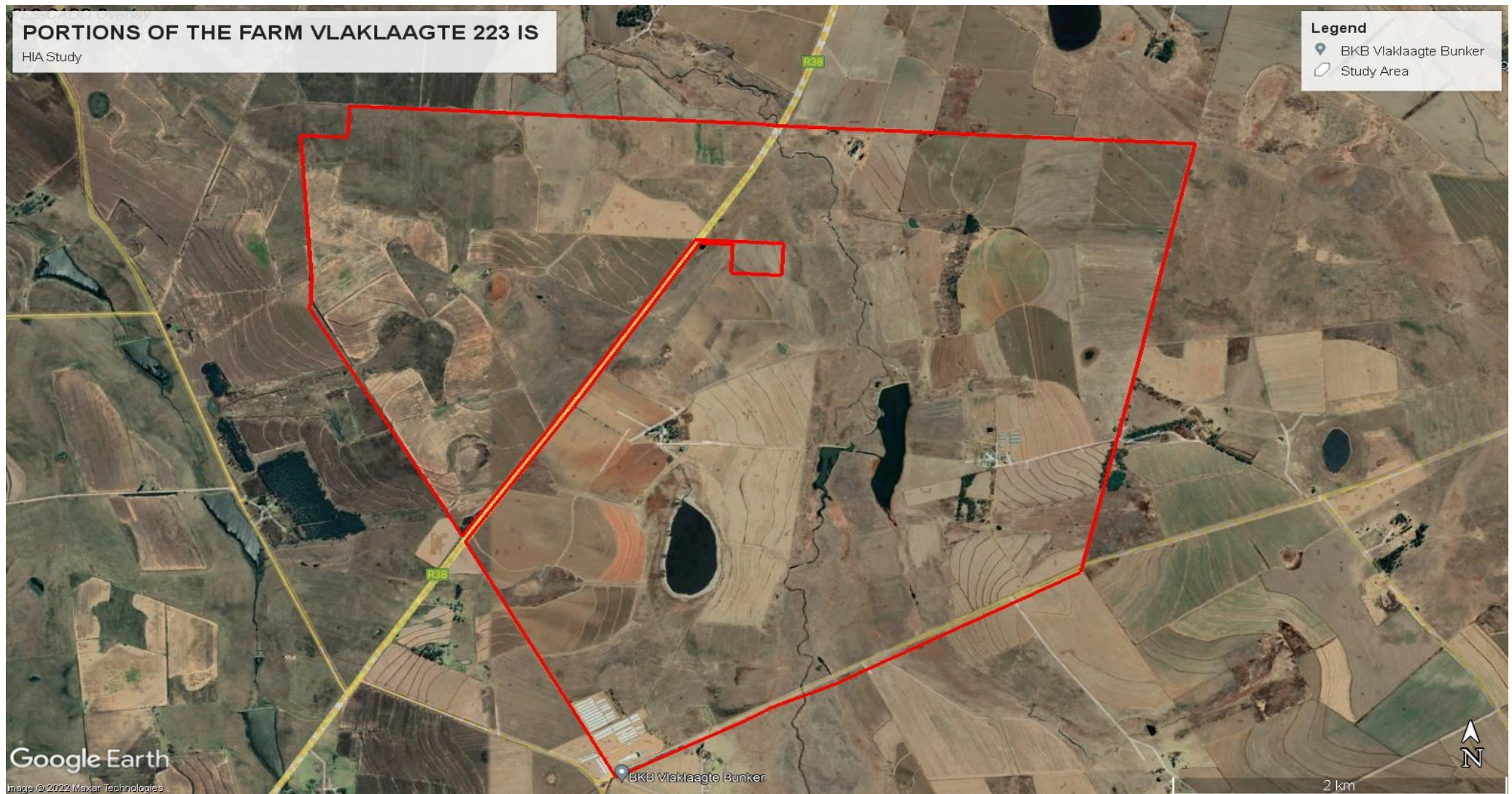


Figure 3: Proposed mining development site map (Milo, 2022)

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Figure 4: Tracklogs for the surveyed area (Mlilo, 2022)

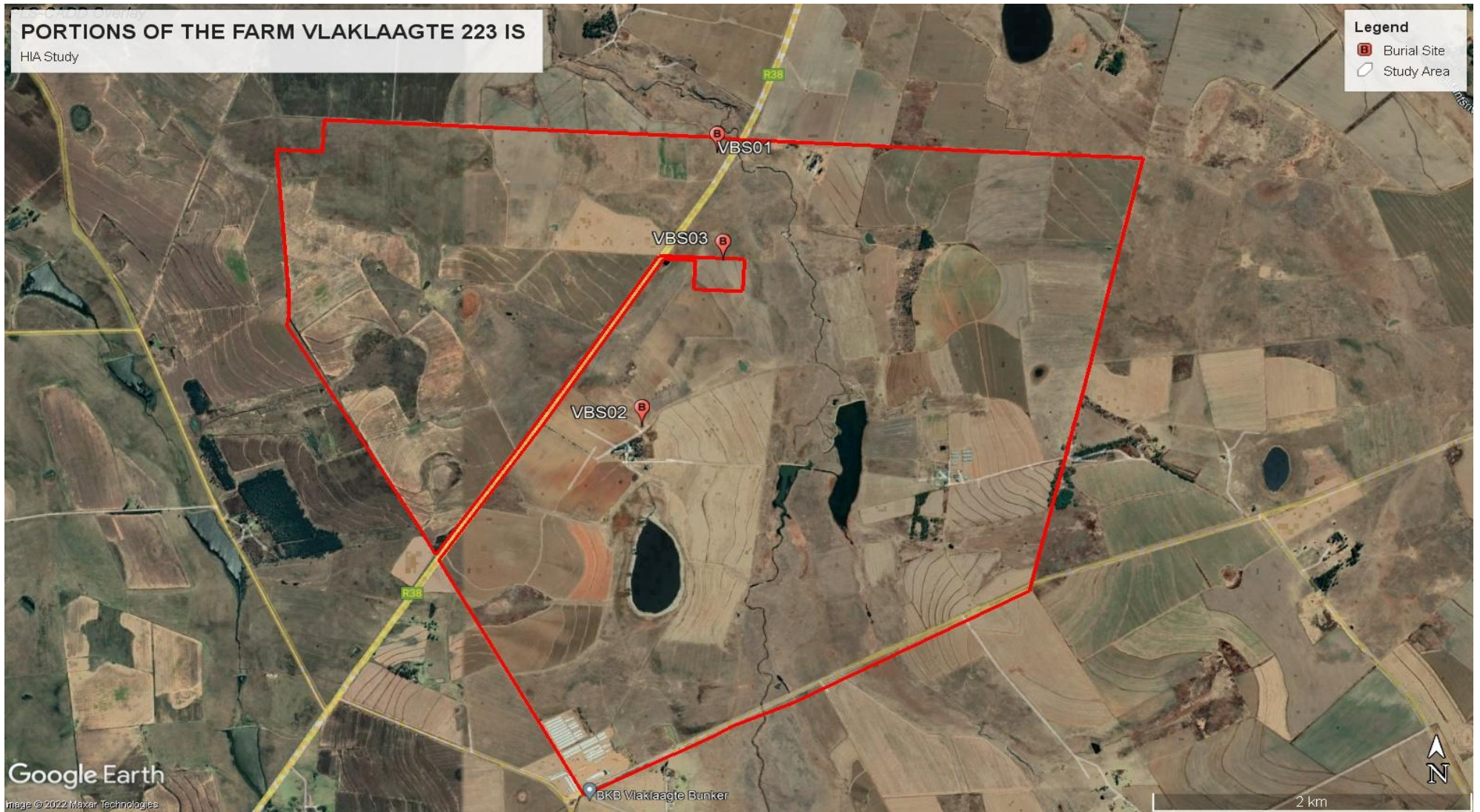


Figure 5: Identified Burial sites **VBS01**, **VBS02** and **VBS03** within the proposed mining development site (Mlilo,2022)

2 LEGISLATIVE CONTEXT

Three main pieces of legislations are relevant to the present study. The Mining Right Application is submitted in terms of the National Environmental Management Act, 1998 (NEMA) and the 2017 EIA Regulations for activities that trigger the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (As amended). Therefore, this is in fulfilment of the assessment of the impact to heritage resources as required by section 24(4)(b)(iii) of NEMA and section 38(8) of the National Heritage Resources Act, Act 25 of 1999 (NHRA). An AIA or HIA is required as a specialist sub-section of the Basic Assessment (BA) process. This study was conducted in terms of Section 38(8) as part of environmental authorisation. The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regards to such development have been taken into account prior to the granting of the consent.

Thus, any person undertaking any development in the above categories, 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 38 (2) (a) of the same act also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs). Because the proposed development will change the character of a site exceeding 5000 m², then an HIA is required according to this section of the Act.

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may **alter damage, destroy and relocate any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority**. This section may not apply to present study since none were identified. Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter, or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered before or during construction. This means that any chance find must be reported to the heritage practitioner or SAHRA/PHRA, who will assist in investigating the extent and significance of the finds and inform the applicant about further actions. Such actions may entail the removal of material after documenting the find site or mapping of larger sections before destruction. Section 36 (3) of the NHRA also stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove

from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. This section may apply in case of the discovery of chance burials and the procedure for reporting chance finds also applies to the unlikely discovery of burials or graves by the applicant or his contractors. Section 37 of the NHRA deals with public monuments and memorials but this may not apply to this study because no protected monument will be physically affected by the proposed coal mining.

In addition, the EIA Regulations of 2014 (as amended in 2017) promulgated in terms of NEMA (Act 107 of 1998) stated that environmental assessment reports will include cultural (heritage) issues. The new regulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts on the cultural (heritage) and social environment and for Specialist Studies in this regard. The end purpose of such a report is to alert the applicant (Moneybox Investments 156 Pty Ltd), SAHRA/ PHRA and interested and affected parties about existing heritage resources that may be affected by the proposed mining, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.

Table 1: Evaluation of the proposed development as guided by the criteria in NHRA and NEMA

ACT	Stipulation for developments	Requirement details
NHRA Section 38(8)	The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent	Yes
NHRA Section 34	Impacts on buildings and structures older than 60 years	Subject to identification during Phase 1
NHRA Section 35	Impacts on archaeological and palaeontological heritage resources	Subject to identification during Phase 1
NHRA Section 36	Impacts on graves	Subject to identification during Phase 1
NHRA Section 37	Impacts on public monuments	Subject to identification during Phase 1
Chapter 5 (21/04/2006) NEMA	HIA is required as part of an EIA	Yes
Section 39(3)(b) (iii) of the MPRDA	AIA/HIA is required as part of an EIA	Yes

3 METHODOLOGY

This document aims at providing an informed heritage-related opinion about the Mining Right Application in Mpumalanga Province. This is usually achieved through a combination of a review of any existing literature and a site inspection. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage legislation, the history and archaeology of the area were studied. The desktop study was followed by field surveys. The field assessment was conducted according to generally accepted AIA/HIA practices and aimed at locating all possible objects, sites, and features of cultural significance on the mining footprint. Initially a drive-through was undertaken around the proposed mining site as a way of acquiring the archaeological impression of the general area. This was then followed by a walk down survey in the study area, with a handheld Global Positioning System (GPS) for recording the location/position of each possible site. Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the Mining Right Application in order to make recommendations to the competent authority. The result of this investigation is a report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed Mining Right Application.

3.1 The Fieldwork survey

The fieldwork survey was undertaken on the 29th of November 2022. The focus of the survey involved a pedestrian survey which was conducted within the proposed mining area. The pedestrian survey focused on parts of the project area where it seemed as if disturbances may have occurred in the past, for example bald spots in the grass veld; strands of grass which are taller than the surrounding grass veld; the presence of exotic trees; evidence of building rubble, existing buildings and ecological indicators such as invader weeds.

The literature survey suggests that prior to the 20th century modern agriculture development; the general area would have been a rewarding region to locate heritage resources related to Iron Age and historical sites (Bergh 1999: 4). However, the situation today is completely different. The study area now lies on a clearly modified landscape that is dominated by ongoing commercial farming.

3.2 Visibility and Constraints

The proposed mining site was accessible although visibility was compromised in some sections due dense grass cover. Access to some sections of the Mining Right Application was restricted as it was private property and the insistent rainfall disturbed the fieldwork. It is conceded that due to the subterranean nature of cultural remains this report should not be construed as a record of all archaeological and historic sites in the area.

3.3 Consultations

The study team consulted the landowner who assisted to identify burial sites located within the proposed Mining Right Application site. The Public Participation process is conducted by the EAP. The Participation Process will also invite and address comments from the public and any registered heritage bodies on any matter related to the Mining Right Application including heritage concerns that may arise relating to the mining activities. The heritage issues and concerns raised by the public will also be included in the Mining Right Application to be submitted to DMRE.

The following photographs illuminate the nature and character of the Project Area.



Plate 1: showing the proposed Mining Right Application Site

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 2: showing ongoing mining activities on a portion of the farm.



Plate 3: Showing the proposed mining area is dominated by large sweeps of farmland.

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 4: showing the proposed coal mining site with dense grass cover.



Plate 5: showing the proposed mining right application site is within an active farmland.

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 6: showing the proposed mining development site



Plate 7: showing the proposed mining area

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 8: showing dense grass cover within the proposed mining development site



Plate 9: showing the proposed development site

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 10: showing the proposed mining right application site along the road R38.



Plate 11: showing BKB Vlaklaagte Bunker within the proposed Mining Right Application site

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Plate 12: showing existing access roads within the proposed Mining Right area



Plate 13: showing grazing area within the proposed Mining Right Application site.

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 14: showing a flooded stream within the proposed mining area



Plate 15: showing electricity distribution infrastructure within the proposed mining development site.

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 16: showing the north-eastern boundary of the mining right application site.



Plate 17: showing ongoing crop farming in the proposed mining development site, Note the farmstead in the background.

4 ARCHAEOLOGICAL CONTEXT

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (the period from 22 000 years ago to 200 years ago). The Later Stone Age is also associated with rock paintings and engravings which were done by the San, Khoi Khoi and in more recent times by Iron Age farmers. Heritage surveys up to now have recorded few outstanding Stone Age sites, rock paintings and engravings in the Eastern Highveld - primarily as a result of limited extensive archaeological surveys. Stone tools have been recorded around some of the pans which occur on the Eastern Highveld.

In the larger geographical area, there is material manifestation of Stone Age people but generally, Highveld area did not attract much of habitation in these early times due to lack of rock-shelters and domination of exposed environments. Thus, it is mostly in the vicinity of large watercourses and lower parts of mountains that some ESA (~ 2.6 million to 250 000 years ago) materials (crude chopper and other unifacial tools of the Oldowan industry and the characteristic Acheulian hand axes and cleavers) and MSA (~ 250 000 to 40-25 000 years ago) materials are generally found. The MSA is a flake-technological stage characterized by faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. More technological and behavioural changes than those witnessed in the MSA, occurred during the LSA (~ 40-25 000, to recently, 100 years ago), which is also associated with Homo Sapiens (Barham and Mitchell 2008). For the first time we get evidence of people's activities derived from material other than stone tools (ostrich eggshell beads, ground bone arrowheads, small, bored stones and wood fragments) (Deacon and Deacon 1999). The LSA people are also credited with the production of rock art (engravings and paintings), which is an expression of their complex social and spiritual beliefs (Parkington *et al.* 2008). However, it is important to note that no Stone Age materials were recorded during the field walking, perhaps due to the presence of tall grass. Nonetheless, it is possible to encounter isolated finds of these objects in the study area, even though these would most likely be out of context due to the modern disturbances.

4.1 Iron Age Archaeology

The Iron Age of the Mpumalanga region dates back to the 5th Century AD when the Early Iron Age (EIA) proto-Bantu-speaking farming communities began arriving in this region which was then occupied by hunter-gatherers. These EIA communities are archaeologically referred to as the Mzonjani Facies of the Urewe EIA Tradition (Huffman, 2007: 127-9). They occupied the foot-hills and valley lands along the general Indian Ocean coastland

introducing settled life, domesticated livestock, crop production and the use of iron (also see Maggs 1984a; 1984b; Huffman 2007). Alongside the Urewe Tradition was the Kalundu Tradition whose EIA archaeological sites have been recorded along the Mpumalanga areas. From AD 650 to 750 the EIA sites in the region were classified as the Msuluzi facies which was replaced by the Ndongondwane and Ntsekane facies from AD 750 to 950 and AD 950 to 1050 respectively (Huffman, 2007).

By 1050 AD proto-Nguni Bantu-speaking groups associated with the Late Iron Age (LIA) called the Blackburn sub-branch of the Urewe Tradition had arrived in the eastern regions of South Africa, including modern day Mpumalanga, migrating from the central African region of the Lakes Tanganyika and Victoria (Huffman 2007: 154-5). According to archaeological data available, the Blackburn facies ranged from AD 1050 to 1500 (ibid. p.155). The Mpumalanga and the Natal inland regions saw the development of the LIA Moor Park facies between AD 1350 and 1750. These archaeological facies are interpreted as representing inland migration by LIA Nguni speaking groups (Huffman 2007). Moor Park is associated with settlements marked by stonewalling. The period from AD 1300 to 1750 saw multiple Nguni dispersal from the coastland into the hinterland and eventually across the Drakensberg Escapement into central and eastern South Africa (ibid).

No Iron Age sites are indicated in a historical atlas around the town of Witbank, but this may only indicate a lack of research. The closest known Iron Age occurrences to the surveyed area are Late Iron Age sites that have been identified to the west of Bronkhorstspuit and in the vicinity of Bethal (Bergh 1999: 7-8). The good grazing and access water in the area would have provided a good environment for Iron Age people although building material seem to be reasonably scarce. One would therefore expect that Iron Age people may have utilized the area. This is the same reason why white settlers moved into this environment later on.

4.2 Historical Background

The Late Iron Age Nguni communities engaged in the Indian Ocean Trade exporting ivory and importing consumables such as cloth and glass beads. The exporting point was Delagoa. This brought the Nguni speaking community in touch with the Indo-Asian and first Europeans (Portuguese). It was the arrival of the Dutch and the English traders that opened up Delagoa Bay to more trade did the Nguni engaged in extensive trade with the international traders (Huffman 2007). From the late 1700s, trade in supply of meat to passing ship had increased substantially to an extent that by 1800 meat trade is estimated to have surpassed ivory trade. At the same time population was booming following the increased food production that came with the introduction of maize that became the staple food. Naturally, there were signs that population groups had to compete for resources especially along the east coastal regions. The KwaZulu Natal coastal region has a special place in the history of

the region and country at large. This relates to the most referenced Mfecane (wandering hordes) period of tremendous insecurity and military stress which eventually affected the entire Southern Africa including the modern-day Mpumalanga area.

The town of Bethal was established on the Farm Belsbokspruit on 12 October 1880 (Bergh 1998:143). It was named after the combined names of the owners of the Farm Elizabeth du Plooy ad Alida Naude. The town was proclaimed to be a district on 23 February 1898 and a Municipality in 1921 (Bergh 1998:143).

4.3 Mining History

Historically coal is known to have been used from around 300 to 1880 in South Africa during Iron Age when charcoal was used to melt iron and copper (<https://www.miningforschools.co.za/lets-explore/coal/brief-history-of-coal-mining-in-south-africa>). Officially, coal was discovered in KwaZulu-Natal, Mpumalanga and the Eastern Province, and first documented between 1838 and 1859 (McGill *et al* 2015). The recorded old coal mining site may fall within this period since it was confirmed to probably more than 100 years old. The first commercial mining took place near Molteno, in the Eastern Cape Province in 1871 (McGill *et al* 2015). The demand for coal was increased by the discovery of diamonds at Kimberley in 1870 and gold on the Witwatersrand in 1886, with new mines opening in Vereeniging in 1879 and Witbank in 1895. Further developments occurred in KwaZulu-Natal, Gauteng and Mpumalanga (currently home to about 84% of local coal production), followed by the Free State and Limpopo (McGill *et al* 2015). Coal mining has undergone major development over the years. In the early days of coal mining men used to physically create tunnels to get to the coal deposits by digging as is the case with the identified old coal mining site (<https://miningafrica.net/natural-resources-africa/coal-mining-in-africa>). They then extracted the coal and transported the coal on mine carts. These days coal mines are technologically advanced and use sophisticated equipment including; trucks, jacks, conveyors, draglines and shearers to extract the coal.

4.4 Intangible Heritage

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage is anticipated on the mine footprint because most historical knowledge does not suggest a relationship with the study area per se, even though several other places in the general area.

4.5 SAHRIS Database and Impact assessment reports in the proposed project area

Several archaeological and heritage studies were conducted in the project area since 2002 and these presents the nature and heritage character of the area. The HIA conducted in the area also provide some predictive evidence regarding the types and ranges of heritage resources to be expected in the proposed project area: (see reference list for HIA reports). The studies include mining, water pipeline and powerline projects completed by van Vollenhoven (2010, 2011, 2016, 2020, 2021), Coetzee (2021), Pistorius (2012). No sites were recorded, but the reports mention that structures older than 60 years occur in the area, Pelsler and Van Vollenhoven (2010, 2011, 2014, 2015) for mining and infrastructure development survey also recorded no sites. Van Schalkwyk did extensive work in the project area mostly for mining and infrastructure developments for example Van Schalkwyk, (2002, 2004, 2006, 2006, and 2010). Other than burial sites and buildings older than 60 years the studies did not record any significant archaeological sites in the area.

5 RESULTS OF THE FIELD STUDY

5.1 Archaeology

The site was scanned for archaeological remains, but given the previous and current land use activities, no archaeological remains were identified during the survey (see Figure 1 & Plates 1-8). Based on the field study results and field observations, the receiving environment for the proposed mining site is low to medium potential to yield previously unidentified archaeological sites during mining. Literature review also revealed that no Stone Age and LIA sites are not shown on a map contained in a historical atlas of this area. This, however, should rather be seen as a lack of research in the area and not as an indication that such features do not occur.

5.2 Burial grounds and Graves

Human remains and burials are commonly found close to archaeological sites and abandoned settlements; they may be found in abandoned and neglected burial sites or occur sporadically anywhere because of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human burials on the landscape as these burials, in most cases, are not marked at the surface and concealed by dense vegetation cover. Human remains are usually identified when they are exposed through erosion, earth moving activities and construction. In some instances, packed stones or bricks may indicate the presence of informal burials. If any human bones are found during the course of mining work, then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial, they would need to be exhumed under a permit from either SAHRA (for pre-colonial burials as well as burials later than about AD 1500) or Department of Health for graves younger than 60 years.

The field survey identified **three** burial sites within the proposed mining right application site (see Figure 5). The burial site **VBS01** is located on the GPS coordinates **26°14'30.98"S, 29°37'20.37"E**. The site is encircled by stockpiled soil and the graves are concealed by dense vegetation. The burial site has more than 12 graves however due to years of erosion and weather elements the graves are flat and marked by oval granite stones. The site is within an active mining area and is under threat from the ongoing mining activity as it is located less than 10 meters to an excavated water storage facility (Refer to **Plates 17-21**)



Plate 18: showing identified burial site **VBS01** within the mining right area



Plate 19: showing identified graves on site **VBS01** within the mining right area



Plate 20: showing identified graves within the mining right area. Note the grave marker and grave goods



Plate 21: showing the proximity of the water reservoir to the grave site (Burial site indicated by blue arrow)

The study also identified burial site **VBS02**. The site is located at GPS coordinates **26°15'31.92"S, 29°37'03.29"E**. The site is covered by dense vegetation and has two graves. One grave is marked by tombstones and inscribed headstone an inscribed tombstone and the other grave is marked by oval shaped stone piles (see **Plates 22-24**). The grave is for the late **Koos Kosebomvu Mnguni** who died in 1960. The grave is older than 60 years and it qualifies for protection in terms of Section 36 of the NHRA. The age of the other grave could not be confirmed during the study. However, it is most likely to be also older than 60 years.



Plate 22: showing the grave identified on burial site **VBS02** with an inscribed tombstone



Plate 23: showing the second grave identified on burial site **VBS02**



Plate 24: showing burial site **VBS02** with overgrown and dense vegetation

The Burial site **VBS03** was identified at GPS coordinates **26°14'54.96"S, 29°37'21.71"E**. The site has 13 graves, and most of the graves are concealed by vegetation cover. (see **Plates 25-28**). Four of the graves are marked tombstones and inscribed headstones. The other graves are marked by cement plaster while others are marked by oval-shaped stone piles with distinctive headstones. The graves are fenced. The site has a mixture of infants and adult graves. The graves at this site are older than 60 years and therefore qualify for protection in terms of Section 36 of the NHRA. The landowner confirmed that this burial site is visited regularly by the descendant families.



Plate 25: showing burial site **VBS03** with overgrown and dense vegetation

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE



Plate 26: showing burial site **VBS03** with overgrown and dense vegetation



Plate 27: showing burial site **VBS03** with overgrown and dense vegetation



Plate 28: showing burial site **VBS03** with overgrown and dense vegetation

It should be noted that burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. Wherever they exist or not, they may not be tampered with or interfered with without a permit from SAHRA. It should also be borne in mind that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. The possibility of encountering previously unidentified burial sites is low-medium within the proposed mining site, however, should such sites be identified during mining, they are still protected by applicable legislations, and they should be safeguarded.

5.3 Public Monuments and Memorials

The study did not record any public memorials and monuments within the proposed mining site that require protection during mining. As such the Mining Right Application may be approved without any further investigation and mitigation in terms of Section 27 & 9 of the NHRA.

5.4 Buildings and Structures

The study recorded structures and buildings which are still in use as such the survey team did not assess the buildings.

5.5 Impact Statement

The main cause of impacts to archaeological sites is direct, physical disturbance of the archaeological remains themselves and their contexts. It is important to note that the heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. The primary impacts are likely to occur during clearance and mining, indirect impacts may occur during movement of heavy mining and haulage vehicles. Any additional excavation for foundations of buildings and structures as well as fence line posts will result in the relocation or destruction of all existing surface heritage material (if any are present).

Similarly, the clearing of access roads will impact material that lies buried in the topsoil. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to mining. It is important to note that due to the localised nature of archaeological resources, that individual archaeological sites could be missed during the survey, although the probability of this is very low within the proposed mining site. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during surface clearance. The purpose of the AIA is to assess the sensitivity of the area in terms of archaeology and to avoid or reduce the potential impacts of mining by means of mitigation measures (see appended Chance Find Procedure). There is still a possibility of finding archaeological remains buried beneath the ground. It is considered an opinion of the author that the chances of recovering significant archaeological materials is present within the mining site.

Table 2: Summary of Findings

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	Structures and buildings exist within the mining area, the landowner confirmed that all structures are younger than 60 years.
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists
Historical settlements and townscapes	None survives in the proposed area
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	None recorded
Graves and burial grounds	Three burial sites recorded within the site.
Movable objects	None
Overall comment	The identified burial sites should be protected from mining activities, the proposed Mining Right Application is supported from a heritage perspective.

5.6 Assessment of development impacts

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

The significance of the impacts will be assessed considering the following descriptors:

Table 3: Criteria Used for Rating of Impacts

Nature of the impact (N)		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.
Magnitude(M)		

PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED MINING RIGHT APPLICATION ON PORTIONS:1, 2, 3, REMAINING EXTENT OF PORTION 5, 8, PORTION OF PORTION 4 AND PORTION OF REMAINING EXTENT) OF THE FARM VLAKLAAGTE 223 IS WITHIN MSUKALIGWA (BETHAL) MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

Minor	2	Negligible effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been altered significantly and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been moderately modified and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent (E)		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.
Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration (D)		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence (P)		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.
High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Extent}) \times \text{Probability}$$

The significance of the ecological impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥60), Medium (SP = 31-60) and Low (SP<30) significance as shown in the below.

Table 4: Criteria for Rating of Classified Impacts

Significance of predicted NEGATIVE impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.
Significance of predicted POSITIVE impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

Table 5: Operational Phase

Impacts and Mitigation measures relating to the proposed project during Mining Phase														
Activity/Aspect	Impact /	Aspect	Nature	Magnitude	Extent	Duration	Probability	Impact before mitigation	Mitigation measures	Magnitude	Extent	Duration	Probability	Impact after mitigation
Clearing and mining	Destruction of archaeological remains	Cultural heritage	-	2	1	1	2	8	<ul style="list-style-type: none"> Use chance find procedure to cater for accidental finds 	2	1	1	2	8
	Disturbance of graves	Cultural heritage	-	2	2	5	4	36	<ul style="list-style-type: none"> Protect recorded graves Provide 100m buffer zone for each burial site Consult with families for mitigation of graves Use appended Chance find procedure to cater for accidental finds. 	2	1	1	1	4
	Disturbance of buildings and structures older than 60 years old	Operational	-	2	1	1	1	4	<ul style="list-style-type: none"> Construction management and workers must be educated about the value of historical buildings and structures. 	2	1	1	1	4
Haulage	Destruction public monuments and plaques	Operational	-	2	1	1	1	4	<ul style="list-style-type: none"> Mitigation is not required because there are no public monuments within the project site 	2	1	1	1	4

5.7 Cumulative Impacts

Cumulative impacts are defined as impacts that result from incremental changes caused by other past, present, or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed mining is considered the total impact associated with the proposed mining project when combined with other past, present, and reasonably foreseeable future developments projects. The impacts of the proposed mining development were assessed by comparing the post-project situation to a pre-existing baseline. This section considers the cumulative impacts that would result from the combination of the proposed mining development.

The current Mining Right Application will see the entire site being destroyed and will have significant impact on the visual and sense of place. This proposed mine combined with other proposed mining activities will effectively transform a natural agriculture area into a mining area. The mining and other proposed infrastructure developments will have a combined visual impact on the landscape. The cumulative impact will negatively affect the landscape quality of the area which are ordinarily considered to be source. The frequency of mining and other proposals in the area has a potential of collectively changing the character of the landscape (see Kathu and eMalahleni area as an example). The once isolated landscape will see volumes of people establishing new settlements to provide accommodation for workers and office facilities. In the long run the accumulative impact will be of high significance in terms of its potential to change the characteristics and quality of the landscape in the long run. The field survey focused on potential LIA sites, historical buildings and structures as well as burial grounds and graves.

5.8 Mitigation

The identified graves trigger Section 36 of the NHRA and no person may, without a permit issued from the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older. The identified sites must be protected from mining activities. The planners for the mine must provide for 100m buffer zone from each burial site. No mitigation of graves shall take place without agreement with the affected families.

6 ASSESSING SIGNIFICANCE

The Guidelines to the SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

6.1 Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture, and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

6.2 Historic Value

Historic value encompasses the history of aesthetics, science, and society, and therefore to a large extent underlies all the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase, or activity. It may also have historic value as the site of an important event. For any given place, the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

6.3 Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality, or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

6.4 Social Value

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national, or other cultural sentiment to a majority or minority group. Social value also extends to

natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

7 DISCUSSION

Various specialists conducted several Phase 1 Archaeological/ Heritage studies for various infrastructure developments in the project area since 2006. The survey recorded burial sites within the proposed mining right and mining permit area. As such, it is the responsibility of the applicant to ensure that the heritage sites located within the mining development site are protected during mining. The sites must be clearly marked, and workers made aware of their existence and significance. In this case a management plan covering the burial sites must be compiled. However, the lack of confirmable archaeological sites recorded on the mining right application site is thought to be a result of limited ground surface visibility due dense grass cover. This may have impeded the detection of other physical cultural heritage remains, or archaeological signatures immediately associated with the mining site. It should be borne in mind that the absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist within the proposed project site.

Based on the significance assessment criterion employed for this report, the proposed mining development site was rated low to medium from an archaeological perspective due to previously and current agricultural activities. It should be noted that significance of the sites of Interest is not limited to presence or absence of physical archaeological sites. Significant archaeological remains may be unearthed during mining. (See appended chance find procedure).

8 CONCLUSION

Integrated Specialist Services (Pty) Ltd was tasked by Singo Consulting (Pty) Ltd to carry out a HIA for the proposed Mining Right Application on all portions of the farm Vlaklaagte 223 IS, Bethal within Msukaligwa Magisterial District, Mpumalanga Province. Desktop research revealed that the project area is rich in LIA archaeological sites and historical sites, however, the field study did not identify any sites within the Mining Right Site. In terms of the archaeology, there are no obvious 'Fatal Flaws' or 'No-Go' areas. The recorded burial sites are protected in terms of the NHRA and must not be tempred with, without a permit SAHRA's Burial Ground and Grave Unit. It should be noted that the potential for accidental finds, remains and the applicant and contractors are urged to be diligent and observant during mining. The procedure for reporting chance finds has clearly been laid out and if this report is adopted by SAHRA, then there are no archaeological reasons why the Mining Right Application cannot be approved.

9 RECOMENDATIONS

Report makes the following recommendations:

- 1 It is recommended that SAHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements
2. It is recommended that SAHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed Mining Right Application on condition that the site survey did not identify any significant archaeological and heritage sites.
- 3 The recorded burial sites are protected in terms of Section 36 of the NHRA, a 100m buffer zone must be provided for each burial site in accordance with SAHRA Regulations of 2020
- 4 No mitigation on recorded graves shall be done without the involvement of the affected families.
5. From a heritage perspective supported by the findings of this study, the Mining Right Application is supported. However, the mining right application should be approved under observation that mining does not extend beyond the area considered in this report/affect the identified heritage sites.
6. Should chance archaeological materials or human remains be exposed during mining on any section of the site, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption in mining scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the NHRA regulations.
7. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMP, there are no significant cultural heritage resources barriers to the proposed Mining Right Application. The Heritage authority may approve the Mining Right Application as planned with special commendations to implement the recommendations made herein.

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11 APPENDIX 1: CHANCE FIND PROCEDURE FOR THE PROPOSED MINING RIGHT APPLICATION ON ALL PORTIONS OF THE FARM VLAKLAAGTE 223 IS, BETHAL WITHIN MSUKALIGWA (BETHAL)MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

NOVEMBER 2022

ACRONYMS

BGG	Burial Grounds and Graves
CFPs	Chance Find Procedures
ECO	Environmental Control Officer
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
SAHRA	South African Heritage Resources Authority
SAPS	South African Police Service
UNESCO	United Nations Educational, Scientific and Cultural Organisation

11.1 CHANCE FIND PROCEDURE

11.1.1 Introduction

An Archaeological Chance Find Procedure (CFP) is a tool for the protection of previously unidentified cultural heritage resources during mining. The main purpose of a CFP is to raise awareness of all construction, mine workers and management 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 mining monitoring. 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 site manager must ensure that all personnel on the proposed development 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.

11.1.2 Definitions

In short, the term 'heritage resource' includes structures, archaeology, meteors, and public monuments as defined in the South African National Heritage Resources Act (Act No. 25 of 1999) (NHRA) Sections 34, 35, and 37. Procedures specific to burial grounds and graves (BGG) as defined under NHRA Section 36 will be discussed separately as this require the implementation of separate criteria for CFPs.

11.1.3 Background

The proposed Mining Right Application on all portions of the farm Vlaklaagte 223 IS, Bethal, Mpumalanga Province. The proposed mining development is subject to heritage survey and assessment at planning stage and Mining Right Application in accordance with Section 38(8) of NHRA. These surveys are based on surface indications alone and it is therefore possible that sites or significant archaeological remains can be missed during surveys because they occur beneath the surface. These are often accidentally exposed

in the course of construction or any associated construction work and hence the need for a Chance Find Procedure to deal with accidental finds. In this case an extensive Archaeological Impact Assessment was completed by Mlilo (2022) on the proposed coal mining development site. The AIA/HIA conducted was very comprehensive covering the entire site. The current study (Mlilo 2022) recorded burial sites within the proposed mining site.

11.1.4 Purpose

The purpose of this Chance Find Procedure is to ensure the protection of previously unrecorded heritage resources within the Mining Right site. This Chance Find Procedure intends to provide the applicant and contractors with appropriate response in accordance with the NHRA and international best practice. The aim of this CFP is to avoid or reduce project risks that may occur as a result of accidental finds whilst considering international best practice. In addition, this document seeks to address the probability of archaeological remains finds and features becoming accidentally exposed during mining and movement of mining equipment. The current mining activities have the potential to cause severe impacts on significant tangible and intangible cultural heritage resources buried beneath the surface or concealed by tall grass cover. Integrated Specialist Services (Pty) Ltd developed this Chance Find Procedure to define the process which governs the management of Chance Finds during mining. This ensures that appropriate treatment of chance finds while also minimizing disruption of the mining schedule. It also enables compliance with the NHRA and all relevant regulations. Archaeological Chance Find Procedures are to promote preservation of archaeological remains while minimizing disruption of mining scheduling. It is recommended that due to the moderate archaeological potential of the project area, all site personnel and contractors be informed of the Archaeological Chance Find procedure and have access to a copy while on site. This document has been prepared to define the avoidance, minimization and mitigation measures necessary to ensure that negative impacts to known and unknown archaeological remains as a result of project activities and are prevented or where this is not possible, reduced to as low as reasonably practical during mining.

Thus, this Chance Finds Procedure covers the actions to be taken from the discovering of a heritage site or item to its investigation and assessment by a professional archaeologist or other appropriately qualified person to its rescue or salvage.

11.2 GENERAL CHANCE FIND PROCEDURE

11.2.1 General

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

- All construction/clearance activities in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the find site.
- Briefly note the type of archaeological materials you think you have encountered, and their location, including, if possible, the depth below surface of the find
- Report your discovery to your supervisor or if they are unavailable, report to the project ECO who will provide further instructions.
- If the supervisor is not available, notify the Environmental Control Officer immediately. The Environmental Control Officer will then report the find to the Site Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide 30m buffer zone from all sides of the find.
- Record the find GPS location, if able.
- All remains are to be stabilised *in situ*.
- Secure the area to prevent any damage or loss of removable objects.
- Photograph the exposed materials, preferably with a scale (a yellow plastic field binder will suffice).
- The project archaeologist will undertake the inspection process in accordance with all project health and safety protocols under direction of the Health and Safety Officer.
- **Finds rescue strategy:** All investigation of archaeological soils will be undertaken by hand, all finds, remains and samples will be kept and submitted to a museum as required by the heritage legislation. In the event that any artefacts need to be conserved, the relevant permit will be sought from the SAHRA.
- An on-site office and finds storage area will be provided, allowing storage of any artefacts or other archaeological material recovered during the monitoring process.
- In the case of human remains, in addition, to the above, the SAHRA Burial Ground Unit will be contacted and the guidelines for the treatment of human remains will be adhered to. If skeletal remains are identified, an archaeologist will be available to examine the remains.

- The project archaeologist will complete a report on the findings as part of the Mining Right application process.
- Once authorisation has been given by SAHRA, the Applicant will be informed when activities can resume.

11.2.2 Management of chance finds

Should the Heritage specialist conclude that the find is a heritage resource protected in terms of the NRHA (1999) Sections 34, 36, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), Integrated Specialist Services (Pty) Ltd will notify SAHRA and/or PHRA on behalf of the applicant. SAHRA/PHRA may require that a search and rescue exercise be conducted in terms of NHRA Section 38, this may include rescue excavations, for which ISS will submit a rescue permit application having fulfilled all requirements of the permit application process.

In the event that human remains are accidentally exposed, SAHRA Burial Ground Unit or ISS Heritage Specialist must immediately be notified of the discovery in order to take the required further steps:

- a. Heritage Specialist to inspect, evaluate and document the exposed burial or skeletal remains and determine further action in consultation with the SAPS and Traditional authorities:
- b. Heritage specialist will investigate the age of the accidental exposure in order to determine whether the find is a burial older than 60 years under the jurisdiction of SAHRA or that the exposed burial is younger than 60 years under the jurisdiction of the Department of Health in terms of the Human Tissue Act.
- c. The local SAPS will be notified to inspect the accidental exposure in order to determine where the site is a scene of crime or not.
- d. Having inspected and evaluated the accidental exposure of human remains, the project Archaeologist will then track and consult the potential descendants or custodians of the affected burial.

- e. The project archaeologist will consult with the traditional authorities, local municipality, and SAPS to seek endorsement for the rescue of the remains. Consultation must be done in terms of NHRA (1999) Regulations 39, 40, 42.
- f. Having obtained consent from affected families and stakeholders, the project archaeologist will then compile a Rescue Permit application and submit to SAHRA Burial Ground and Graves Unit.
- g. As soon as the project archaeologist receives the rescue permit from SAHRA he will, in collaboration with the company/contractor, arrange for the relocation in terms of logistics and appointing of an experienced undertaker to conduct the relocation process.
- h. The rescue process will be done under the supervision of the archaeologist, the site representative and affected family members. Retrieval of the remains shall be undertaken in such a manner as to reveal the stratigraphic and spatial relationship of the human skeletal remains with other archaeological features in the excavation (e.g., grave goods, hearths, burial pits, etc.). A catalogue and bagging system shall be utilised that will allow ready reassembly and relational analysis of all elements in a laboratory. The remains will not be touched with the naked hand; all Contractor personnel working on the excavation must wear clean cotton or non-powdered latex gloves when handling remains in order to minimise contamination of the remains with modern human DNA. The project archaeologist will document the process from exhumation to reburial.
- i. Having fulfilled the requirements of the rescue/burial permit, the project archaeologist will compile a mitigation report which details the whole process from discovery to relocation. The report will be submitted to SAHRA and to the client.

Note that the relocation process will be informed by SAHRA Regulations and the wishes of the descendants of the affected burial.

12 APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED MINING RIGHT APPLICATION

Objective								
		<ul style="list-style-type: none"> Protection of archaeological sites and land considered to be of cultural value. Protection of known physical cultural property sites against vandalism, destruction and theft; and The preservation and appropriate management of new archaeological finds should these be discovered during construction. 						
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Mining Phase								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Mining Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform Mpumalanga PHRA		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the Mpumalanga PHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as mining phase.						
Operational Phase								
		Same as mining phase.						

13 APPENDIX 4: LEGAL PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans.

(c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed

(a) the skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must

(a) be clear and generally available to those affected thereby;

(b) in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) give further content to the fundamental rights set out in the Constitution.

- (4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.
- (5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.
- (6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.
- (7) The identification, assessment and management of the heritage resources of South Africa must—
 - (a) take account of all relevant cultural values and indigenous knowledge systems;
 - (b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;
 - (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
 - (d) contribute to social and economic development;
 - (e) safeguard the options of present and future generations; and
 - (f) be fully researched, documented and recorded.

13.1 Burial grounds and graves

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

equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

13.2 General policy

47. (1) SAHRA and a provincial heritage resources authority—

(a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and

(b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and

(c) must review any such statement within 10 years after its adoption.

(2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.

(3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.

(5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.

(6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.