

HERITAGE SCOPING REPORT

FOR THE PROPOSED ERGO MINING 40MW SOLAR (PV) ENERGY: PHASE 2 PROJECT,
GAUTENG PROVINCE

Type of development:

Renewable Energy

Client:

Environmental Management Assistance (Pty) Ltd

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EXECUTIVE SUMMARY

Site name and location: Ergo Mining Phase 2 (40MW) PV, Gauteng Province located on the farm Withok 131 IR and Witpoortjie 117 IR, and various Withok Estate Agricultural Holdings.

1: 50 000 Topographic Map: 2430 CC

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Date of Report: 28 July 2021

Findings of the Assessment:

The scope of work for this phase of the project consisted of a Heritage Scoping Report for the proposed Ergo Mining Phase 2 (40MW) PV facility. This report is compiled based on a desktop study of available data regarding cultural heritage resources of the area. This brief background study indicated that the study area is characterised by cultivation and mining activities from the 1940's onwards with various features relating to the built environment occurring in the area, that is older than 60 years, and therefore protected by Heritage Legislation. In addition, previous assessments in the area recorded Stone Age sites, of which one occurs in the study area (van der Walt 2021) and more sites can be expected especially close to water sources like pans and streams. A grave site is indicated on the 1976 topographical map of the area (Figure 8) but not on subsequent or previous maps and it is not certain if the grave site still exists. Based on the SAHRA paleontological sensitivity map (Figure 10) the study area is indicated as of insignificant, low, moderate and high sensitivity and further studies will be required in the HIA phase.

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

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ABBREVIATIONS

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

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

GLOSSARY

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

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

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

Late Stone Age (30 000 years ago until recent)

Historic (approximately AD 1840 to 1950)

Historic building (over 60 years old)

Lithics: Stone Age artefacts

1. INTRODUCTION

HCAC was contracted by Environmental Management Assistance (Pty) Ltd to conduct a heritage scoping study for the Ergo Mining Phase 2 (40MW) PV Facility. The study area is situated on the following properties (figure 1):

- Remaining Extent of Portion 183 of the Farm Witpoortjie 117, Registration Division I.R., Province of Gauteng;
- Portion 283 (A Portion of Portion 19) of The Farm Witpoortjie 117, Registration Division I.R., Province of Gauteng;
- Portion 272 of the Farm Witpoortjie 117, Registration Division I.R., Province of Gauteng;
- Portion 9 of the Farm Withok 131 I.R., Gauteng Province;
- Holding 203, 204, 205, 206, 207, 208, 240, 241, 242, 243, 244, 245, 296, 297, 298, 299, 300, 301, 302, 303, 348, 349, 350, 351, 352, 353, 354, 355 Withok Estates I.R., Gauteng Province;

The heritage scoping report forms part of the Environmental Impact Assessment process for the project and will be followed by a Heritage Impact Assessment report.

The aim of the scoping report is to conduct a desktop study to highlight no go areas within the project site. The study furthermore aims to assess the impact of the proposed project on non - renewable heritage resources and to submit appropriate recommendations with regards to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage legislation.

This report outlines the approach and methodology utilised for the scoping phase of the project. The report includes information collected from various sources and consultations. Possible impacts are identified, and mitigation measures are proposed in the following report. It is important to note a heritage walk through was not conducted as part of the scoping phase.

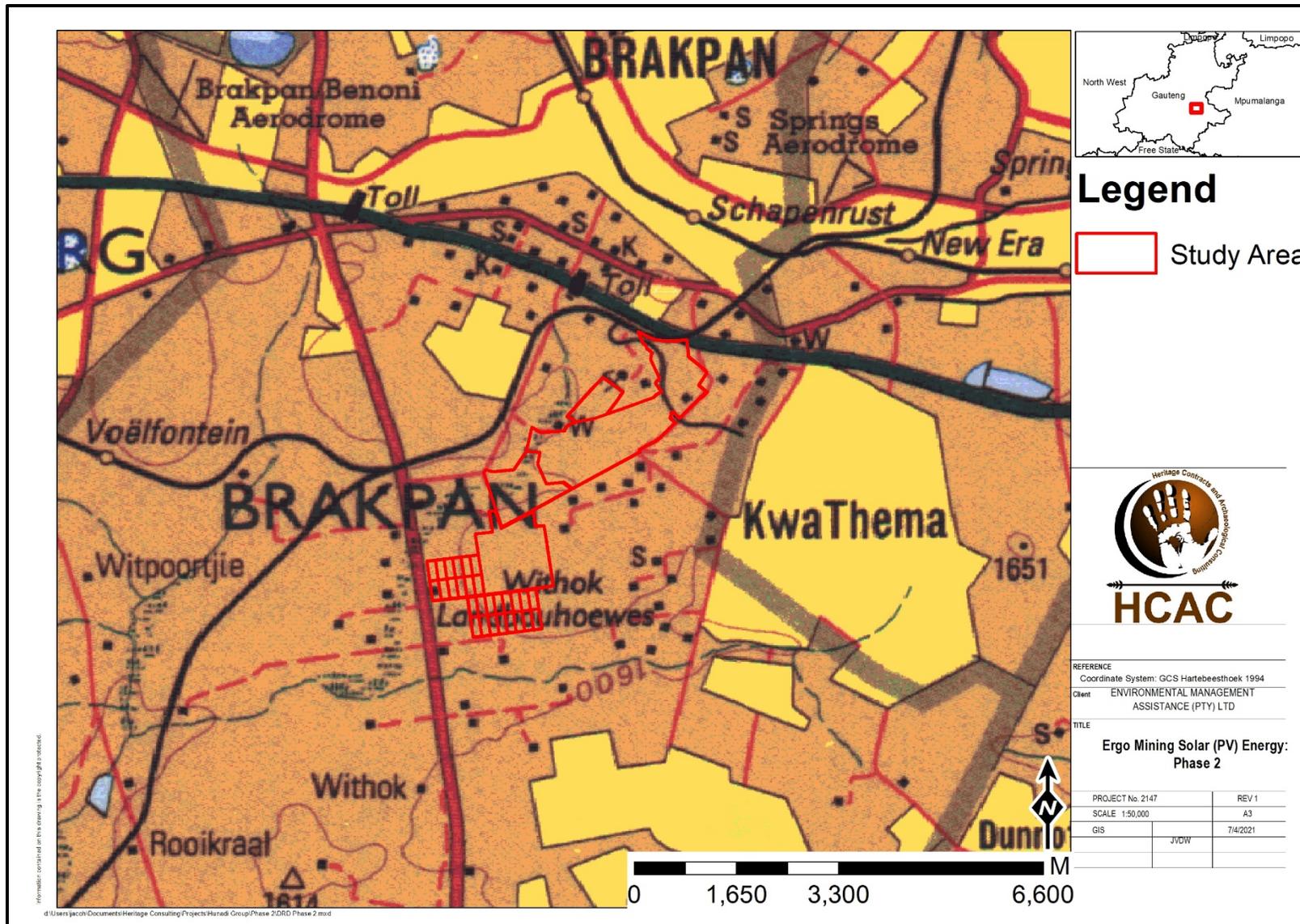


Figure 1. Regional setting of the project (1:250 000 Topographical map)

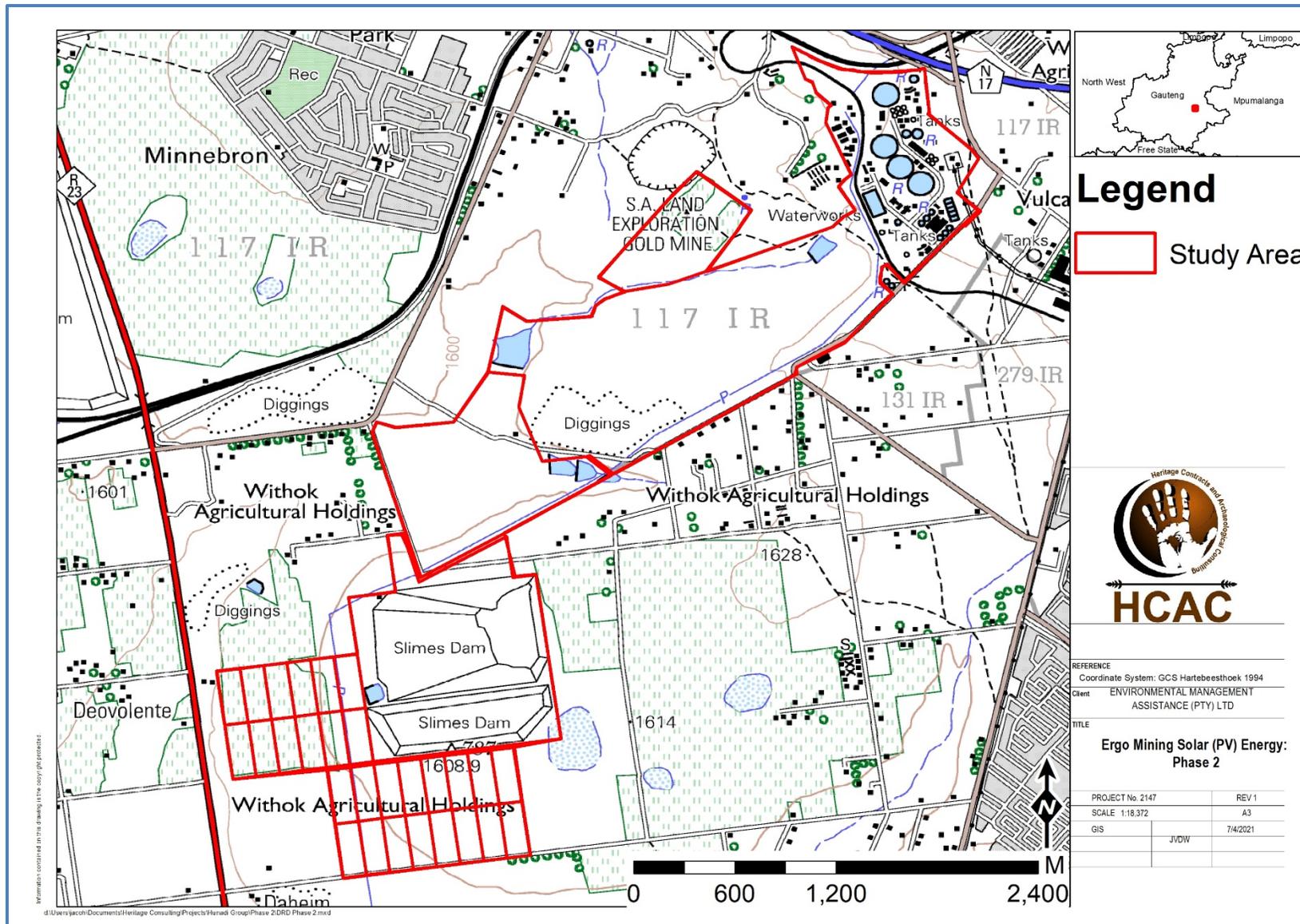


Figure 2. Local setting of the project (1:50 000 Topographical map).

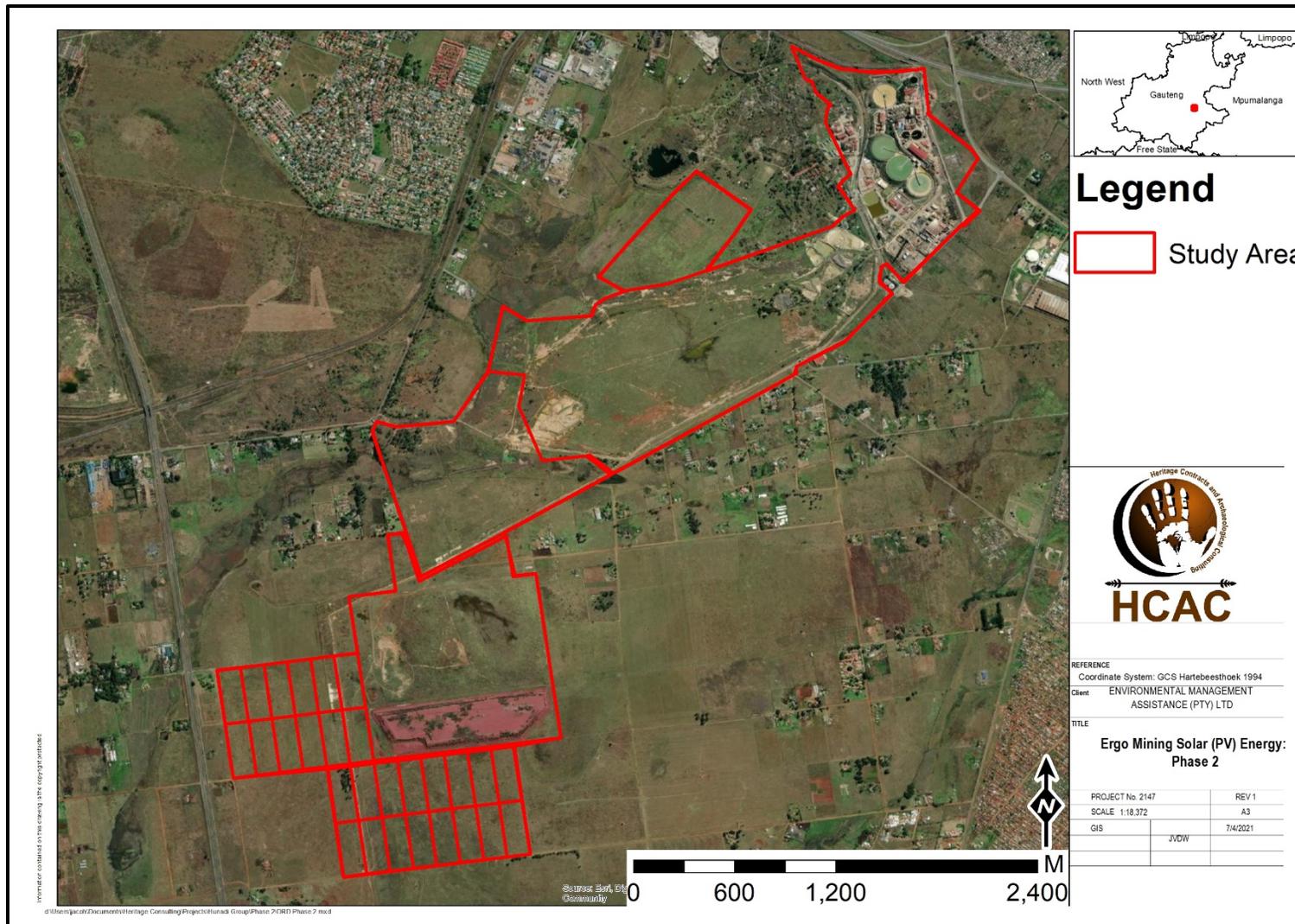


Figure 3. Aerial image of the study area

1.1 Terms of Reference

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

- » Conduct a desktop study:
 - * Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area;
 - * Determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.
- » Compile a specialist Heritage Scoping Report in line with the requirements of the EIA Regulations, 2014, as amended on 07 April 2017.

The reporting of the scoping component is based on the results and findings of a desktop study and no field work was conducted for the scoping phase. Potential issues associated with the proposed project will be identified, and those issues requiring further investigation through the IA Phase, highlighted. Reporting will aim to identify the anticipated impacts, as well as cumulative impacts, of the operational units of the proposed project activity on the identified heritage resources for all 3 development stages of the project, i.e. construction, operation and decommissioning. Reporting will also consider alternatives should any significant sites be impacted on by the proposed project. This is done to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage Legislation.

During the next phase, the following terms apply:

Field study

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

Reporting

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

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

1.2 Nature of the development

The project includes the Phase 2: 40 MW Ergo Mining PV Facility and associated ancillary infrastructure.

1.3 The receiving environment

The study area is situated on the following properties:

- Remaining Extent of Portion 183 of the Farm Witpoortjie 117, Registration Division I.R., Province of Gauteng (farm assessed for BAR 20 MW (Phase 1));
- Portion 283 (A Portion of Portion 19) of The Farm Witpoortjie 117, Registration Division I.R., Province of Gauteng;
- Portion 272 of the Farm Witpoortjie 117, Registration Division I.R., Province of Gauteng;
- Portion 9 of the Farm Withok 131 I.R., Gauteng Province;
- Holding 203, 204, 205, 206, 207, 208, 240, 241, 242, 243, 244, 245, 296, 297, 298, 299, 300, 301, 302, 303, 348, 349, 350, 351, 352, 353, 354, 355 Withok Estates I.R., Gauteng Province;

The study area is largely altered by cultivation in the past and recently by mining activities followed by residential developments.

2. APPROACH AND METHODOLOGY

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

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

2.1 Literature review

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

2.2 Information collection

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

2.3 Public consultation

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

2.4 Google Earth and mapping survey

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

2.5 Genealogical Society of South Africa

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

2.6. Restrictions

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

3. LEGISLATION

- For this project, the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and is of importance and the following sites and features are protected:
 - a. Archaeological artefacts, structures and sites older than 100 years;
 - b. Ethnographic art objects (e.g., prehistoric rock art) and ethnography;
 - c. Objects of decorative and visual arts;
 - d. Military objects, structures and sites older than 75 years;
 - e. Historical objects, structures and sites older than 60 years;
 - f. Proclaimed heritage sites;
 - g. Graveyards and graves older than 60 years;
 - h. Meteorites and fossils; and
 - i. Objects, structures and sites of scientific or technological value.

The national estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance;
- b. Places to which oral traditions are attached or which are associated with living heritage;
- c. Historical settlements and townscapes;
- d. Landscapes and features of cultural significance;
- e. Geological sites of scientific or cultural importance;
- f. Archaeological and palaeontological importance;
- g. Graves and burial grounds;
- h. Sites of significance relating to the history of slavery; and
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.).

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

3.1 Heritage Site Significance and Mitigation Measures

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

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

- » The unique nature of a site;
- » The integrity of the archaeological/cultural heritage deposit;
- » The wider historic, archaeological and geographic context of the site;
- » The location of the site in relation to other similar sites or features;
- » The depth of the archaeological deposit (when it can be determined or is known);
- » The preservation condition of the site; and
- » Potential to answer present research questions.

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

Table 1. Field Rating and significance of heritage resources

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected (GP.A)	A	-	High/medium significance
Generally Protected (GP.B)	B	-	Medium significance
Generally Protected (GP.C)	C	-	Low significance
			Destruction

4. REGIONAL OVERVIEW

4.1 General Information

4.1.1. Database search

The following CRM studies (Table 1) were consulted for this report:

Table 2. Heritage Reports conducted close to the study area.

Author	Year	Project	Findings
Van Schalkwyk, J.	1995	A Survey Of Cultural Resources Along The Proposed Pwv 16 Road Corridor, Brakpan District	No Sites were identified
Huffman, TN and Van der Merwe, HD.	1995	Archaeological Survey of Withoekspruit, Brakpan	Stone Age finds and historical sites
Gaigher, S.	2013	Heritage Impact Assessment for the Proposed Vulcania Cemetery Development	No heritage sites
Gaigher, S.	2014	Heritage Impact Assessment for the Proposed Ergo Road Residential Development	Historical structure.
Gaigher, S.	2018	Heritage Impact Assessment for the Proposed New Mixed-Use Residential Development and Related Infrastructure: Minnebron Extension 1 on Portions 64 - 65, 165 and the Remainder of Portion 3 of the Farm Witpoortjie 117 I.R., in the Ekurhuleni Metropolitan Municipality, Gauteng Province	Mining related features, no heritage sites
Kitto, J.	2019	The proposed Valley Silts Project, City of Johannesburg Metropolitan Municipality, Gauteng Province – HIA	Stone structure and a cemetery
Van der Walt, J.	2021	HIA – Ergo Mining Solar (PV) Energy: Phase 1	Remains of structures and a Stone Age site.

4.1.2. Public consultation

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

4.1.3. Google Earth and mapping survey

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

4.1.4. Genealogical Society of South Africa

No grave sites are on record on the GSSA for the study area, but a single grave is indicated on the 1976 map (Figure 8).

4.1.5. Known sites

Based on the desktop study a few heritage sites were identified during previous assessments in the area and mapped in relation to the proposed project (Figure 4). The sites recorded consist of a Stone Age site and the remains of structures that could be older than 60 years (Figure 4).

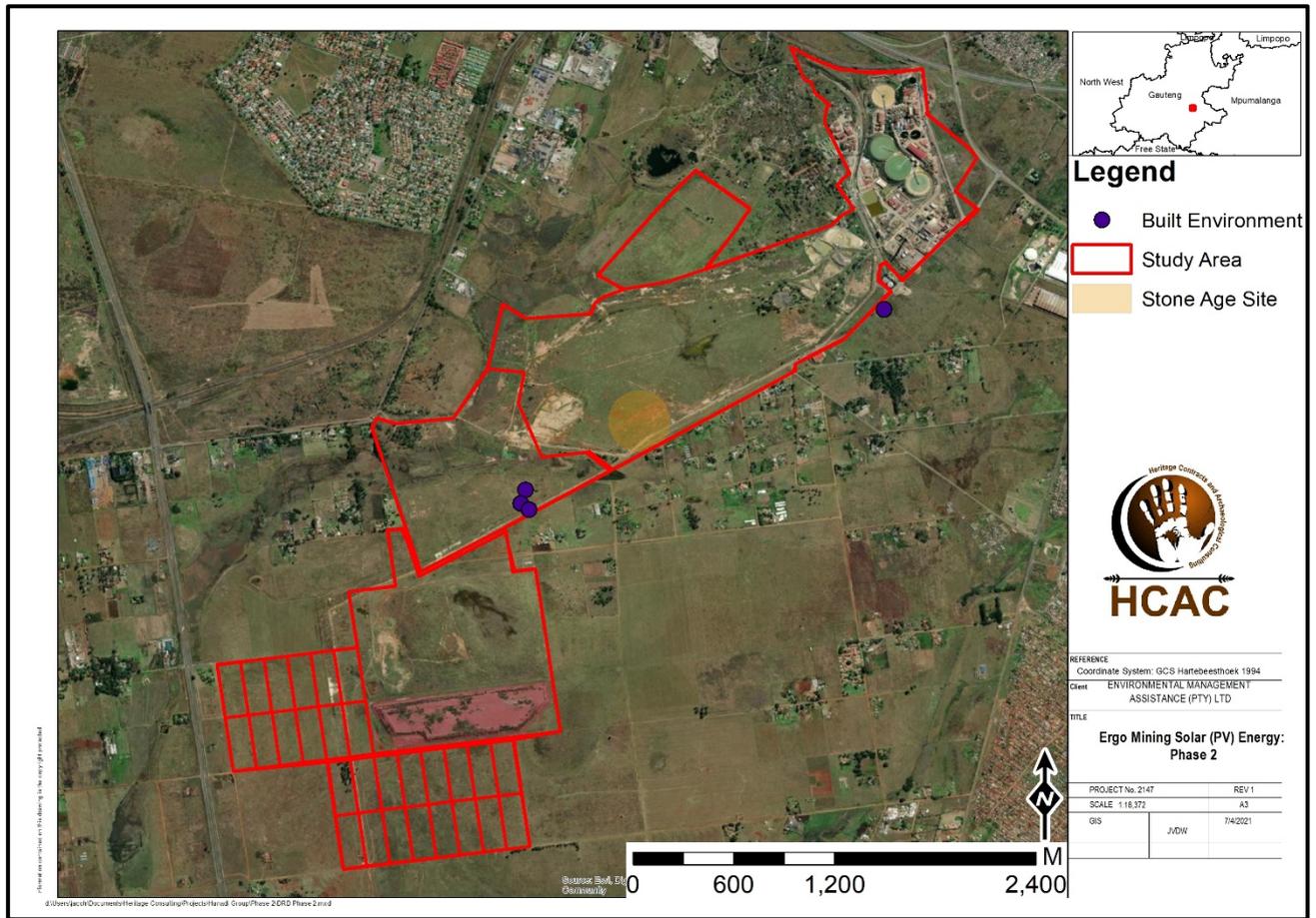


Figure 4. Known heritage sites in relation to the study area.

5. ARCHAEOLOGICAL AND HISTORICAL INFORMATION AVAILABLE ON THE STUDY AREA

5.1. Archaeology of the area

The archaeological record for the greater study area consists of the Stone Age and Iron Age.

5.1.1. Stone Age

The Stone Age can be divided in three main phases as follows;

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

Although there are no published Stone Age sites located near the study area an Early to Middle Stone Age site occur in the study area and more sites dating to this period can be expected. There is also evidence of the use of the larger area by Stone Age communities for example along the Kliprivier where ESA and MSA tools were recorded. LSA material is recorded along ridges to the south of the current study area (Huffman 2008). Petroglyphs occur at Redan as well as along the Vaal River (Berg 1999).

5.1.2. The Iron Age

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

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

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. Extensive Stone walled sites are recorded at Klipriviers Berg Nature reserve belonging to the Late Iron Age period. A large body of research is available on this area. These sites (Taylor's Type N, Mason's Class 2 & 5) are now collectively referred to as Klipriviersberg (Huffman 2007).

These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites date to the 18th and 19th centuries and was built by people in the Fokeng cluster. In this area the Klipriviersberg walling would have ended at about AD 1823, when Mzilikazi entered the area (Rasmussen 1978). This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi.

5.2. Historical Information

Brakpan was first named in 1886 and grew rapidly after the discovery of coal (in 1888) and gold (in 1905). Brakpan officially became a town in 1919.

5.2.1. Anglo-Boer War

The Anglo-Boer War was the greatest conflict that had taken place in South Africa up to date. One skirmish is listed for the Brakpan area on the Farm Hartebeesfontein on 18th February 1901 (<http://www.boerenbrit.com/archives/9658>)

5.2.2. Cultural Landscape

The project site is situated on Ergo Mining owned land adjacent to the Withok Estates Agricultural Holdings and Witpoort Estates Agricultural Holdings areas of Brakpan within the City of Ekurhuleni Metropolitan Municipality, Gauteng Province. The area is characterised by cultivation and mining activities from the 1940's onwards (Figure 5 to 9) with a single grave site indicated in Figure 8.

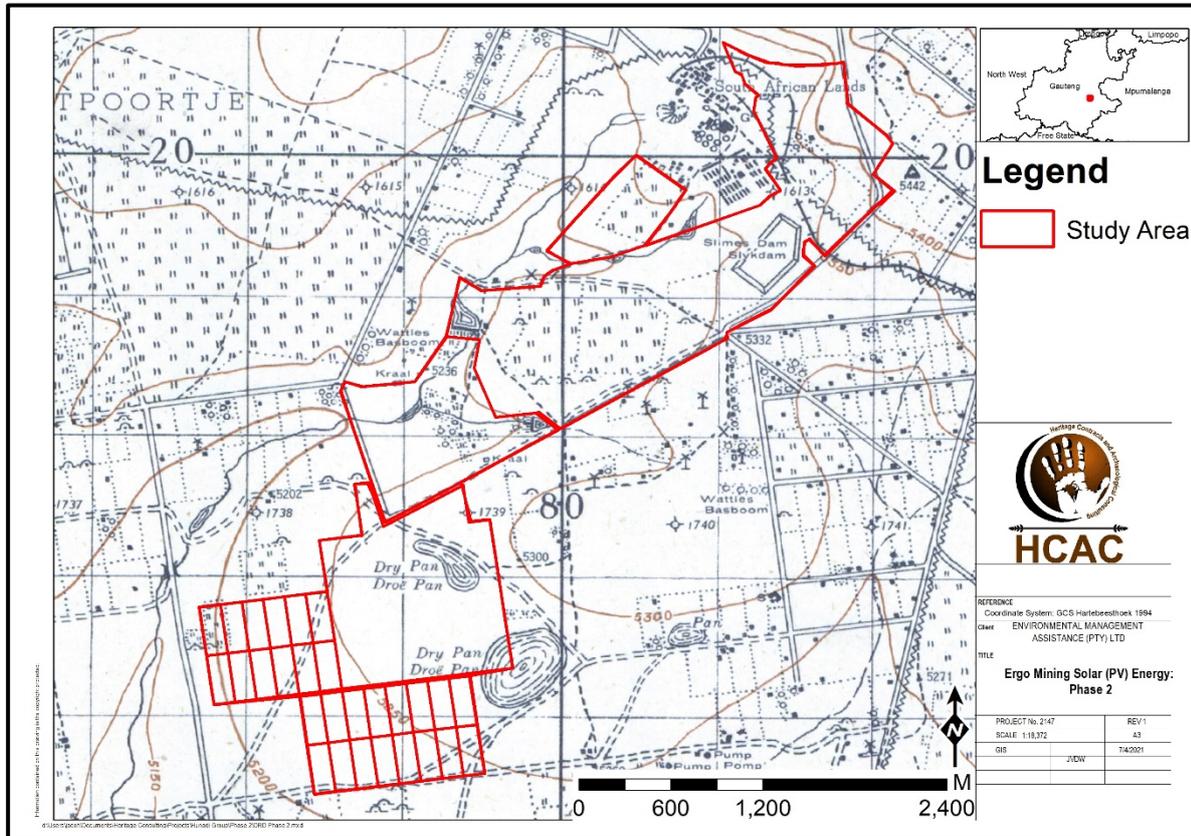


Figure 5. 1944 Topographic map of the study area. Portions of the study area have been mined and cultivated.

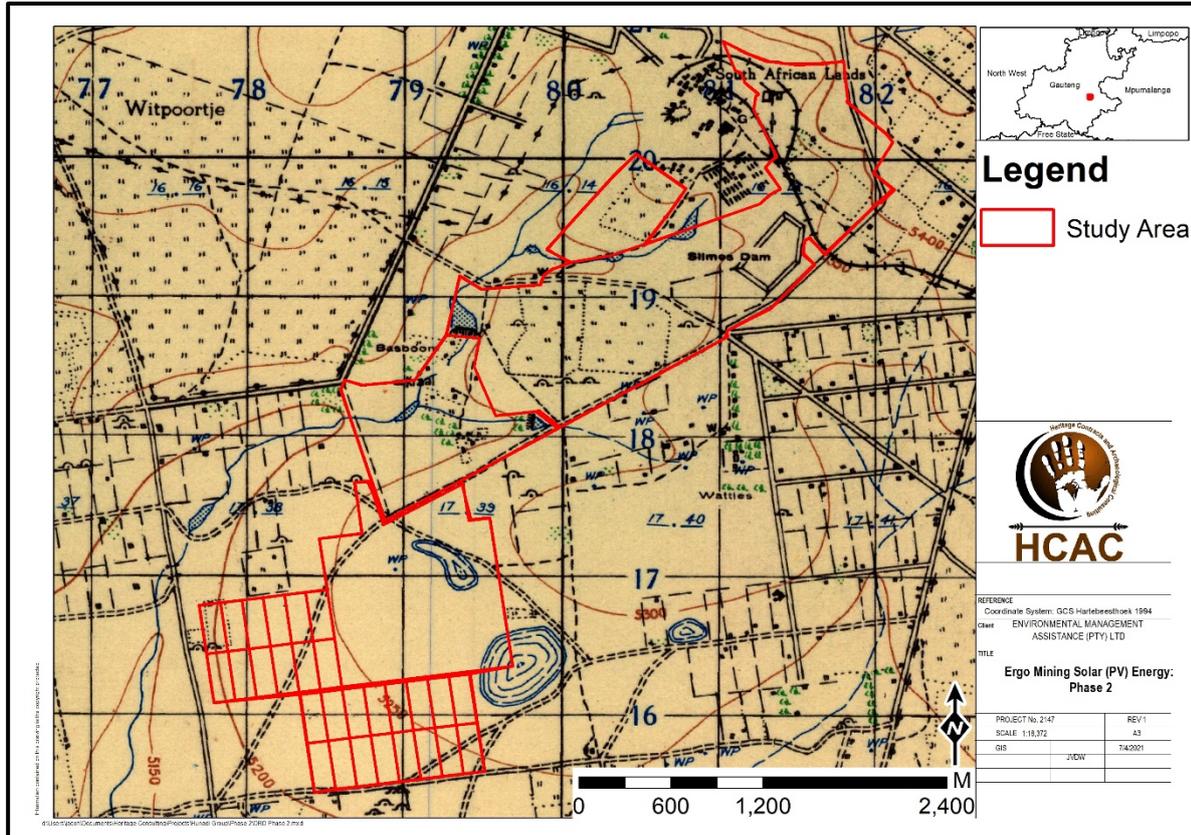


Figure 6. 1945 Topographic map of the study area. Mining activities cultivation and road developments are visible throughout the study area.

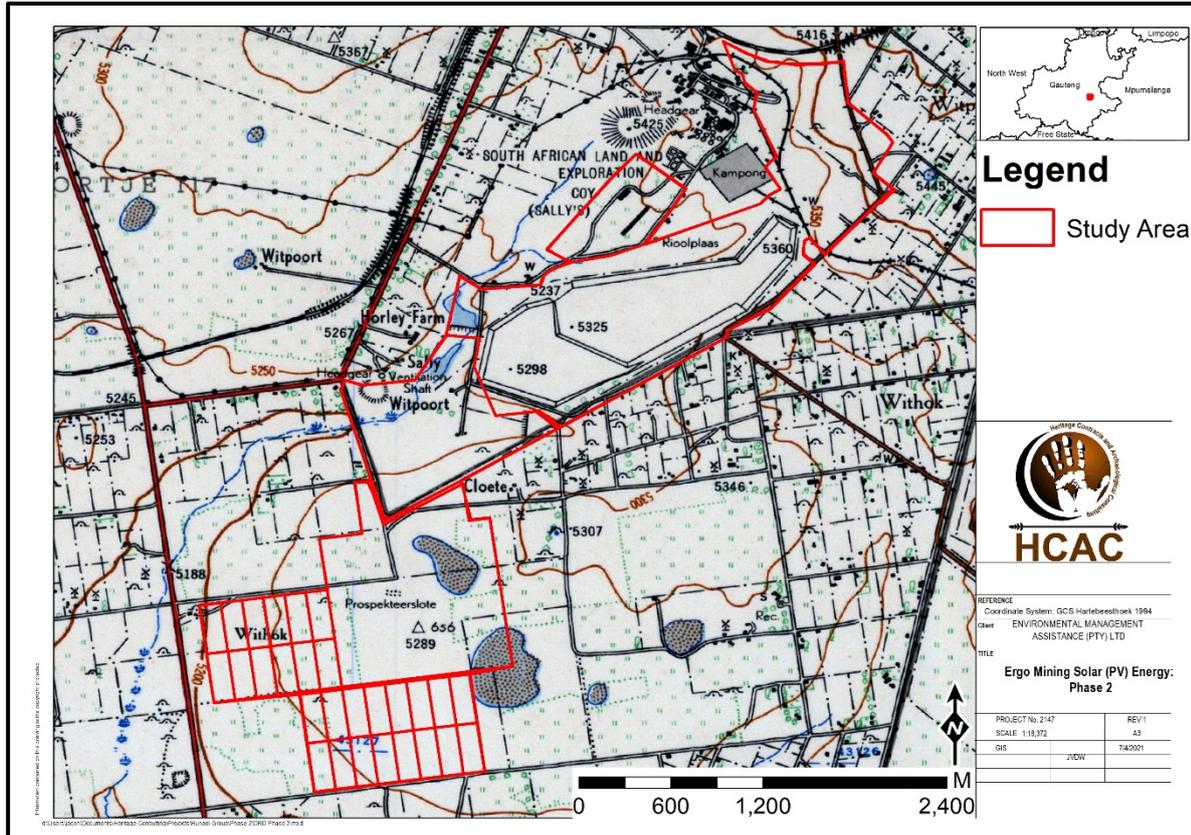


Figure 7. 1960 Topographic map of the study area. Mining activities and cultivation in the area escalated.

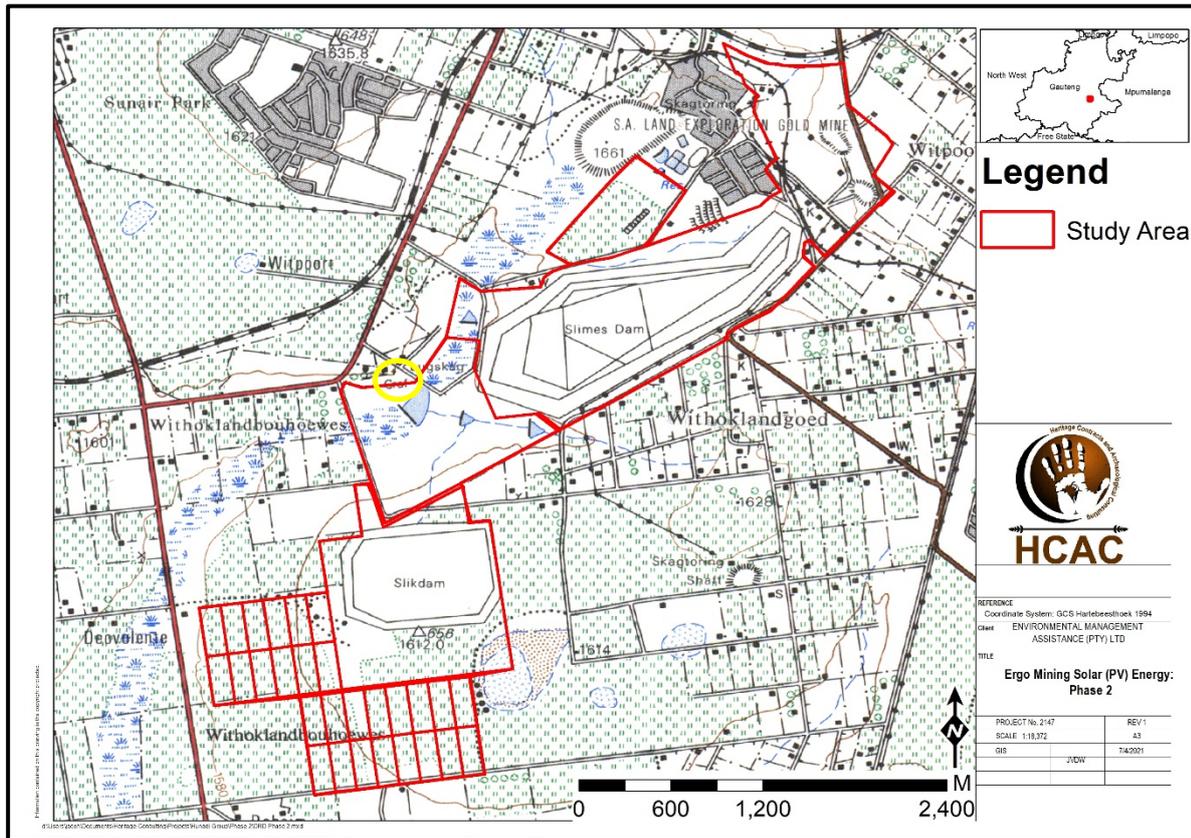


Figure 8. 1976 Topographic map of the study area. The central area is a large slimes dam and the area to the south as well. Large areas are cultivated and a single grave site is indicated (yellow polygon).

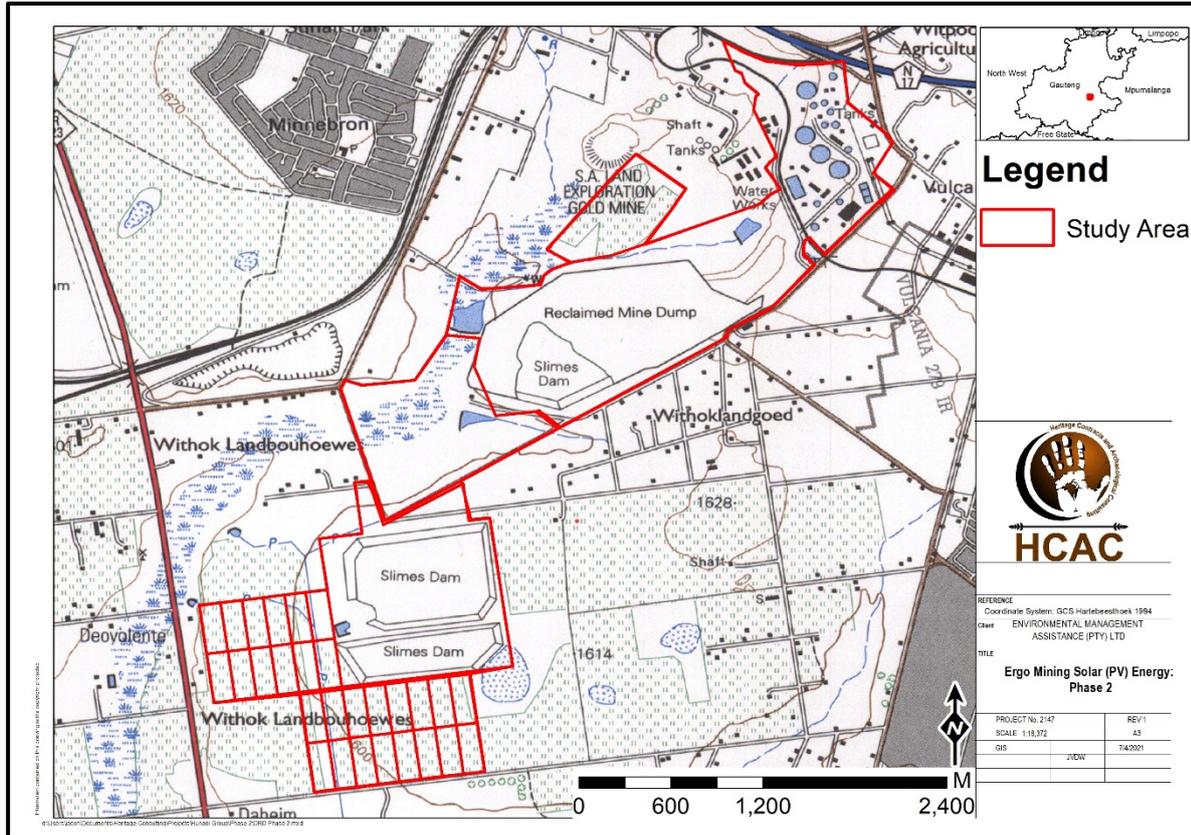
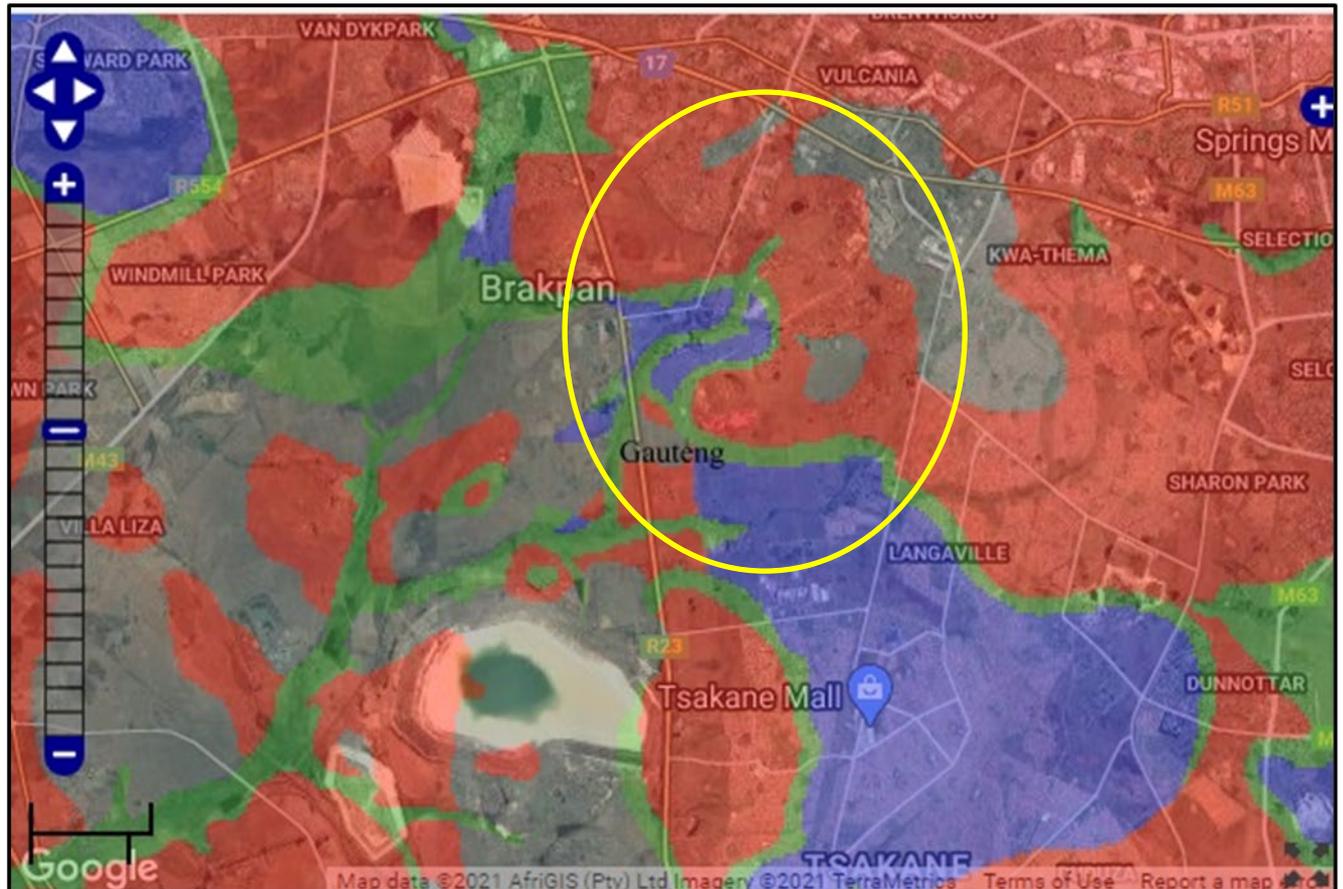


Figure 9. 1995 Topographic map of the study area. Portions of the slimes dams are still visible and the central area is now a reclaimed mine dump with mining activities and cultivation characterising most of the study area.

5.9. Paleontological Significance

Based on the SAHRA paleontological sensitivity map (Figure 10) the study area is indicated as of insignificant, low, moderate and high sensitivity and further studies will be required in the HIA phase.



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

Figure 10. Paleontological Sensitivity of the study area is indicated as ranging from insignificant, low, moderate and high (approximate area is highlighted by the yellow polygon).

6. PROBABILITY OF OCCURRENCE OF SITES

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

» Archaeological and Cultural Heritage Landscape

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

Archaeological remains dating to the following periods can be expected within the study areas:

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

- » Iron Age finds
 - EIA: *Low Probability*
 - MIA: *Low Probability*
 - LIA: *Medium Probability*

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

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

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

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

7. ASSUMPTIONS AND LIMITATIONS

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

8. FINDINGS

8.1. Archaeology

8.1.1 Archaeological finds

Previous assessments in the area recorded Stone Age sites of which one occur in the study area (vd Walt 2021). More sites can be expected in the study area especially close to water sources like pans and streams. Impacts to heritage resources will occur primarily during the construction phase and no impacts are expected during the operation and decommissioning phase.

8.1.2 Nature of Impact

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

8.1.3 Extent of impact

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

8.2. Historical period

8.2.1 Historical finds:

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

8.2.2 Nature of Impact

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

8.2.3 Extent of impact

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

8.3. Burials and Cemeteries

8.3.1 Burials and Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape, and a single grave site is indicated in the study area (Figure 8).

8.3.2 Nature of Impact

The construction and operation of the proposed project could impact on burial sites.

8.3.3 Extent of impact

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

Table 3. Expected impact on heritage resources.

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

9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area it is anticipated that any sites that occur within the proposed development area will have a Generally Protected B (GP. B) or lower field rating and all sites should be mitigatable. A grave site is indicated on the 1976 topographical map of the area (Figure 8) but not on subsequent or previous maps of the area and it is not certain if the grave site still exists and therefore no red flags have been identified.

10. CONCLUSIONS AND RECOMMENDATIONS

The project site is situated on Ergo Mining owned land adjacent to the Withok Estates Agricultural Holdings and Witpoort Estates Agricultural Holdings areas of Brakpan, Gauteng Province. The area is characterised by cultivation and mining activities from the 1940's onwards (Figure 5 to 9) that altered the landscape. A grave site is indicated on the 1976 topographical map of the area (Figure 8) but not on subsequent or previous maps and it is not certain if the grave site still exists. Based on the desktop study sites dating to the following periods are known to occur in the study area:

- Based on the SAHRA paleontological sensitivity map, the study area is indicated as of insignificant, low, moderate and high sensitivity and further studies will be required in the HIA phase.
- The Stone Age;
- Historical structures older than 60 years; and
- Graves can be expected anywhere on the landscape.

Every site is relevant to the Heritage Landscape, but it is anticipated that few sites in the study area could have conservation value. From a heritage viewpoint, the proposed project is viable and impacts to heritage resources can be successfully mitigated. This will however be confirmed through the Heritage Impact Assessment to be undertaken.

11. PLAN OF STUDY

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

Action Trigger	Yes/No	Description
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300 m in length.	Yes	
Construction of a bridge or similar structure exceeding 50 m in length.	No	
Development exceeding 5000 m ²	Yes	Footprint of impact area exceeds 5000m ²
Development involving more than 3 erven or sub divisions	Yes	
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	
Re-zoning of site exceeding 10 000 m ²	Yes	
Any other development category, public open space, squares, parks or recreational grounds	No	

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

11.1 Reasoned Opinion

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

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

12. LIST OF PREPARERS

Jaco van der Walt (Archaeologist and project manager).

13. STATEMENT OF COMPETENCY

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

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

14. STATEMENT OF INDEPENDENCE

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



SIGNATURE:

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