# DRAFT PHASE 1:

# HERITAGE & ARCHAEOLOGICAL IMPACT ASSESSMENT REPORT

**PROSPECTING WITHOUT BULK SAMPLING FOR RARE EARTHS, LITHIUM ORE, WOLLASTONITE, NIOBIUM, MONAZITE, MANGANESE ORE, IRON ORE, ZIRCONIUM ORE, PHOSPHATE ORE, PHOSPHORUS, TANTALUM/NIOBIUM ORE, AND THORIUM ORE SITUATED WITHIN THE MAGISTERIAL DISTRICT OF KAMIESBERG, NORTHERN CAPE PROVINCE, SOUTH AFRICA**

**(DMRE REFERENCE NUMBER: NC30/5/1/1/2/12959PR)**

Thevha
Sustainable Services

# PROSPECTING WITHOUT BULK SAMPLING FOR RARE EARTHS, LITHIUM ORE, WOLLASTONITE, NIOBIUM, MONAZITE, MANGANESE ORE, IRON ORE, ZIRCONIUM ORE, PHOSPHATE ORE, PHOSPHORUS, TANTALUM/NIOBIUM ORE, AND THORIUM ORE SITUATED WITHIN THE MAGISTERIAL DISTRICT OF KAMIESBERG, NORTHERN CAPE PROVINCE, SOUTH AFRICA

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## PHASE I:

## ARCHAEOLOGICAL & HERITAGE IMPACT ASSESSMENT REPORT

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**DATE: 21 APRIL 2023**

**DOCUMENT VERSION 01.24.01**

**FINAL DRAFT**

**COMPILED BY:**


## REACH ARCHAEOLOGY CONSULTING

REG: 2021/563702/07


**CONDUCTED ON BEHALF OF:**

## FIMOLEX (PTY) LTD

## 2019/520343/07

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Author: Ms M Moremoholo & L Rakao Reviewed by: AM Matabane

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CONDUCTED ON BEHALF OF:

FIMOLEX (PTY) LTD
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COMPILED BY:

REACH ARCHAEOLOGY CONSULTING (Pty) Ltd
REG: 2021/563702/07

REVIEWED BY:
Ms AM MATABANE

DATE: 21 April 2023

DOCUMENT VERSION 01.24.01

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Note that all location information, geographic co-ordinate information, site-specific geodata, andsite-specific co-ordinate data and details presented in this report were obtained using a hand-heldGarmin Global Positioning (Garmin Series Wearable) and/ an associated software, device. The manufacturer indicates the accuracy reading to be within +/-5m.

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## ETHICAL CONSIDERATIONS

*Reach Archaeology Consulting (Pty) Ltd*, promotes and advocates for the conservation, protection, and preservation of sensitive cultural heritage resources ethically and morally conscious. We support the adherence to all local legislation, ordinance, and policies as well as international best practice methodological approaches in the mitigation of cultural resources.

*Reach Archaeology Consulting (Pty) Ltd*, upholds the Minimum Standards regarding the compilation of Archaeological and Palaeontological components of Impact Assessments as set out by the South African Heritage Resources (SAHRA) and the Cultural Resources Management (CRM) division of the National Association for the South African Profession Archaeologists (ASAPA).

Expertise: Ms AM MatabaneSpecialist Expertise

Ms Annlin Mantshebi Matabane, MA. (Archaeology), BA Hons (Archaeology), BA (Archaeology and Physical
Geography) (Univ. of Pretoria). ASAPA (Professional member) with more than eight years of experience in the compilation of archaeological and heritage impact assessments and cultural heritage resources management.

Ms Matabane is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA Mem No 429) in good standing, with heritage compliance experience from Amafa a-KwaZulu NataliProvincial Heritage Resources Agency (AMAFA)/ Research Institute as well as the South African Heritage Resources Agency (SAHRA).

Ms Matabane has reviewed and conducted AIA/HIA's and fieldwork assessments, Sections 36, 35, and 38 permit specialist historical studies, heritage mitigation work archival and historical research, legislation policy reviews, and policy implementation.

Ms Matabane has completed projects varying from Phase 1 and Phase 2 cultural heritage impact assessments as well as heritage management government institutions, repatriation and memorialisation projects, and several private companies and grave relocations for several small- and large-scale farms and mines across South Africa.

Due to POPIA Act, separate specialist curriculum vitae (including qualifications and certificates) is only available upon written request*



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## SPECIALIST DECLARATION

The author of this report hereby formally declares:

- that I act in my capacity as an independent specialist
- all results and related data have been obtained through careful and precise execution of recognizedmethods of evaluation and are related to the scope of required investigations
- the opinions and interpretations are embraced through judgment, discernment, and comprehension to the best of my available knowledge and are outside the scope of any accreditation.
- it performed the work relating to this project objectively, notwithstanding the results, views, andfindings.
- it has expertise in conducting the specialist report relevant to this project, including knowledge of the framework, protocol, legislation, regulations, and strategies,
- it has no, and will not engage in, conflicting interests in the undertaking of the activity,
- it undertakes to disclose to the client and authorities all material information it possesses that reasonably has or may have the potential of objectivity influencing any decision based on the results and findings of this project.
- all the particulars furnished by Reach Archaeology Consulting (Pty) Ltd in this report are 'true and correct, as far as possible, and any false declaration is a punishable offence.
- I have provided the competent authority with access to all information at my disposal whether suchinformation is favourable to the applicant or not; and
- I am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543

SIGNED: 

DATE: 21 APRIL 2023

DIRECTOR: REACH ARCHAEOLOGY CONSULTING (PTY) LTD

SPECIALIST ARCHAEOLOGIST
HERITAGE CONSULTANT
[ASAPA MEMBERSHIP NO: 429]
REVISION:

SIGNED: 

DATE: 21 APRIL 2023

MS M MOREMOHOLO

ARCHAEOLOGIST-REACH ARCHAEOLOGY CONSULTING (PTY) LTD

SPECIALIST ARCHAEOLOGIST

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## NOTATIONS & TERMINOLOGY

- Archaeology- the study of past human cultures through human beings' material culture remains.
- Archaeological record: includes all the material remains documented by archaeologists and includes the record of cultural history and everything written about the past by archaeologists
- Artefact- Entities whose characteristics result in or partially resulting from human activity. The shape and the other attributes of the artefact are not altered by the removal of the surroundings in which they are discovered. Examples of artefacts include potsherds, iron objects, lithics, beads, hut remains, shells etc.
- Assemblage- A group of artefacts recurring together at a particular time, space and place, and representing the sum of human activities.
- Absolute dating: method of aging that provides dates or date ranges expresses in years.
- Archaeological Material- artefacts resulting from human agents which are in a state of disuse and are in, or on land, which are older than 100years, including artefacts, human and hominid remain, features, structures and sites.
- Ceramic facies: In terms of cultural representation of ceramics, a facies is denoted by a specific branch of a larger ceramic tradition. A number of ceramic facies thus constitute a ceramic tradition.
- Conservation- means all the processes of looking instead after a place so as to retain its cultural significance
- Cultural Heritage Resources- refers to physical, cultural properties such as archaeological and palaeontological sites, historic and prehistoric places, buildings, structures and materials, cultural sites such as places of ritual or religious importance and their associated materials; burial sites or graves and their associated materials, geological or natural features of cultural significance or scientific significance. Cultural Heritage Resources also include intangible resources such as religious practices, ritual ceremonies, oral histories, memories and indigenous knowledge, structures, places, natural feature aesthetics and scientific architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.
- Cultural Significance- means aesthetic, historical, scientific, social or spiritual value for past, present or future generations. Also encompasses the complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/ research and social values.
- Ceramic Traditions- the cultural representation of ceramics, a series ceramic unit constitutes as ceramic tradition.
- Culture- defined as the learned and shared commonalities that people have, do and think.
- Cultural landscape- refers to a distinctive geographic area with cultural significance.
- Cultural Resources Management- a system of measures for safeguarding the archaeological heritage ofa given area, generally applied within the framework of legislation to safeguard the past.
- $^{14}$C-/Radiocarbon Dating: method determined the absolute age of organic material by studying the



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radioactivity of carbon. It is reliable for objects not older than 70 000years by means of isotopic enrichment. The method becomes increasingly inaccurate for samples younger than +/-250 years.

- Cultural Heritage Resource: a generic term used to refer to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. Theterm includes sites, structures, places, natura features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of culture practice, belief or social interaction.
- Excavation: The method of data acquisition in archaeology involving the systematic unearthing of remains through the removal of lithospheric deposits of soil, stone and rock materials covering and accompanying it.
- Feature: Non-portable artefacts/ unmovable artifacts, these cannot be moved from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features.
- Heritage- That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the NHRA Act 25 of 1999.
- Phase 1HIA Assessment- Is an in-depth investigation which identifies archaeological and heritage resources, sites, assets and objects, assessment of their significance and comments on the impact of a given development on the sites. Recommendations for the site mitigation of conservation are also made in this phase.
- Site: A distinct spatial clustering of artefacts, objects, features, structures and organic environmental remains indicating human agency and activity. These include surface sites, caves and rock shelters, more significant open-air sites, sealed sites (deposits) and rover deposits.
- Stratigraphy- the principle examines and describes the observable layers of sediments and the arrangement of strata in deposits, usually detectable via transverse cross-section
- Stratified Sampling- a sampling strategy where a study area is subdivided into appropriate zones-often based on the probable location of the archaeological regions, after which each zone is sampled at random
- Systematic Sampling- a sampling strategy whereby a grid of sample blocks is set up over the survey area, and each of these blocks is equally spaced and searched
- Tradition- Artefact types, assemblages of tools, architectural styles, economic practices, or art styles that last longer than a phase and even a horizon are described by the term tradition. A typical example of this is the early Iron Age tradition of Southern Africa.
- Impact- the positive or negative effects on human well-being and/ or the environment.
- In Situ-material culture and surrounding deposits in their original location and context, for example, anarchaeological site that has not been disturbed by farming
- IA- Iron Age period is an archaeological term used to define a period associated with domesticated livestock and grains, metalworking, and ceramic manufacture.
- I&AP-Interested and Affected Parties- Interested and affected parties Individuals, communities, or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a suggestion or movement and its consequences.
- Mitigation- Anticipating and preventing adverse impacts and risks, then minimizing them, rehabilitating, or repairing has implications to the extent feasible.



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- Public participation process- means a process of involving the public in order to identify issues and concerns and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters
- Palaeontology- Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.
- Provenience: is a three-dimensional (horizontal and vertical position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is association, the co-occurrence of an artefact with other archaeological remains; and superposition, the principle whereby artefacts are in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.
- GIS- Geographic Information systems are computer software that allows layering of various types of data to produce complex maps; useful for predicting site location and for representing the analysis of collected data within sites and across regions.
- Management- actions associated with the proposed development, that avoid, mitigate, restore, rehabilitate or compensate for the negative or adverse impacts and implications.
- Megalith: a large stone, often found in association with others and forming an alignment or monument, such as large stone statues.
- Monolith: a geological feature such as large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within a monument or site.
- Oral Histories- The historical narratives, stories and traditions passed from generation to generation byword of mouth
- Trigger: a particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an issue and/or potentially significant impact associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.
- Fossil- mineralised bone and / organic material of animals, shellfish plant and marine life.
- Heritage Input: A physical assessment, documentation, and input on tangible and intangible heritage resources



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## ABBREVIATIONS

| | |
|---|---|
| AIA | Archaeological Impact Assessment |
| BP | Before Present |
| ASAPA | Association for South African Professional Archaeologists |
| GIS | Geographic Information Systems |
| MSA | Middle Stone Age |
| MIA | Middle Iron Age (aka Earlier Later Farmer Period) |
| BCE | Before Common Era |
| NHRA | National Heritage Resources Act No. 25 of 19999, Section 35 |
| EFP | Early Farmer Period (also Early Iron Age) |
| SAHRA | South African Heritage Resources Association |
| YCE | Years before Common Era (Present) |
| LSA | Later Stone Age |
| LIA | Later Iron Age |
| EIA | Environmental Impact Assessment |
| ESA | Earlier Stone Age |
| ECO | Environmental Control Officer |
| EMPr | Environmental Management Programme |
| IA | Heritage Impact Assessment |
| mya | Million Years Ago |



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## SOUTHERN AFRICAN GEOLOGICAL AND ARCHAEOLOGICAL TIMELINE AND MAJOR CULTURAL DEVELOPMENTS*adapted

| GEOLOGICAL SCALE | TIME PERIOD (YEARS BP) | CULTURAL PERIOD | MAJOR EVENTS |
|---|---|---|---|
| The Holocene | 500 | Historical Period | -European colonization<br>-Later farming societies, states, i.e.Mapungubwe, Great Zimbabwe, KaK2 |
| | 1000 | Later Iron age | |
| | 2500-2000 | Early Iron Age (EIA) | Early farming communities- i.e.millet, regional pottery traditions, spread of metallurgy |
| | 10000-12000 | Terminal LSA | -spread of domestic animals particularly cattle, sheep and goats |
| | | LSA | -Microlithic stone industries<br>-continuation of rock art industries |
| | | Terminal MSA (ca. 20000-300y.a.) | -rock art (early paintings) Apollo 11,Namibia)<br>-modern humans |
| | | Middle Stone Age (MSA) | -early modern humans<br>-development and spread Archaeulian industries |
| Early Pliocene- | 2000000-7500000 | Early Stone Age (ESA) | -archaic humans<br>-Oldowan industries Sterkfontein |
| Terminal Pliocene * | | Early Stone Age (ESA) | |
| Plio-Pleistocene | 4000000-2000000 | | early hominin/hominids [only known inKenya] |
| Terminal Miocene-Pliocene | 7500000-4000000 | | earlyhominin/ hominids [evidence fromChad, Kenya] |
| *The last two million years ago (mya) is sometimes referred to as the Quaternary | | | |



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## LIST OF FIGURES





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# 1. EXECUTIVE SUMMARY

*Reach Archaeology Consulting (Pty)* has been appointed by Fimolex (Pty) Ltd to undertake a Phase 1 HIA for the proposed prospecting activities to establish mineral resources on the 18 000 ha of Portion 2 of 542, Portion 4 & Re of DE DAM 451, Portion 3, 4, 5 & Re of KLIPHEUVEL 538, Portion 1 & Re of ROOIDAM 540, Portion 2, 3, 4, 5 & Re of WATERVAL 536 situated within the Magisterial District of Kamiesberg, Northern Cape Province of South Africa.

The summary findings include the following: No sub-surface heritage indicators and/or topographic structures andbuilt environment sites were recorded or observed from our findings.

- A total of 9 Areas of Interest (AOI) were identified for possible archaeological potential historical and paleontological material.
- Farm ROOIDAM 452 and DeDAM 541 are rated HIGH for Iron Age and Stone Age Archaeological material. asrecorded
- Diggings identified on the satellite images were noted and flagged as risk areas with possible archaeological and/ or paleontological features.
- 1: 10 000 Map of Farm DeDAM 541 and Farm ROOIDAM 452 provided 4 structures, one of which was confirmed through satellite reconnaissance.
- Evidence of historical structures, and buildings were noted and identified topographically
- The eastern extent of the proposed site has a HIGH Palaeontological rating. A complete Palaeontological Impact Assessment (PIA) is recommended to be undertaken by a qualified Palaeontologist with necessary procedures and mitigation recommendations developed and proposed.
- The desktop survey proves inadequate to report the presence, probability or likelihood of graves and burial grounds in the proposed project receiving area. Although one area noted may present evidence of graves and burial grounds due to evidence of historical structures.

A cultural heritage mitigation plan and/or heritage management plan should be developed and implemented by the relevant archaeologist or heritage specialist, to be included in the integrated environmental management plan before any development or changes occur on the mining footprint. Due to the nature of the mining activities and cultural sensitivity; there is an inferred ethical and moral responsibility to ensure the management and preservation of these respected burial grounds and graves as well as their associated buildings and structures. With the aim of developing a heritage management plan that considers the culture of the people, in line with best practice methodological approaches in cultural heritage resources management.

This report aim was to do a HIA Desktop assessment at on various agricultural holdings of the farms in the proposedarea earmarked for mining activity; to determine if any cultural resources are located within the proposed development footprint.

Where culturally sensitive sites were identifiable grading and heritage ratings to be appropriately allotted to each with significance ratings and appropriate mitigation recommendations ascribed. The HIA fieldwork assessment was not conducted as it is recommended, heritage risk areas were identified and mapped for



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consideration. A Palaeontological field-based assessment is recommended for high-risk areas noted for fossils and a palaeontological materials along the eastern areas of the site.

This impact assessment is only subject to the AIA. A qualified palaeontologist is additionally needed to the paleontological assessment of the proposed development footprint. An Archaeologist for site minimal mapping and recording of the structures is further needed, site recording and sampling, social consultation and permitting (relevant heritage authorities) and authorization (affected and associated parties) should also be conducted by a qualified archaeologist.

We do not oppose the implementation of prospecting activities or the development of the mine it is provided the recommended and suggested mitigation methods be provided within a Phase II followed and are conducted in accordance with relevant heritage legislation as well as the minimum standards by NHRA and best practice methodologies ascribed by the SAHRA. The final decisions and authorisations however lies with the relevant heritage resource agency for the destruction, demolition, disturbance or alteration of any cultural resources within the proposed mines.



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## 2. INTRODUCTION & PROJECT DESCRIPTION

*Reach Archaeology Consulting (Pty) Ltd* has been appointed by *Fimolex (Pty) Ltd* to undertake a Phase 1 HIA for the proposed prospecting activities to establish a mineral resource on the 18000 ha of Portion 2 of 542, Portion 4 & Re of DE DAM 451, Portion 3, 4, 5 & Re of KLIPHEUVEL 538, Portion 1 & Re of ROOIDAM 540, Portion 2, 3, 4, 5 & Re of WATERVAL 536 situated within the Magisterial District of Kamiesberg, Northern Cape Province.

The project scope entails the identification of heritage resources, including but not limited to heritage sites, objects, historical structures, burial grounds, graves, initiation and cultural sites of significance as defined by the NHRA. The methodological approach includes the field-based site documentation without the relevant community and affected next-of-kin/ family representatives. With the aim of understanding the cultural landscape as well as denoting the cultural resources on the mining footprint.

Other businesses and/or land-use including farming and mining have been documented on the site and in larger areas. The process of identification and verification was undertaken to document areas, sites, objects and features that may have been overlooked and/or were not identified in previous heritage studies and/or reports, in an effort to provide for their conservation and protection in line with the legislation. The development of an integrated cultural heritage management plan to guide and facilitate the process of heritage resources management through a public participation approach.

The prospecting programme has been lodged at the Northern Cape Department of Mineral Resources and Energy (DMR) in terms of Section 16 of the Minerals and Petroleum Resources Development Act (MPRDA, Act 28 of 2002). It has been noted that the land is privately owned. A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites on the specific land parcel. The client indicated the location and boundaries of the Project Area, and the assessment focused on this area.

This report presents the identified findings, discussions and process of documentation of cultural heritage resources undertaken by the heritage specialists and/ or archaeologists to the exclusion of relevant and affected community forum(s) and groups, as well as the affected next-of-kin.

## 3. PURPOSE

The purpose of the compilation of this Phase 1: Heritage and Archaeological Impact assessment and impact report are to satisfy the minimum requirements of Section 38(1), and therefore section 38(3) of the National Heritage Resources Act (Act No 25 of 1999) for the compilation of an integrated heritage management plan.

An online and/ or web-based survey of the relevant literature was not conducted to determine the area's heritage potential and is included in the HIA separate from this document. According to the general minimum standards accepted by the archaeological profession, all the sites, objects and



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structures identified were documented. Neither the relevant community forum and/ or affected families were consulted or interviewed, no oral traditions were denoted.

## 4. SCOPE

This heritage field assessment report aims to inform the development of an integrated cultural heritage management plan. This document will also inform the development of a comprehensive heritage impact assessment (HIA) to assist the mine or developer in managing the identified heritage resources in a responsible, ethical and compliant manner.

In order to protect, preserve, and develop the heritage resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA), this heritage field assessment report falls within the regulations, guidelines and international best practice methodologies for cultural heritage management. This report subscribes to the basic principles of heritage resources management and is guided by similar ethical considerations.

The scope of the AIA and HIA studies was to identify all heritage resources such as archaeological and historical localities and features, graves and places of religious and cultural significance; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites/ or features.

## 5. TERMS OF REFERENCE

According to the minimum standards by SAHRA, an HIA/ AIA must present the following key aspects:

- the identification and mapping of all cultural heritage resources in the area affected;
- an assessment of the significance of such resources in terms of heritage assessment criteria set outin regulations;
- an assessment of the impact of the development on heritage resources.
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development. In addition, the HIA/AIA should comply with the requirements of NEMA, including providing the assumptions and limitations associated with the study; the details, qualifications and expertise of the person who prepared the report; and a statement of competency.
- The terms of reference for the archaeological study were:
- To identify and map any archaeological remains that occur within the borrow pits and proposed newquarries.
- To assess the sensitivity and conservation significance of archaeological remains within



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the borrowpits and proposed new quarries;

- To assess the status and significance of any impacts resulting from the proposed quarrying of roadmaterial, and
- To identify measures to protect and maintain any valuable archaeological sites or remains that mayexist within the borrow pits and proposed new quarries.

This document was prepared in line with this legislative requirements; as such the author was instructed to conduct an AIA/HIA study addressing the following issue (in no particular order)s:

- Archaeological and heritage potential of the proposed prospecting site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the PHRA/ SAHRA tomake an informed decision in respect of the authorisation of the proposed development.
- Identify all objects, sites, occurrences, and structures of an archaeological or historical nature(cultural heritage sites) located in and around the proposed prospecting 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 development on these cultural remains, according to a standard set of conventions;
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
- Review applicable legislative requirements.

## 6. LEGISLATIVE REQUIREMENTS

The identification, and handling assessment of cultural heritage resources in South Africa is governed by the following legislative prescripts:

- National Heritage Resources Act, 1999 (Act No. 25 of 1999) The National Heritage Resources Act (NHRA) legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha (5000 sq. m) or linear development exceeding 300 metres in length. The Act makes provision for the potential destruction of existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA). Sections 34, 35, 3,6 and 38 speak directly to, my 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 NHRA also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs).
- The heritage component is provided for in the National Environmental Management Act, (Act 107 of 1998) and endorsed by section 38 of the National Heritage Resources Act (NHRA - Act 25 of 1999). In addition, the NHRA protects all structures and features older



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than 60 years (Section 34), archaeological sites and material (Section 35) and graves as well as burial sites (Section 36). The objective of this legislation is to enable and to facilitate developers to employ measures to limit the potentially negative effects that the development could have on heritage resources.

- According to the National Heritage Resources Act of 1999 a historical site is "any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years." This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

- The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:
  "38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:
  (a) the construction of a road, wall, powerline, pipeline, canal or other similar forms of linear development or barrier exceeding 300m in length;
  (b) the construction of a bridge or similar structure exceeding 50m in length;
  (c) any development or other activity which will change the character of a site:
  (i) exceeding 5 000 $m^2$ in extent; or
  (ii) involving three or more existing erven or subdivisions thereof; or
  (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
  (d) the re-zoning of a site exceeding 10 000 $m^2$ in extent; or
  (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

- *No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority." (34. [1] 1999:58)* and *"No person may, without a permit issued by the responsible heritage resources authority-destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite; trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*


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- Heritage Objects: objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens, visual art objects, military objects, numismatic objects, objects of cultural and historical significance objects to which oral traditions are attached and which are associated with living heritage, objects of scientific or technological interest, any other prescribed category.

- National Environmental Management Act (NEMA) Act 107 of 1998, Regulation 19 and 22, 23. The newregulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts onthe cultural (heritage) and social environment and Specialist Studies in this regard. The applicant, environmental consultant, SAHRA or PHRA and, interested and affected parties must report to its existing heritage resources that may be affected by the proposed development, and record mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002, Section 39(3)
- The Human Tissue Act 65 of 1983 and the Ordinance on the Removal of Graves and Dead Bodies of1925.
  *"No person may, without a permit issued by SAHRA or a provincial heritage resources agency- 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;*
  *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;*
  *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*
  Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.
- Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

## 7. REGIONAL CONTEXT

In order to ensure that all requirements and processes in terms of Heritage Legislation (NHRA - Act No. 25 of 1999) are adhered to, the following tasks will be carried out:

- Preliminary research, desktop study and aerial survey



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- Site survey: Transect Survey method suggested
- Reporting and recommendation
- Consultation with SAHRA

- Preliminary research, desktop study & aerial survey

For the desktop study the following sources can be used:

- Archival and historical sources: These sources are books and, reports and articles written by academics. Historical accounts of surveys and ethnographic accounts and also archival documents about the region and archaeological cultures.
- Historical maps: Most historical maps were done by travellers who recorded their journey's and experiences in regions or towns.
- Missionary accounts: Missionaries kept documents about the local area and cultures within a dairy format. They are often very useful when trying to construct day to day accounts of the locals or past cultures.
- Drawings & photographs: Drawings were used before photographs were available. They documented the area's environment and cultural landscape. Photographs can mostly be located in archives and gives us the same yet more detailed information as drawings.
- Legal documents: legal documents give us an indication of land ownership and sales of the land. It can also reveal relocation of families, groups and cultures, court cases and government interventions.
- Ethnographies & Oral traditions: This data can be collected through informal interviews. It can revealimportant connections between the landscape and material culture.
- Grey Literature: This includes any reports about the area that was not published. It gives valuable information about past studies that were conducted and their findings.
- Aerial survey through analysis of satellite imagery and GIS spatial data.

  - Digital Site survey

- Offsite aerial survey and site investigation
  - Collection and Compilation of Maps, Aerial Photographs and GIS
  - Through the use of Municipal Maps, GIS software and Google Earth

  - Reporting & recommendation

- Supply client with appropriate HIA & AIA reports summarising proposed steps for project completion

  - Consultation with the South African Heritage Resources Agency (SAHRA)

- Supplementary Permit application from SAHRA (South African Heritage Resources Agency) inanticipation of cultural resources identification.



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## 8. ASSUMPTIONS & LIMITATIONS

In the compilation of this HIA/AIA the following assumptions and limitation existed:

- The details of the site received from the client are true, accurate and correct scope of the project.
- No topographic survey was conducted on-site therefore the HIA/AIA was limited to observable, identifiable features, objects, materials, document reports, and/or sites available.
- In line with the nature of archaeological resources it is probable that mining and the development of associated infrastructure are likely to reveal subsurface sites, human remains or areas of high-densitystone tool distributions.
- No sub-surface reconnaissance or excavations were NOT undertaken as a permit is required to alter heritage resources as per the NHRA 25 of 1999.
- Numerous areas of interest and possible sites for heritage objects, features and materials were identified during the desktop geospatial aerial images, none of these areas of interest were confirmed or observable through a foot survey.

The accuracy and reliability of palaeontological specialist studies as components of heritage impact assessments are generally limited by the following constraints:

- Inadequate database for fossil heritage for much of the RSA, given the large size of the country and the small number of professional palaeontologists carrying out fieldwork here. Most development study areas have never been surveyed by a palaeontologist.
- Variable accuracy of geological maps which underpin these desktop studies. For large areas of terrainthese maps are largely based on aerial photographs alone, without ground-truthing. The mapsgenerally depict only significant (“mappable”) bedrock units as well as major areas of superficial “drift” deposits (alluvium, colluvium) but for most regions give little or no idea of the level of bedrock outcrop, depth of superficial cover (soil etc), degree of bedrock weathering or levels of small-scale tectonic deformation, such as cleavage. All of these factors may have a major influence on the impact significance of a given development on fossil heritage and can only be reliably assessed in the field.
- Inadequate sheet explanations for geological maps, with little or no attention paid to palaeontological issues in many cases, including poor locality information;
- The extensive relevant palaeontological “grey literature” - in the form of unpublished university theses, impact studies and other reports (e.g. of commercial mining companies) - that is not readily available for desktop studies;
- Absence of a comprehensive computerized database of fossil collections in major RSA institutions which can be consulted for impact studies. A Karoo fossil vertebrate database is now accessible for impact study work.

In the case of palaeontological desktop studies without supporting Phase 1 field assessments, these limitations may variously lead to either:

- underestimation of the palaeontological significance of a given study area due to ignorance of significant recorded or unrecorded fossils preserved there, or
- overestimation of the palaeontological sensitivity of a study area, for example when



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originally rich fossil assemblages inferred from geological maps have in fact been destroyed by tectonism or weathering or are buried beneath a thick mantle of unfossiliferous “drift” (soil, alluvium etc). Since most areas of the RSA have not been studied paleontologically, a palaeontological desktop study usually entails inferring the presence of buried fossil heritage within the study area from relevant fossil data collected from similar or the same rock units elsewhere, sometimes at localities far away.

- Where substantial exposures of bedrocks or potentially fossiliferous superficial sediments are present in the study area, the reliability of a palaeontological impact assessment may be significantly enhancedthrough field assessment by a professional palaeontologist. In the case of palaeontological field studies in the Pofadder – Aggeneys region, the main limitations are:
    - High levels of bedrock cover by thick alluvial and colluvial soils, windblown sands and other superficial deposits;
    - The lack of detailed palaeontological field studies within the region. Confidence levels in the conclusions presented here are nevertheless moderately high.

## 9. METHODOLOGICAL APPROACH

The methodological approach /or the methodology of completing and compiling the AIA/HIA is as follows:

- All sites, objects, features and structures identified are documented according to the general minimumstandards accepted by the archaeological profession and as per the NHRA Regulations Gazetted in 2017.

- All geospatial-related coordinate details of individual localities are determined using an accurate Global Positioning System (GPS) linked to the software. The relevant information is added to the description to facilitate the identification of each site’s locality.

- All literature documents, data, articles and information were gathered and presented with supporting reference list.

- Likelihood assessment, to provide for the probability of identifying any overlooked and/ subsurface anomalies of cultural material

- Significance ratings to ensure that low, medium and highly significant cultural heritage resources are graded in accordance with minimum standards

- Grading of identified and confirmed cultural heritage assets and resources in line with best practice methods to ensure legislative compliance and provide appropriate mitigation recommendations



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### 8.1 Literature review

A literature review was conducted in order to gain an understanding of the existing research and debates on the cultural heritage history of the proposed development area. Literature review sources such as journal articles, government articles, and heritage management reports were used to pave a way for understanding the area.

A systematic review of the appropriate literature provides for cultural and historical significance and the likelihood and/or probability of identifying and locating any cultural heritage resources within the proposed area.

### 8.2 Archaeological Background

Medium to low densities of Middle Stone Age (MSA) artefact scatters were observed around in Kamiesberg. It is recorded that in most instances, the MSA material occur in open contexts. Large scatters of Early Stone Age hand-axes are found around pans in the Namaqua National Park between Kamieskroon and the Atlantic Ocean. In addition, Webley (1992) did find the Howiesons Poort type (70 000 years old) implements belonging to the Middle Stone Age during excavations at Keurbos Cave some 15 km north-east of Garies. Webley & Halkett (2010) however recorded a LSA site with large numbers of stone tools, pottery, ostrich eggshell fragments and some 19th Century British refined earthenware on the banks of the Swartdoring River, as well as an important MSA factory site and Early Stone Age (ESA) tools during a survey for a rare earth mineral mine about 30kms south of Garies.

Archaeological sites with pottery, post-dating 2000 years ago are reported from a number of sites in Namaqualand. These ceramic LSA sites are believed to be associated with the introduction of pastoralism to the region some 2000 years ago. Webley (1992) states that the complete ceramic pots have been recovered from a number of farms in the Kamiesberg area.

Burial sites and graves were also recorded in Kamiesberg or in a wider geographical region. According to Jerardino et al (1992) a human burial was found at the mouth of the Groenrivier (Coastal & Environmental Services, 2014). It should be noted that prehistoric burials may be present anywhere in the area. A number of Historical Period structures, specifically a farmstead and outbuildings are recorded in Kamiesberg.

According to Dewar and Stewart (2012) “The archaeology of Namaqualand is dominated by millions of stone tools that derived from the utilization of the resources of the region by hunter-gatherers and herders until the recent past.

Some 1500 LSA, 90 MSA (that include both sealed and open living sites as well as quarries) and 50 ESA localities havebeen documented in Namaqualand (Dewar and Stewart 2011:1; Dewar and Orton In press:4). The ESA is usually represented by isolated examples of handaxes. During the LSA the resources of the region were more intensively utilized. Both terrestrial and marine resources were actively sourced and shell middens are conspicuous along the Namaqualand coastline.”

Webley (1992) however, did find Howiesons Poort type (70 000 years old) implements belonging to the Middle Stone Age (MSA) during excavations at Keurbos Cave about 15 km north-east of Garies. Historically, the interior of Namaqualand was occupied by the Little Namaqua, a Khoekhoen pastoralist



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group, who herded sheep and cattle and lived in temporary encampments of mat/grass huts. The Little Namaqua are known to have moved seasonally with their livestock, and historical reports indicate that they may have followed a transhumance cycle between the Kamiesberg in the summer months and the Sandveld in the winter months (Webley 1992).

Many archaeological impact assessments undertaken prior to mining activities by archaeologists such as Lita Webley, Genevieve Dewar, Tim Hart, Jason Orton and Dave Halkett (Halkett 1997; 2001a, 2001b, 2001c, 2002a, 2002b, 2003, 2006; Halkett and Hart 1997, 1998; Halkett and Orton 2004, 2005; Orton and Halkett 2004, 2006, 2007; Orton 2005a, 2005b, 2006, 2011, 2012; Halkett and Dewar 2007). It also resulted in the publication of several academic articles (Orton et al 2005; Dewar and Jerardino 2007; Dewar et al 2006). Dewar and Orton (In press:1) indeed point out that a 'unique feature of archaeological research in Namaqualand is that it has been conducted almost exclusively through the commercial sector'.

### 7.2.1 Stone Age

The Stone Age is the period in human history when *lithic* material was mainly used to produce various stone tools. The Stone Age can be further subdivided into three periods of activity. Lombard *et al.* (2012) divide the Stone Age periods as follows:

*Table 1: The Southern African Stone Age periods sequence*

| PERIOD | APPROXIMATE DATES |
|---|---|
| Earlier Stone Age (ESA) | > 2mil. y.a- 250 000/200 000 y.a |
| Middle Stone Age (MAS) | 200 000/250 000 y.a – 20 000 y.a to around the L Glacial Maximun (LGM) |
| Later Stone Age (LSA)<br>[Includes rock art, hunter-gatherer and herders) | > 200 000- 200 y.a. and up to historic times |

The general history of the Northern Cape Province is reflected in a rich archaeological landscape, mostly dominated by Stone Age occurrences. Numerous sites, documenting Earlier, Middle, and Later Stone Age habitation occur across the province, mostly in open-air locales or in sediments alongside rivers or pans. In addition, a wealth of Later Stone Age rock art sites, most of which are in the form of rock engravings are to be found in the larger landscape. These sites occur on hilltops, slopes, rock outcrops, and occasionally in riverbeds. LSA use of the more immediate areas further inland (Engelbrecht and Fivaz, 2019).

In the study region under review no published data are available on the MSA in open contexts. Webley (1992b) recorded implements typical of the MSA microlithic Howiesons Poort industry at Keurbos Cave some 15 km north- east of Garies. Excavations at the small rock shelter of Wolfkraal close to Kharkams in the Kamiesberg also recovered typical MSA tool types (Webley 1984)12 (Webley and Halkett 2010:8).

However, Hunter-gatherers were well-informed on the carrying capacity of a larger region in terms of water and food resources and through a subsistence strategy of transhumance take care not to overexploit resources.



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### 8.3 Oral history

This assessment of the intangible heritage assets and indigenous cultural heritage significance of sites in the study area will be based on the views expressed by the traditional authority and community representatives, consulted documentary review, and physical integrity. We will rely on the client to provide the detail thereof through their stakeholder engagement process, where relevant sites, areas and/or features will be earmarked for mitigation should they fall within and/ or along the proposed area.

People from local communities are sometimes interviewed to obtain information relating to the surveyed area. However, it needs to be stated that this is not always probable, possible or applicable under all circumstances. Ethnographic data cannot be used to make inferences on the MSA but it is likely that lithics would have been traded between groups but can assist with historical data on the nature of cultural heritage sites and even late Iron age (LIA) sites in some instances.

When appropriate, the information is included in the text and referred to in the bibliography. As such, the oral histories, and interviews were conducted during the field-based survey of the individuals entrusted to care for the graves.

### 8.4 Public Participation & Public Consultations

Background Information Document (BID) provided by Fimolex (Pty) Ltd presents the following; Identified Interested and Affected Parties (I&APS) on the project are therefore required by the law to participate in the EIA process by submitting issues of concern and suggestions on the proposed project.

The purpose of the Basic Assessment process is not merely to assess the impact of a development on the environment. It also facilitates improved decision-making by the competent authority, tasked with either granting or the environmental authorisation for the development to proceed.

The EIA Regulations promulgated under section 24 of the National Environmental Management Act 107 of 1998 (NEMA set, 1 sets out the minimum requirements regarding public participation by interested and affected parties (I&APs).

The proposed Public Participation Process (PPP) and/ stakeholder engagement (SE) and/or community engagement press are being conducted by the project Environmental Assessment Practitioner (EAP) and issues raised by Interested and Affected parties will be presented during project specialist integration meetings.

As not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed over time, and what is considered of importance at the time of assessment may change as similar items are located, more research is undertaken, and community values change. This does not lessen the value of the heritage approach but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7).

This assessment of the intangible heritage assets and indigenous cultural heritage significance of sites in



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site

the study area will be based on the views expressed by the traditional authority and community representatives, consulted documentary review and physical integrity. We will rely on the client to provide the detail thereof through their stakeholder engagement process, where relevant sites, areas and/ features will be earmarked for mitigation should they fall within and/ along the proposed N14. R31 road bypass route.

Any issues relating to heritage will be forwarded to the heritage specialist. The fieldwork attempted to consult farmers, landowners and farm workers to help in identifying any intangible heritage sites, sub-surface heritage resources i.e. burial grounds and grave sites within and/ along the proposed route. Beyond quests for access and engagements regarding any cultural sites with farmers and staff/ employees no, engagements were undertaken.

Background Information Document (BID) provided by Fimolex (Pty) Ltd presents the following:

- Identified Interested and Affected Parties (I&APS) on the project are therefore required by the lawto participate in the EIA process by submitting issues of concern and suggestions on the proposed project.

The purpose of the Basic Assessment (BAr) process is not merely to assess the impact of a development on the environment. It also facilitates improved decision-making by the competent authority, tasked with either granting orthe environmental authorisation for the development to proceed.

The EIA Regulations promulgated under section 24 of the National Environmental Management Act 107 of 1998 (NEMA set, 1 sets out the minimum requirements regarding public participation by interested and affected parties (I&APs).

It is therefore recommended that the farmers. Landowners, tenants and all interested and affected parties be required to confirm the presence of culturally significant areas i.e. graves, burial grounds, spiritual, ritual sites and/ or worshipareas through this public engagement and public participation process.

## 10. STUDY AREA

### 9.1 DESCRIPTION OF THE AREA

The proposed prospecting activities are to establish mineral resources on Portion 2 of 542, Portion 4 & Re of DE DAM 451, Portion 3, 4, 5 & Re of KLIPHEUVEL 538, Portion 1 & Re of ROOIDAM 540, Portion 2, 3, 4, 5 & Re of WATERVAL 536 situated within the Magisterial District of Kamiesberg, Northern Cape Province. The site coordinates are as follows: 30°50'30.53"S, 17°52'55.08"E.

The proposed prospecting area is located approximately 25km South of the settlement/ or town of Garies 30°50'30.53"S, 17°52'55.08"E. Garies is a small agricultural centre situated in South Africa's Northern Cape province about 110 km south of Springbok, the chief town of the Namaqualand district. Garies is located about 440kms north of Cape, alongside the N7, in the Namaqualand region of the Northern Cape. The Groenrivier runs between the town and the N7, before discharging into the Atlantic



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Ocean some 80kms to the southwest.

The Kamiesberg Local Municipality is part of Namakwa District Municipality, in the Northern Cape Province of South Africa. It is one of the smaller municipalities of the six that make up the district. It was established in 2001 in accordance with the demarcation process. The municipality spans three topographic zones: from the sandy coastal lowlands (Sandveld) to the mountainous central Kamiesberg escarpment (Hardveld), and to the eastern plateau of Bushmanland.

There are no perennial rivers in the area. Water is obtained from subterranean sources. Some of the water is pumped up by windmills, but most of the water to the communal areas comes from natural springs. Many of these springs are semi-perennial and the salt content of the water can vary from year to year, causing problems. Four main types of vegetation are found in the area: Mountain Renosterveld, Succulent Karoo, False Succulent Karoo and Namaqualand Broken Veld. However, overall plant life is in a deteriorating state and non-edible, undesirable and poisonous vegetation is taking over.

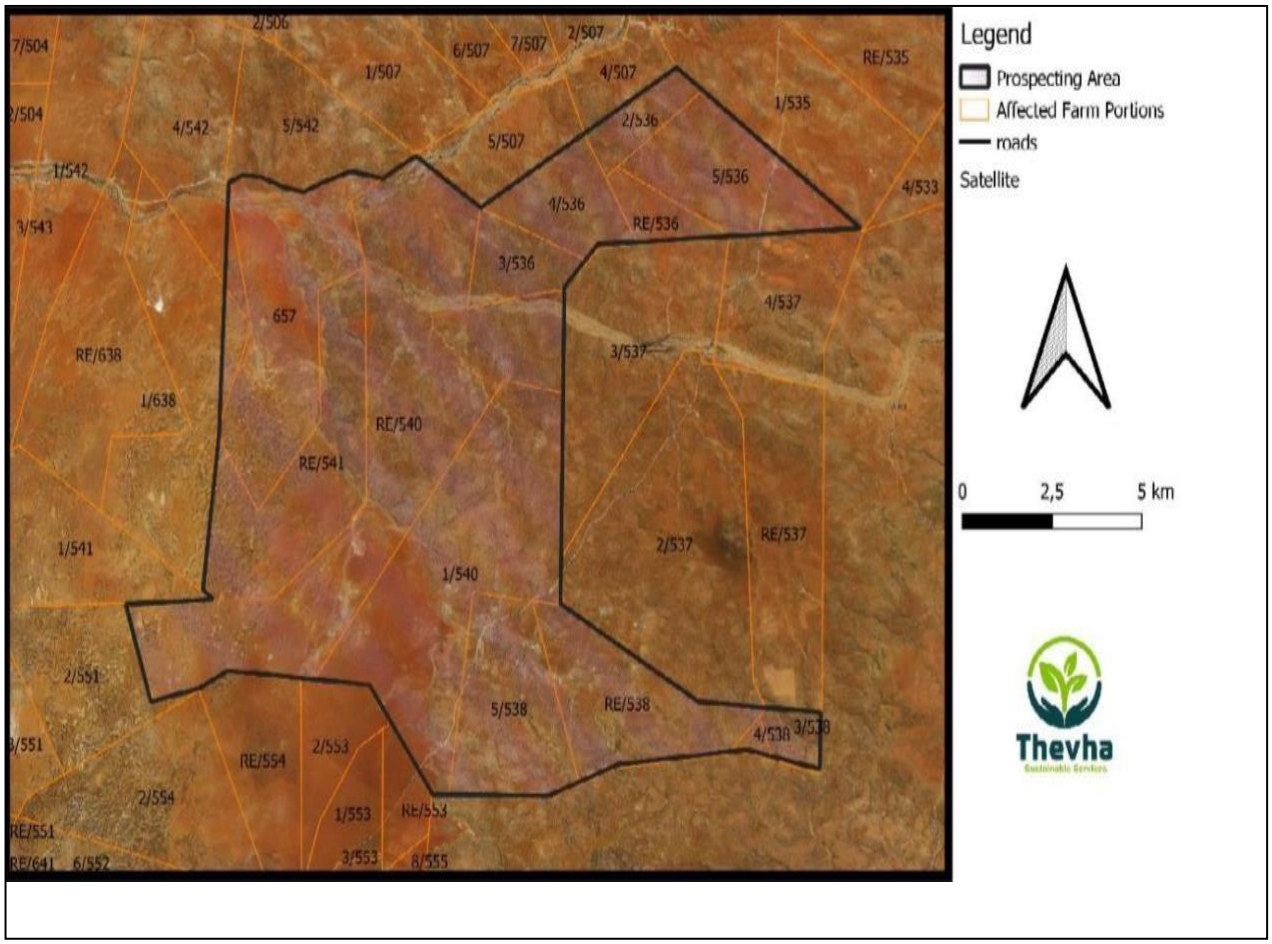


*Figure 1: Project locality map (provided by Thevha (Pty) Ltd*

The site is located within an environmentally sensitive area i.e., a wetland, high agricultural land and very highaquatic & terrestrial biodiversity areas.

The following activities will be undertaken during prospecting:

- Drilling of boreholes and core samples,



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- Storage area for core logging, this will include setting up the camp and offices on-site; and
- Creation of temporary access roads.

The area comprises predominantly agricultural land, with farms, formal and informal road networks, existing structures including traditional houses, and electrical infrastructure.

The nearby central business district of Garies is located adjacent to and around the proposed road area. The larger Garies own consists of a heavily transformed and altered urban landscape with smaller areas of
undisturbed naturally vegetated or 'virgin' lands.

Subsistence cattle farming is noted, within the study area, with various land uses including a commercial farm, lodge and/or resort, and a brick-making factory.

**Historical Land Use**

Much of the study area is characterised by rural/pastoral low densities of human settlement. The expansion of early farming societies, who, among other things, cultivated crops, raised livestock, made ceramic containers (pots).

The mined ore and smelted metals occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. They settled in semi-permanent villages (De Jong 2010: 35). Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups. Most of them were eventually assimilated by LIA communities, and only a few managed to survive, such as the Korana and Griqua.

This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and found at the Kathu Pans.

**9.2 VEGETATION AND CLIMATE**

The climate of the Northern Cape is semi-arid with a late summer-autumn rainfall regime. The area is characterised by low shrubland vegetation. The land is currently used for agricultural purposes predominantly farming and grazing. The most prominent anthropogenic elements in these areas include the N14 national route, the R31 main road, power lines and other linear features, such as telephone poles, communication poles and farm boundary fences.

The Northern Cape Province biome is predominantly that of Nama- karoo. The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events (Low & Rebelo,1996).



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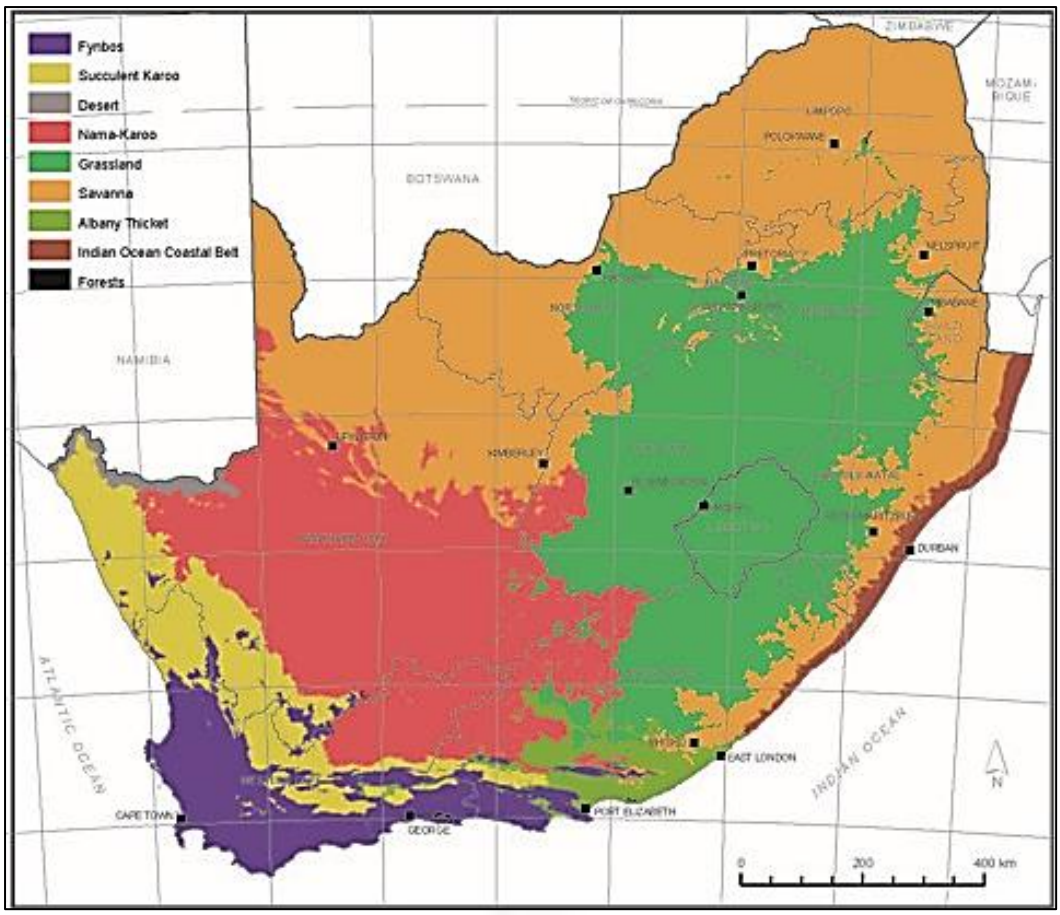


*Figure 2:Map indication the Biome regions of South Africa*

The survey did not extend beyond the development footprint due to time constraints. The aerial, digital and satelliteimagery proved sufficient to provide insight and to consider the impact of the development by investigating probable areas on the landscape adjacent to the development footprints that may contain heritage resources.

The identified heritage resources were assessed to evaluate their heritage significance in terms of the grading system of the NHRA (Act 25 of 1999). These identified resources have been mapped relative to the proposed development layout to determine likely impacts and to inform relevant buffers areas, no-go zones and other mitigation strategies.

### 9.3 Cultural History of the Kamiesberg Area

According to the Kamiesberg Municipality, the Kamiesberg spans three topographic zones: from the sandy coastal lowlands to the mountainous central Kamiesberg escarpment and to the eastern plateau of Bushmanland. The region is of considerable historical interest as it lies on one of the routes proposed to explain the dispersal of immigrant Khoikhoin and/or domestic stock into southern Africa.

Most of the Nama who resided in the area are reported to have moved seasonally between the Kamiesberg in summer and the Sandveld in winter, although some groups followed other rounds. For instance, the European trekboers were recorded as moving from Namaqualand into the fringes of Bushmanland to utilize



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the summer grazing.

Traditionally Namakwa has been the home of the Little Namaquas who, together with the Great Namaquas of Namibia, is a Nama-speaking branch of the Khoikhoin (Webley, 1986). According to the early history of the area, Northern Namaqualand, as well as southern Namibia, was occupied by the Great Namaqua tribe who were herders (goats, sheep, cattle) while the Namnykoa tribe kept primarily along the river corridor and a third group, the Einiqua,occupied the area currently forming part of the Augrabies National Park. Smaller San and "Hottentot" communities were spread out between these tribes and seem to have generally maintained sensitive relationships with their stronger neighbours (Se de Kock, 2012).

There are no perennial rivers in the area. Water is obtained from subterranean sources. Some of the water is pumped up by windmills, but most of the water to the communal areas comes from natural springs. Many of these springs are semi-perennial and the salt content of the water can vary from year to year. The missionaries, who arrived in Namaqualand in the nineteenth century, established themselves best springs and waterholes which in the past had attracted the herder in the summer seasons. Many herders settled semi-permanently at the stations in order to be close to the church and schools. Shops were established only much later in the reserve and products such as tea, sugar, etc. were provided by traders.

Four main types of vegetation are found in the area: Mountain Renosterveld, Succulent Karoo, False Succulent Karoo, and Namaqualand Broken Veld. However, overall plant life is in a deteriorating state and non-edible, undesirable and poisonous vegetation is taking over. The greater Namaqualand has always been associated with tourists, but only during the flower season. The Kamiesberg which lies in the heart of Namaqualand is ideally situated for the development of year-round attractions based on its natural and cultural heritage.

Kamiesberg has three main economic sectors; namely livestock grazing, mining, and tourism (Kamiesberg Municipality IDP, 2017). The main economic activity in rural areas is agriculture. The traditional "Kookskerm" (kitchen) at the stock post is still a regular site in the Kamiesberg (Almond and Pether, 2008). Veldkos and sourdough bread from the outside oven is an everyday practice while traditional music and dance are still very much alive. These cultural activities provide the basis for an exceptional cultural visitor experience.



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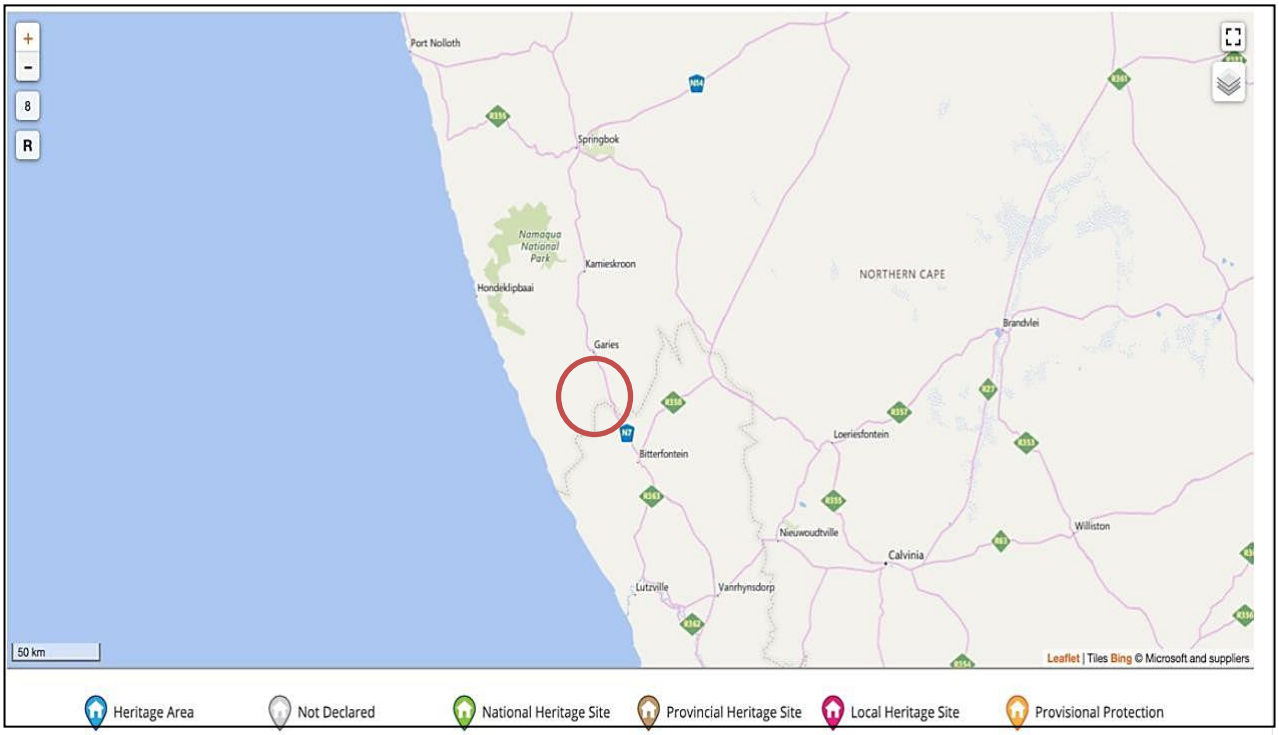
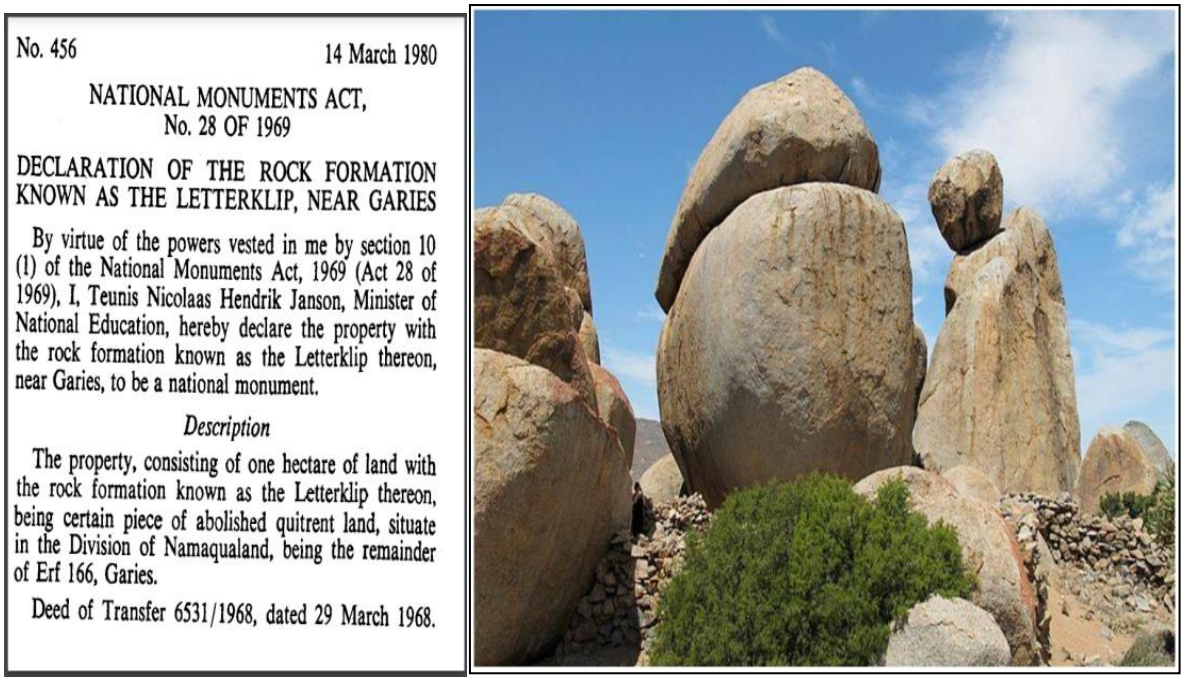



*Figure 3:Heritage Map*

The rock formation known as the Letterklip, near Garies was declared a Grade II Provincial Heritage Site 14 March 1980. This unique rock formation was fortified and occupied from 1901 to 1902 by the British forces during the Anglo- Boer War. Various regimental badges and officers' names are engraved in the rockface. [TNH Janson, Minister of National Education].



No. 456 14 March 1980

NATIONAL MONUMENTS ACT,
No. 28 OF 1969

DECLARATION OF THE ROCK FORMATION KNOWN AS THE LETTERKLIP, NEAR GARIES

By virtue of the powers vested in me by section 10 (1) of the National Monuments Act, 1969 (Act 28 of 1969), I, Teunis Nicolaas Hendrik Janson, Minister of National Education, hereby declare the property with the rock formation known as the Letterklip thereon, near Garies, to be a national monument.

*Description*

The property, consisting of one hectare of land with the rock formation known as the Letterklip thereon, being certain piece of abolished quitrent land, situate in the Division of Namaqualand, being the remainder of Erf 166, Garies.

Deed of Transfer 6531/1968, dated 29 March 1968.

*Figure 4: Heritage resources near proposed project*



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### 9.4 Affected Areas

The farms within the prospecting areas where surveyed topographically. Areas of interest where analysed using satellite imagery for include the farms and farm portions that are compatible with indicators of previous and/ or historical mining activities include the below. Note these areas will need to be surveyed on -foot to confirm previous earth moving and associated activities.

Areas of interest include structures, buildings, indicative of site occupation between 1930's and 1940's. These historical structures coincide with agricultural systems within the larger Garies area. Windmills and informal roads and patches of vegetation synonymous with farming and agricultural activity, were noted on the 1: 50 000 map (est. 1976 compilation). These structure's historical significance and will need to be assessed for their structural and cultural significance through a phase II heritage impact assessment.

The following farms will be affected by the proposed mining development:

*Table 2: Project-affected persons*

| FARM & PORTION | OWNER |
|---|---|
| Farm Waterval 536 Portion 5 | Dreyer Coenraad Cornelius |
| Farm Waterval 536 Portion 3 | Van Zyl Marius Cornelius |
| Farm Rondabel 542 Portion 2 | Nieuwoudt |
| Farm Waterval 536 Portion 5 | Dreyer Coenraad Cornelius |
| Farm Waterval 536 Portion 3 | Van Zyl Marius Cornelius |
| Farm Rondabel 542 Portion 2 | Nieuwoudt |
| Farm Waterval 536 Portion 5 | Dreyer Coenraad Cornelius |
| Farm Waterval 536 Portion 3 | Van Zyl Marius Cornelius |
| Farm Rondabel 542 Portion 2 | Nieuwoudt |
| Farm Waterval 536 Portion 5 | Dreyer Coenraad Cornelius |
| Farm Waterval 536 Portion 3 | Van Zyl Marius Cornelius |
| Farm Waterval 536 Portion 5 | Dreyer Coenraad Cornelius |
| Farm Waterval 536 Portion 3 | Van Zyl Marius Cornelius |
| Farm Rondabel 542 Portion 2 | Nieuwoudt |



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*Figure 5:Farm (Wolfkop*

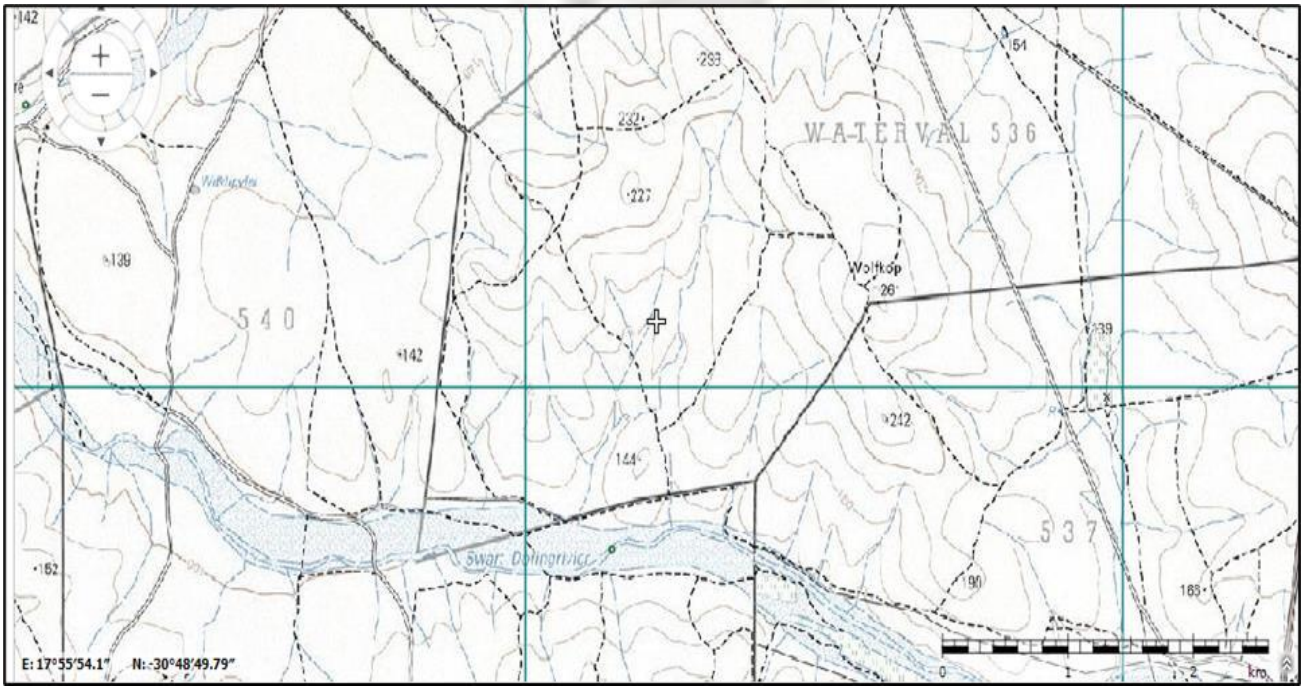


*Figure 6: Map of Waterval 536 (1:10 000 map)*



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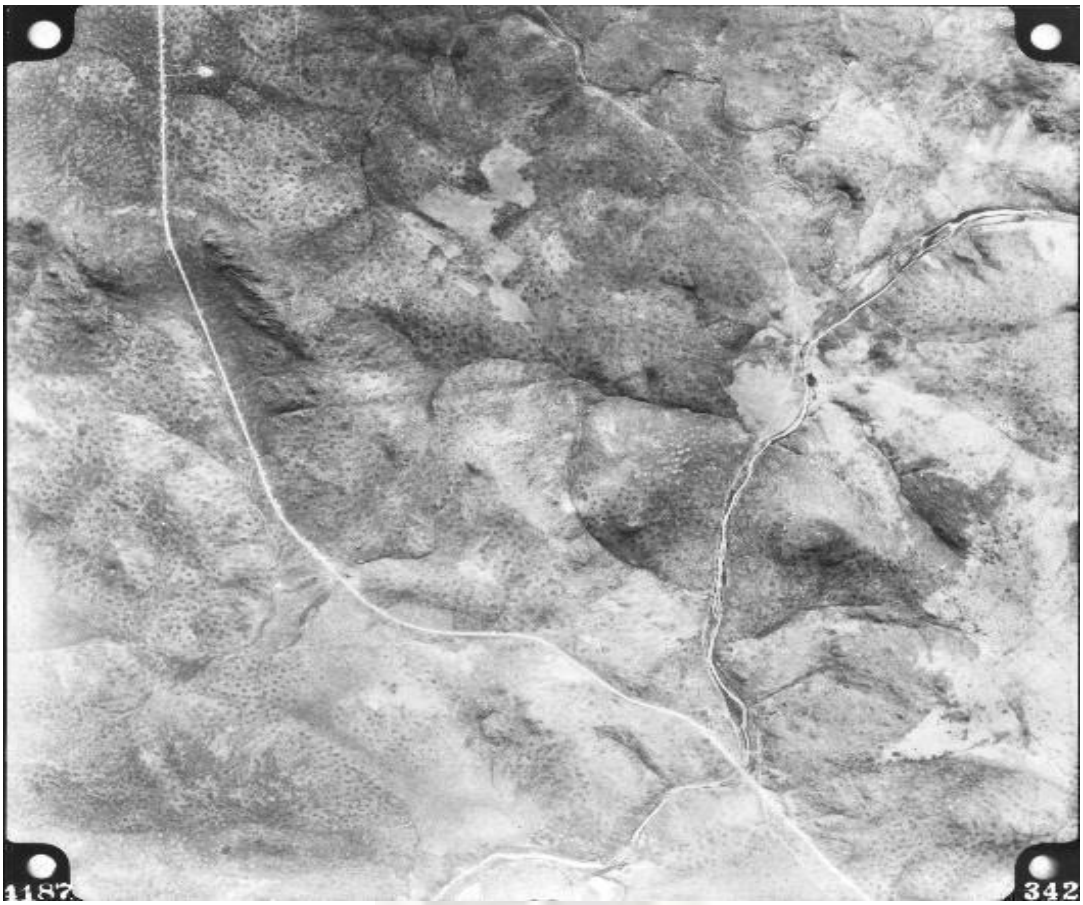


*Figure 7: Farm Rooidam*

*Figure 8: Rooidam 540*



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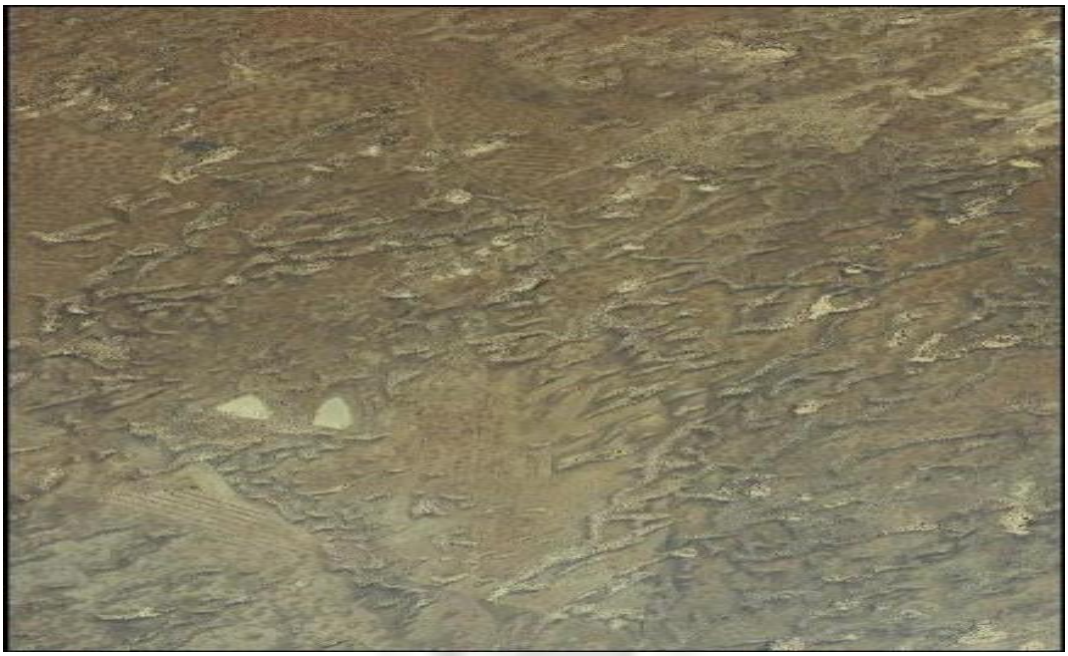

*Figure 9: Farm De dam 451*

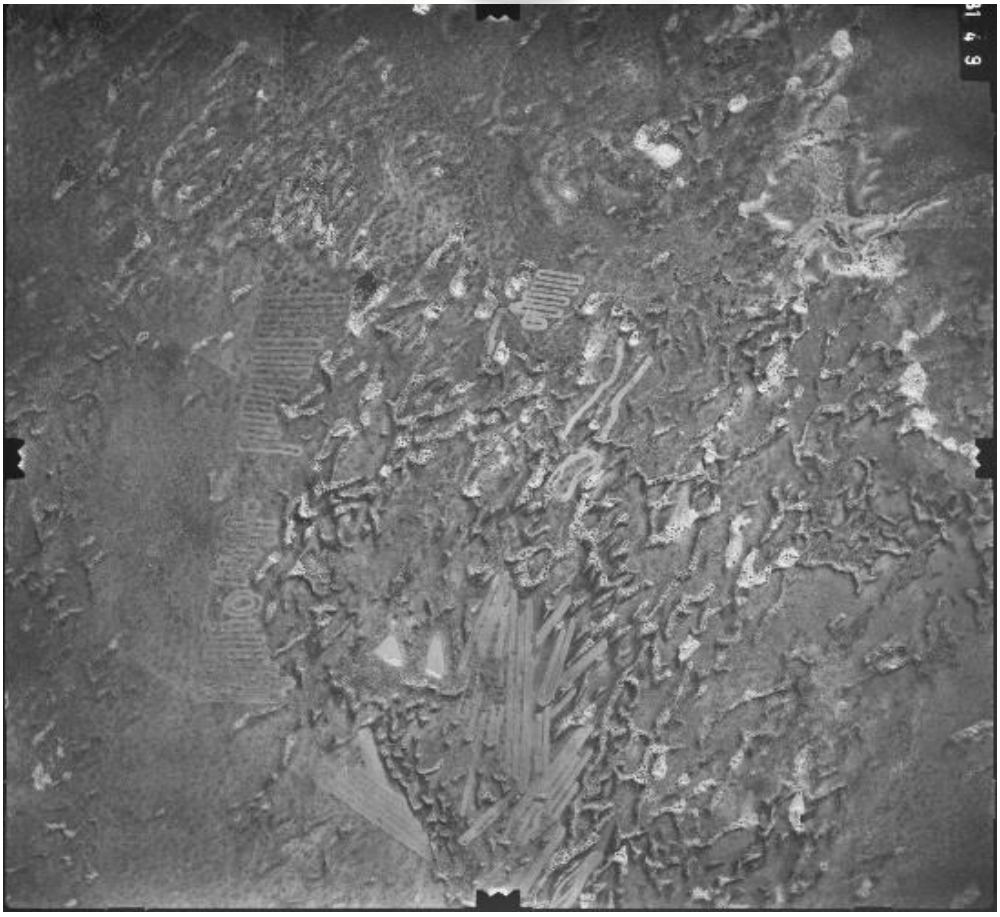

*Figure 10: Diggings at De Dam*



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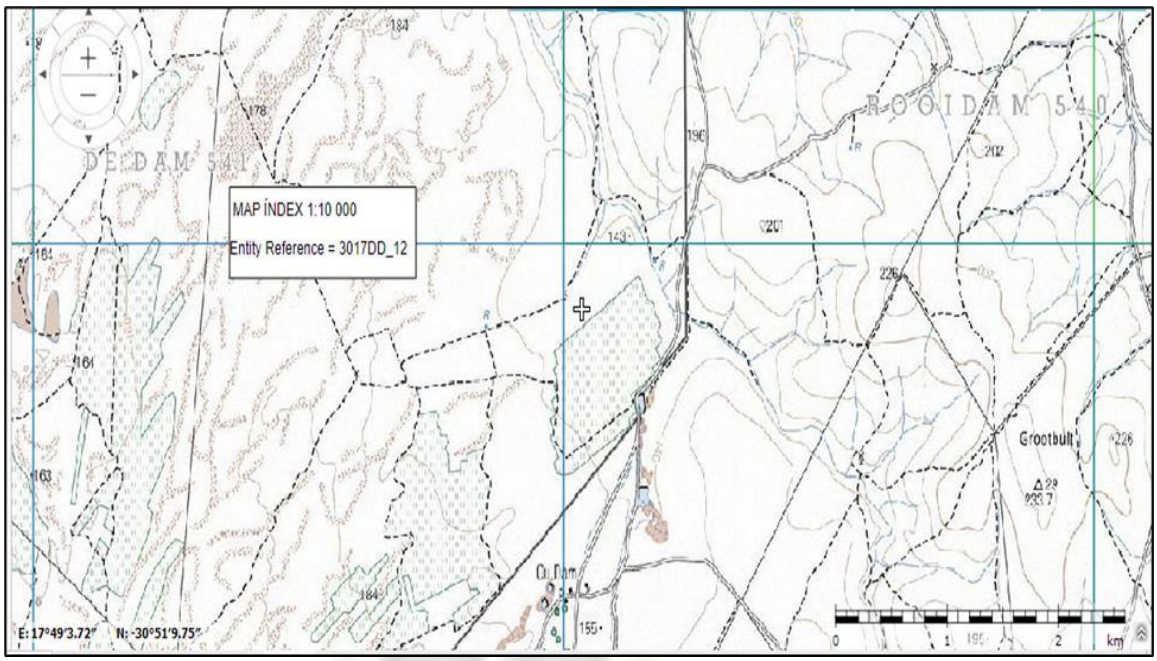


Figure 11: Map indicating structures at De Dam 541 and ROOIDAM 540 (1: 10 000 map)

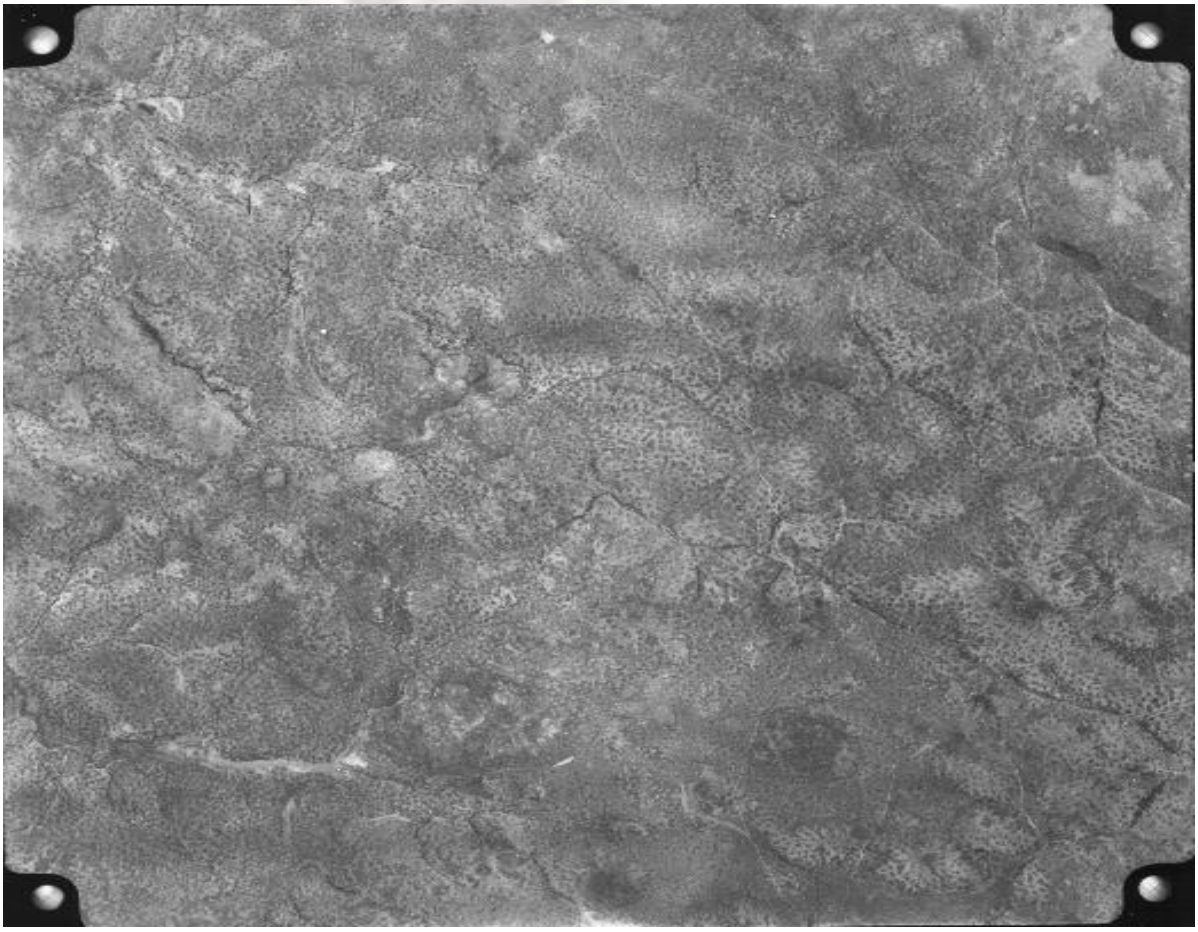

*Figure 12: Farm Klipheuvel in 1958.*



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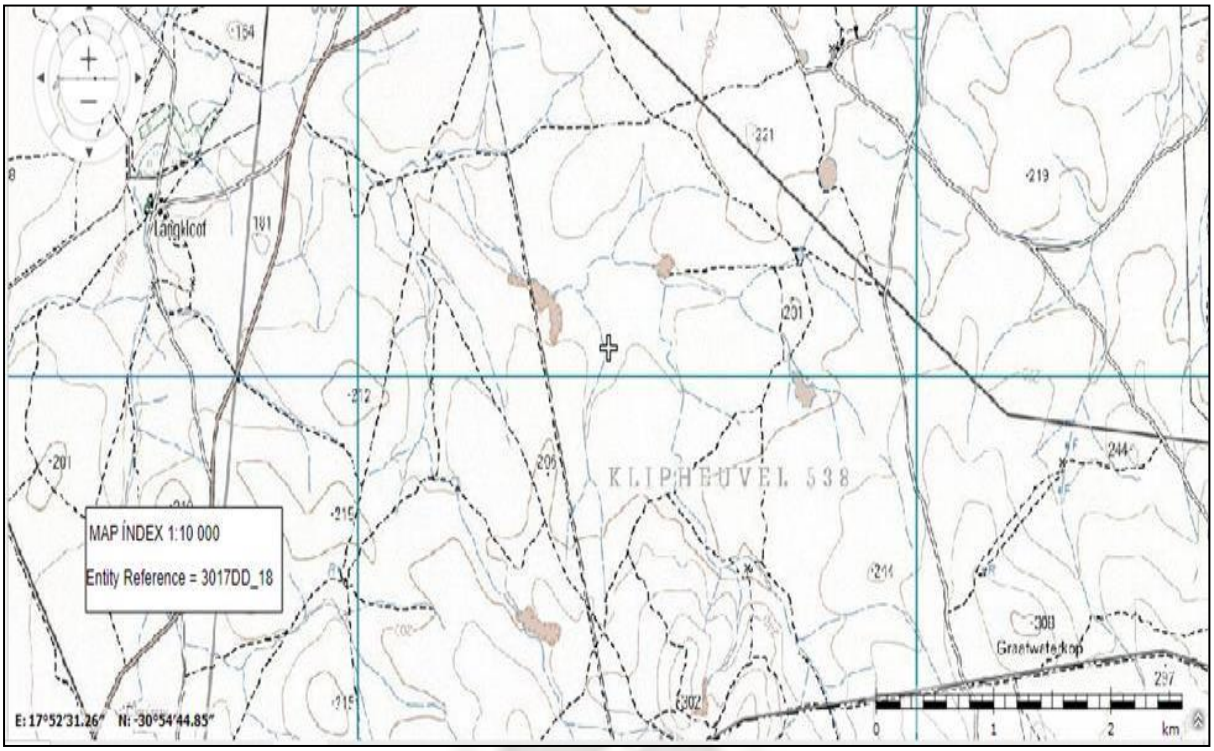


*Figur e 13: Mapof Klipheuvel 531 (1: 10 000 map)*



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*Figure 14: Farm Kilpheus in 2017.*

Relatively moderate densities of Middle Stone Age (MSA) artefact scatters are likely to be identified in the field-based footsurvey area along drainage lines and in particular around outcrops of rocks sourced for lithic material. Earlier Stone Age (ESA) as well as Later Stone Age (LSA) artefactual material was also noted as well as a single fragment of a clay vessel that can be attributed to an LSA hunter-gatherer/herder occupation.

The site's locality in relation to other well-researched and assed areas as well as to archaeological occurrences is usually centred on rock outcrops that served as good sources of raw material for the manufacture of stone tools.

Areas with similar topographic features suggest that quarts, local chalcedonies rock as well as cryptocrystalline silicas (CCS) for lithic production may be present in the larger area. The presence, spatial distribution and assemblage densities of archaeological stone age and iron age material will only be confirmed through a field-based and/ or ground reconnaissance survey.



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## 11. PALEONTOLOGICAL REVIEW

Since most areas in South Africa have not been studied palaeontological, a palaeontological desktop study usually entailsinferring the presence of buried fossil heritage within the study area from relevant fossil data collected from similar or the same rock units elsewhere, sometimes at localities far away. Where substantial exposures of bedrocks or potentially fossiliferous superficial sediments are present in the study area, the reliability of a palaeontological impact assessment may be significantly enhanced through field assessment by a professional palaeontologist.

Methodological Approach to conducting a the baseline palaeontological heritage assessment is as follows: In preparing a palaeontological desktop study the potentially fossiliferous rock units (groups, formations etc) represented within the study area are determined from geological maps and satellite images. The known fossil heritage within each rock unit is inventoried from the published scientific literature, previous palaeontological impact studies in the same region, and the author's extensive field experience.

This data is then used to assess the palaeontological sensitivity of each rock unit to development (Provisional tabulations of palaeontological sensitivity of all formations in the Northern Cape have been compiled Almond & Pether 2008). The potential impact of the proposed development on local fossil heritage is then determined on the basis of (1) the palaeontological sensitivity of the rock units concerned and (2) the nature and scale of the development itself, most significantly the extent of fresh bedrock excavation envisaged.

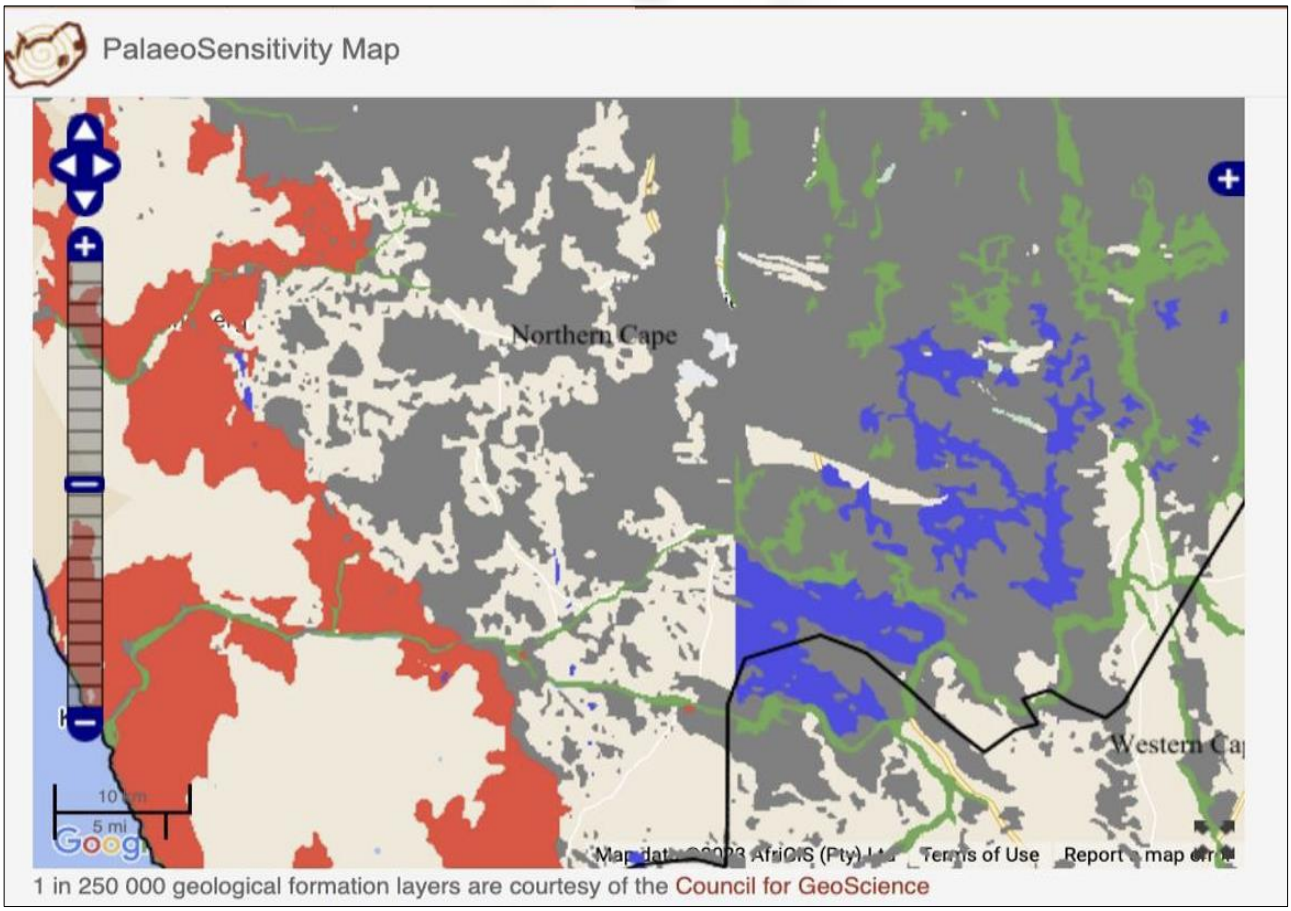


*Figure 15: Palaeontological sensitivity map of greater study area*



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*Table 3: Table indicating palaeontological sensitivity description.*

| COLOUR | SENSITIVITY | REQUIRED ACTION |
|---|---|---|
| RED | Very High | Field assessment and protocol for chance finds is require |
| ORANGE/YELLOW | High | Desktop assessment is required, and based on the outcome of the desktop, a field assessment maybe likely |
| GREEN | Moderate | The desktop study is required |
| BLUE | Low | No palaeontological studies are required howeveprotocol for finds is required |
| GREY | Insignificant/zero | No palaeontological studies are required |
| WHITE/CLEAR | Unknown | This area will require a minimum of desktop study |

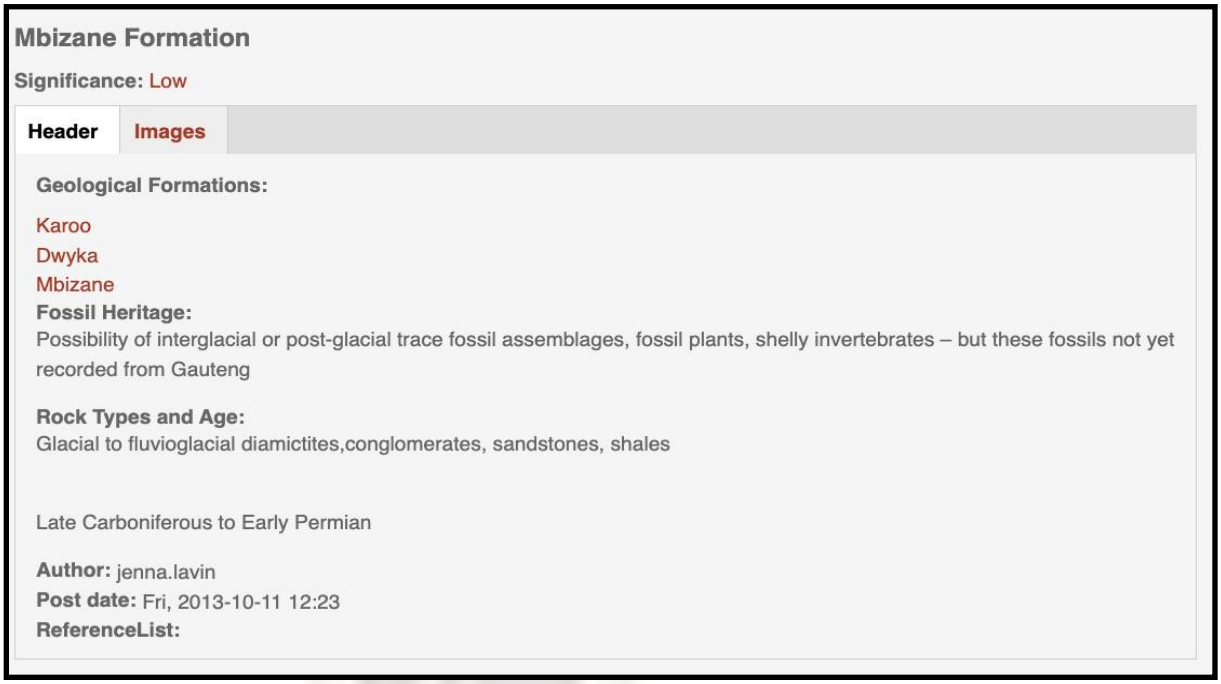


*Figure 16: Details of Paleontological and Geological formation of study area*

When rock units of moderate to high palaeontological sensitivity are present within the development footprint, a Phase 1 field assessment study by a professional palaeontologist is usually warranted to identify any palaeontological hotspots and make specific recommendations for any mitigation required before or during the construction phase ofthe development.

On the basis of the desktop and Phase I field assessment studies, the likely impact of the proposed development on local fossil heritage and any need for specialist mitigation are then determined. Adverse palaeontological impacts normally occur during the construction rather than the operational or



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decommissioning phase. Phase II mitigation by a professional palaeontologist – normally involving the recording and sampling of fossil material and associated geological information (e.g.sedimentological data) may be required

(a) in the pre- construction phase where important fossils are already exposed at or near the land surface and / or

(b) during the construction phase when fresh fossiliferous bedrock has been exposed by excavations. To carry out mitigation, the palaeontologist involved will need to apply for a palaeontological collection permit from the relevant heritage management authority, i.e. The South African Heritage Resources Agency, SAHRA, for the Northern Cape.

It should be emphasized that, providing appropriate mitigation is carried out, the majority of developments involving bedrock excavation can make a positive contribution to our understanding of local palaeontological heritage.

## 12.AIA/HIA FINDINGS & RESULTS

A online-based desktop investigation was undertaken. This section presents the finding of the desktop research which includes archival and historical research about the proposed project area. The assessment was conducted beginning with a historical literature review of texts, documents, writings and available historical data, information and research documents. The Pre-archaeological site history; History and Colonial sites. Geospatial, Geo-spatial site information.

Heritage impacts are categorized as the following.

(i) Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries,

(ii) indirect impacts, e.g., access restriction or visual intrusion concerning the broader environment.

Cumulative impacts are combinations of the above.

A total of 10 Areas of Interest (AOI) were identified for possible archaeological potential historical and paleontological material. Note these findings are confirmed, through aerial photography and satellite imagery investigations as well as digital reconnaissance using previous documents from the same and or adjacent areas.

Topographic evidence is however not 100% accurate and a confirmatory process will need to supplement what was topographically identifiable. Please note the assumptions and limitations of this report above.

The total number of identifiable heritage resources identified is 12, with 2 possible sites yet to be further investigated and confirmed on-foot. These areas of interest are flagged as potential aites with a high liklihood for subsurface and topographic material related to archaeological deposit, stone walling structures as well as stone and iron age materials. These are not confirmed but rather indicate areas of interest to be investigated when on-site.



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*Table 4: Table of findings*

| FEATURES | CO-ORDINATES | ID/ DESCRIPTION |
|---|---|---|
| AOI- | -30°46'17.44"S;17°57'37.50"E | Possible Lithics & Palaeontological Material |
| AOI 1 | -30°46'43.60"S17°56'49.09"E | Archaeological site |
| AOI-2 | -30°47'14.82"S 17°56’23.19”E | Possible Kraal |
| AOI-3 | -30°47'28.63"S 17°55’38.45”E | Possible Kraal |
| AOI-4 | -30°54'28.13"S 17°56’9.04”E- | Historical Structure |
| AOI-5 | -30°50'32.02"S 17°53’29.51”E | Archaeological site |
| AOI-6 | -30°49'14.03"S 17°54’0.67"E | Archaeological site |
| AOI-7 | -30°50'13.50"S 17°53’21.87"E | Archaeological site |
| AOI-8 | -30°49'51.84"S 17°51’20.20"E | Archaeological site |
| AOI | -30°52’48.71"S17°52'25.07"E | Possible Lithics |
| Possible Burial | -30°53’13.49"S17°52'46.63"E | Archaeological site & BGG |
| Structure | -30°53’13.49"S17°52'46.63"E | Confirmed Building and Structures |

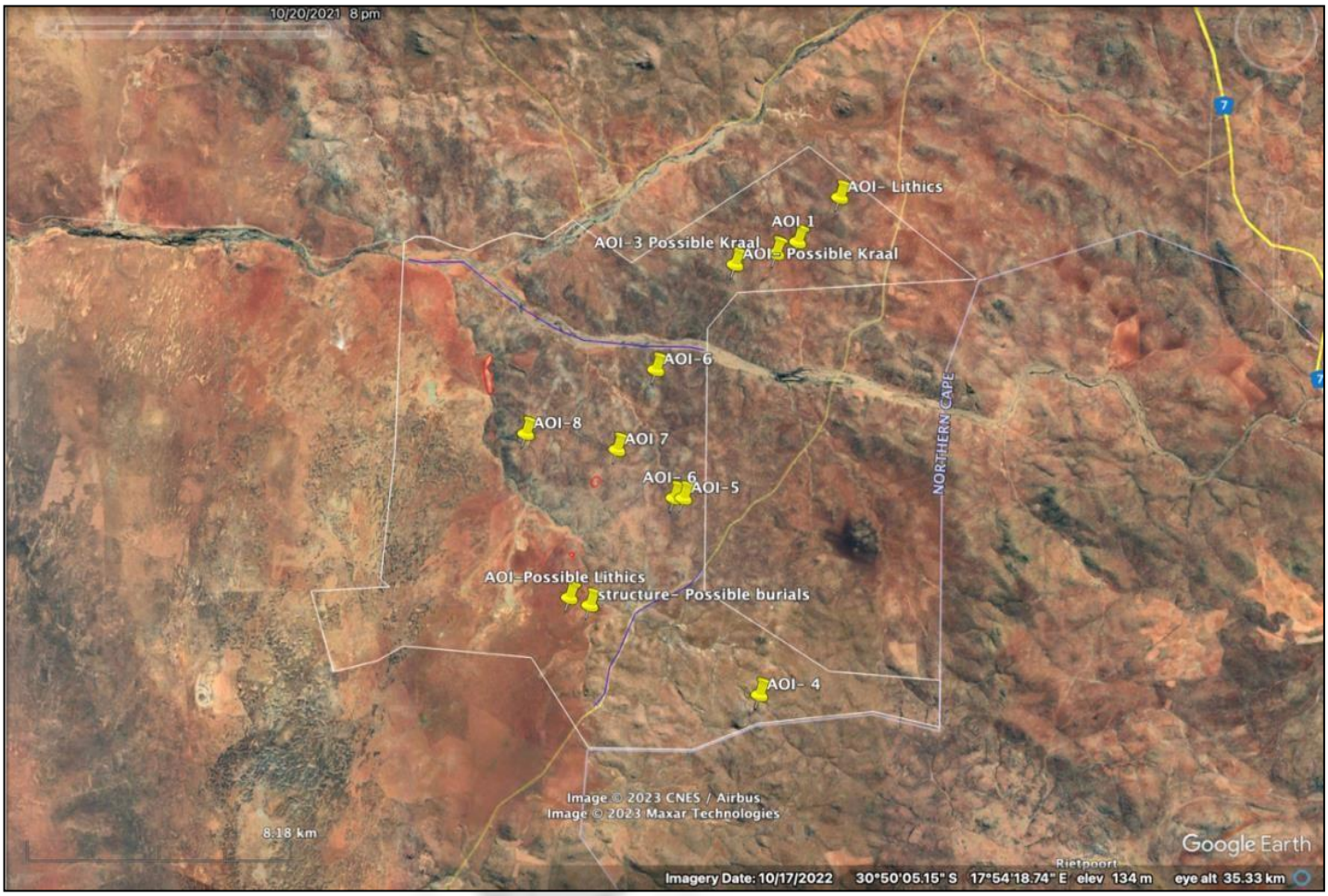


*Figure 17: Image indicating areas flagged as possible heritage/ paleontological and/ heritage sites withinearmarked area*



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The three red polygon areas noted in red area flagged as potential paleontological risk areas with possible stone age material and lithics highly likely to be recovered through ground or surface reconnaissance. Other areas in the wider and adjacent areas hare known to produce stone and iron age material in similar areas with similar geomorphological features. The exact geospatial information /or location co-ordinates of all identified features, structures, sites, artefacts, possible burial grounds are presented in the table below:

**11.1 Archaeological Findings**

Archaeological sites within the Namaqualand context are mostly associated with the Hardeveld and coastal regions as sites in the Sandveld have a low archaeological visibility. However, we are increasingly gathering a better understanding of archaeological localities in Namaqualand through the development of commercial mines that commission heritage assessments within the broader ambit of environmental and heritage legislative requirements.

Areas of interest in the larger Gariep area are known to typically reveal surface findings of silcrete flakes, lithic scatters from the early stone age periods of occupation. Due to the relatively undisturbed nature of the area's historical occupation, findings of quartz, Middle Stone Age (MSA) flakes and associated archaeological artefacts and material remains hi ghly likely.

Therefore, a field-based survey is recommended prior to any activities conducted in this vicinityto provide for mitigation by collection, collection and curation of material finds. The desktop survey proves inadequate to report the presence, probability or likelihood of graves and burial grounds in the proposed project receiving area.

A number of burrow pits were noted through satellite imagery reconnaissance. Due to the subterranean nature of burial grounds and graves, the burrow pits will need to be surveyed and analysed for human remains and or sub-surface faunal material may be identified and/or observed.

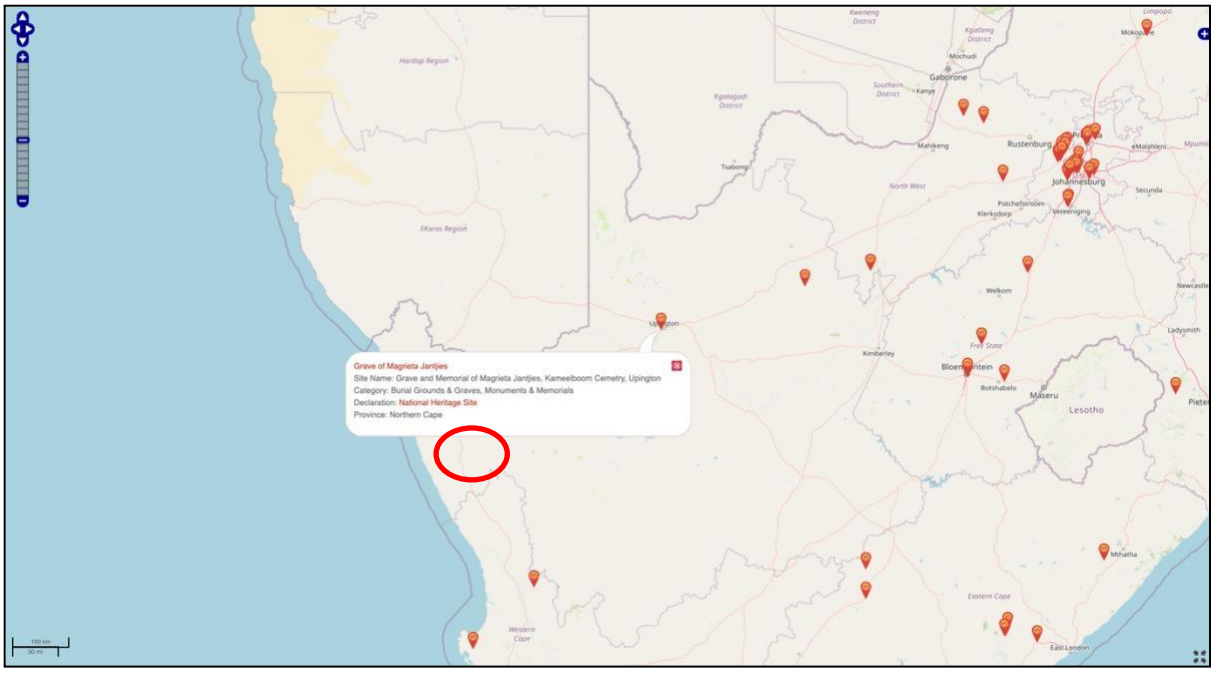




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*Figure 18: Map showing places of heritage significance within Northern Cape Province*

### 11.2 Palaeontological Findings

According to the SAHRA fossil sensitivity map the area is considered to have a very low (insignificant/zero) palaeontological sensitivity. The south African national Palaeontological fossil sensitivity map indicates that the likelihood of fossil materials being uncovered in the project area as Insignificant/ Zero indicated by the circle.

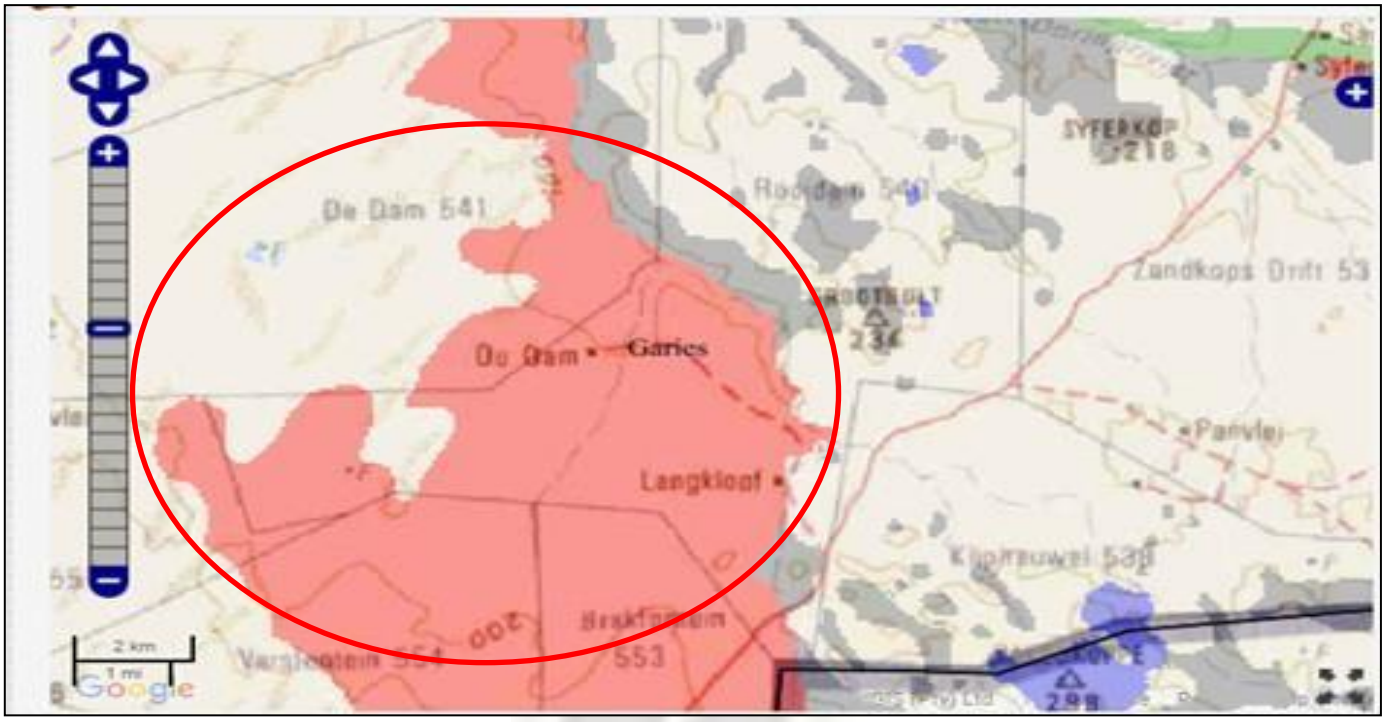


*Figure 19: Site Map indicating the proposed site's RED p alaeontological sensitivity*



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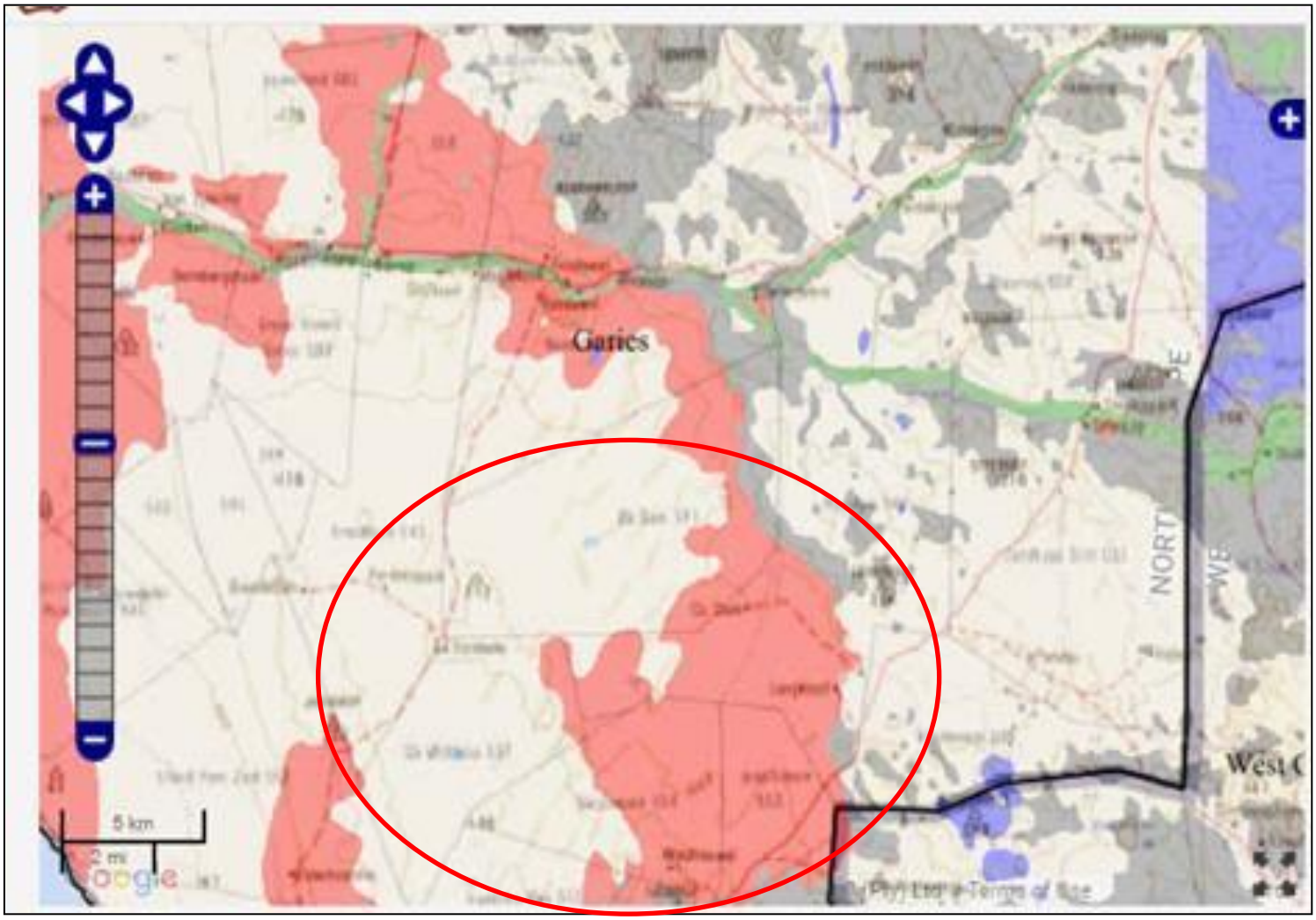


Figure 20: Palaeontological sensitivity of greater project area

**11.3 Buildings and Structures**

The pre-colonial and historic period of site occupation provides that material remains in the area maybe identifiable on site, the likelihood of these artefacts being uncovered or observed.

This assessment did not identify any historical monuments and public memorials within the prospecting right application site. There are no monuments or plaques within the proposed prospecting area that are on the National Heritage or Provincial heritage register or Listed buildings. No structures have been nominated for declaration within the proposed area.

No known battles or skirmishes associated with the Anglo-Boer war and the struggle against apartheid were fought on the proposed prospecting site.

The idenitifed structures are defined as previous farmhouses, farm steads and/ agricultural structures these can range in degree depending on the type and kinds of agricultural activities founds in the area nd wider region. A full-scale Phase III social impact assessment is therefore recommended to ascertain the nature of any possible cultural areas of significance to be facilitated by an assessment thereof with the appropriate mitigatory recommendations.



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**FINDINGS**

1. Rooidam 4 building were noted on the 1: 10 000 Map sheet Ref:3017DD_12
2. The likelihood of identification of structures and building within the area are HIGH
3. HIGH impact rating for buildings and structures in the southern extent of the proposed area for mining development

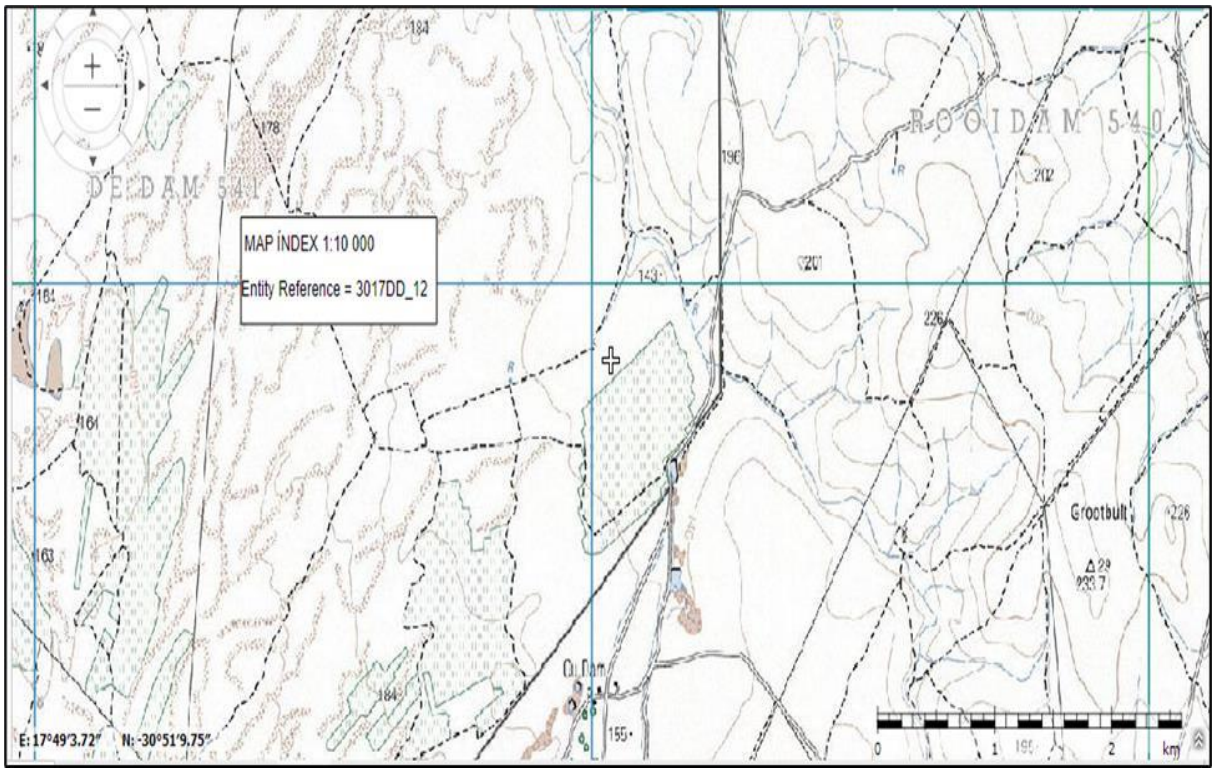


*Figure 21: 1: 10 000 map of De Dam 541 and ROOIDAM 540*

**12.4 Burial Grounds and Graves Findings**

Burial grounds and grave sites are graves a high significance and impact rating. As per the HNRA. The protection is guided by the National Policy on Burial Grounds and Graves 2022, which provides that graves have a. High aesthetic, social, religious and cultural rating and are granted provisional protection by the NHRA.

As such, a 100m buffer surrounding burial grounds and graves on active mining activities is recommend, as well as Phase III Social Management Plan (SMP) to be integrated into the Burial Grounds and Graves Management Plan (BGGMP) where policies and structures regardings their maintenance, protection and conservation are outlined. Access control measures are included in the larger heritage management plan to be included in the Integrated environmental management plan. In the case where burial grounds cannot be conserved within the 100m buffer, adaptations to this clause in the NHRA regulations' will need to be authorized by SAHRA.

**The identified location of a possible Burial Grounds was identified at:**
30°53'13.49"S17°52'46.63"E.

One area where one possible burial grounds where denoted and/ identifiable topographically was



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recorded and is flagged as **HIGH** risk area. Due to the sites proximity to an existing building and/ structure the probability of the site containing a historical burial ground is **HIGH**. The likelihood of unearthing sub-surface human remains high due to the nature of historical societal cultural systems a surrounding burial practices as well as the history of South Africa's Apartheid past.

The probability of identifying human remains within the water bodies within the proposed site remains Moderate- Low, however this cannot be ruled out completely. An evaluation of the water systems should human remains be accidentally discovered will be subject to mitigation processes as per NHRA. The chance finds protocols attached to this document, are to be implemented (See Appendix 3).

### 12.5 Summary of Findings

A total of 9 Areas of Interest (AOI) were identified for possible archaeological potential historical and paleontological material. Note these findings are confirmed, through aerial photography and satellite imagery investigations as well as digital reconnaissance using previous documents from the same and or adjacent areas.

Topographic evidence is however not 100% accurate and a confirmatory process will need to supplement what was topographically identifiable. Please note the assumptions and limitations of this report above.

The identified cultural and archaeological areas of interest include:

- historical structures,
- possible hut floors,
- circular enclosures,
- diggings, as well as

Areas suspected of having either burial grounds or lithics concentrations where flagged as possible areas of interest and are flagged as high-risk areas.

*Table 5: Summary Table of findings*

| HERITAGE RESOURCE | STATUS/ FINDINGS |
|---|---|
| Built Environment (Structures, places, equipment, place | Farmsteads exist on two farms earmarked for proposed development |
| Historical Settlements (Townscapes) | None identified in the study area |
| Landscapes and Natural features ofCultural Significance | None recorded on the study site |
| Archaeological sites (Deposit, features,structures) | None identified, potential sites recorded and flagged |



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| | |
|---|---|
| Heritage Sites | None recorded within the proposed area |
| Movable artefacts, objects, material | None identified |
| Burial Grounds and graves | One possible BGG site was Identified. There is also potential to encounter unmarked subsurface burial grounds, graves, human remains |
| Intangible Heritage Sites (Battlefields, Ritual sites) | None recorded or identifiable - awaiting PPP outcomes |
| Rock art sites (Engravings, caves, shelters) | None identified |

## 1. SIGNIFICANCE RATINGS

The significance of archaeological and historical or culturally significant features, sites, structures and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

**12.1 Aesthetic Value**

The aesthetic values of the AIA Study Area and the general project area are contained in the valley bushveld environment and landscape typical of this part of the Northern Cape Province. The visual and physical relationship between the AIA study area and the surrounding historical and cultural landscape demonstrates the connection of place to the local and oral history stories of the indigenous African communities who populated this region going back into prehistory.

*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.

*Historic Value*

Historic value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section. The overall Gauteng region as a place has 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.

*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



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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.

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

The proposed development site will be situated within an environment and a larger associated cultural landscape, which, although developed by existing agricultural land use, remains representative of the original historical background and cultural landscape of this part of Northern Cape Province.

As such the following may be deduced considering the value of the sites, artefacts, materials, objects and structures, building and burial grounds:

**VALUATION**

*Aesthetic Value*

We cannot at this time provide an aesthetic value to the proposed site earmarked for development. The Phase I assessment cannot provide this level of assessment.

*Historic Value*

Although the entire project area is not composed of various infrastructure development, with two historical aspect of cultural significance were recorded on the direct path of an area earmarked for the proposed development. The value of these structures and buildings will need to be evaluated through an on-site investigation and physical assessment.

*Scientific value*

Previous construction activities and associated roads, and other auxiliary infrastructure developments and disturbance within the HIA study area associated with the proposed development may have resulted in limited intact significant cultural landscapes with the potential to retain intact large scale or highly significant open archaeological site deposits.

However, should intact archaeological sites be recorded within the proposed site earmarked for the mining development and immediate surrounding areas, they may retain scientific evidence that may add value to the local and regional history.

The Palaeontological Scientific value may only be provided through a full-scale palaeontological assessment by a qualified paleontologist supported by a field-based assessment.

*Social Value*

Under normal circumstances, any site possesses some certain status of social significance at a particular time in a society. The overall area has social value for the local community, as is the case with any populated landscape. The land provides the canvas upon which daily socio-cultural activities are created. All these



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factors put together confirm the social significance of the project area.

However, this social significance is not going to be adversely impacted by the proposed mining development especially given the fact that the development will add value to the human settlements and activities already taking place. In addition the area has not been extensively already affected by larger scale developments outside of farming and agricultural activities. In addition, the proposed mining activity will add to already existing infrastructure such as informal roads, formal roads, electrification and other proposed infrastructure developments.

The social value of burial grounds and graves is significant in that these heritage assets are considered to positively benefit local communites. The serve as cultural, ritual and spiritually significant sites.

**SIGNIFICANCE POINTS (SP)= (MAGNITUDE + DURATION + EXTENT) X PROBABILITY**

The significance of the heritage 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 (PS≥60), Medium (SP=31-60) and Low (SP<30) significance as shown in the below:

*Table 6: Table indicating Significance Rating for proposed project*

| | | |
|---|---|---|
| SIGNIFICANCE OF PREDICTED NEGATIVE IMPACTS | | |
| Low | 0- 30 | Where the impact will have a relatively small [illegible] environment and will required 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 heritage resources 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. |



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**Potential Impacts and Significance Ratings**

*General Condition Assessment of impacts on heritage resources

Land disturbance, dust and deposition on the topographically identified resources are/ is notable.

*Management Actions

Monitoring and management of construction by the project Environmental Control Officer (ECO) to ensure the implementation of chance finds protocols should any heritage or archaeological objects, materials or human remains be unearthed and/or uncovered during the course of development.

**RATING EVALUATION**

The significance rating of this site proposed development has been granted a **LOW-MEDIUM rating,** meaning the impact may either 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 **OR** 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. This also means that the Significance of predictive **Negative impacts** is **LOW** but that the Significance of predictive **positive impacts** will be **LOW**, as such the impact will have a relatively small positive effect on the environment.

**HERITAGE GRADING**

The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning historic, scientific or social value for past, present and future generations.

The grading allocation to heritage sites provides the appropriate mitigatory recommendations to ensure their protection, conservation and management by the appropriate heritage resources agency. Grading of heritage resources forms an important part of the compliance process to ensure the safeguarding of cultural heritage resources.

**Heritage Resources Grading Assessment Criteria**

-Grade 3a burials
-Grade 3b
-Negligible
-Grade 3c
-Unknown
- Grade 3a

*Table 7: Table indicating grading assessment as per NHRA guidelines*

| SCORE | GRADE | PROTECTION | RECOMMENDED HERITAGE MITIGATION |
|---|---|---|---|
| 16-18 | Grade I | National | Nomination for inclusion on the national estateregister |
| 13-15 | Grade II | Provincial | Nomination as a provincial site/object, included inthe national estate |



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| | | | |
|---|---|---|---|
| 10-12 | Grade I IIA | Local | Nomination as a regional site/object, included inthe national estate |
| 7-9 | Grade I IIB | Local | Heritage resources must be mitigated and partlyconserved |
| 4-6 | Grade IV A | General | Heritage resources must be mitigated beforedestruction |
| 1-3 | Grade IV B | General | Heritage resources must be recorded beforedestruction |
| 0 | Grade IV C | General | No mitigation required (application for destructionpermit maybe required) |

**GRADING EVALUATION**

The mining activities proposed for this site do not have any listed or declared heritage and/ or archaeological, geological or paleontological resources**.** Grading of the possible palaeontological and identified structures as well as buildings will require a field based assessment, to evaluate their cultural heritage significance.

A recommendation for the application for demolition of structures of LOW cultural significance cannot be provided at this time. A full-scale Phase II will need to be undertaken to ensure the architectural and cultural significance of these structures and buildings and afford them the appropriate grading.

The Grading of the identified possible heritage and archaeological materials, artefacts, sites and features services as a guideline and is not to be considered a final grade afforded to artefacts that have yet to be identified and analysed. This serves as a guideline for the appropriate mitigation measure that maybe afforded to what has been identified and is a preemptive advisory suggestion regarding foreseeable mitigation processes.

The following table indicates the proposed grade for the identified features, structures, artefacts, materials and burials grounds identifiable.

| FEATURES | CO-ORDINATES | ID/ DESCRIPTION | GRADING |
|---|---|---|---|
| AOI- | -30°46'17.44"S;17°57'37.50"E | Possible Lithics & Palaeotological | *to be confirmed on site |
| AOI 1 | -30°46'43.60"S17°56'49.09"E | Archaeology | Grade I IIB |
| AOI-2 | -30°47'14.82"S 17°56’23.19”E | Possible Kraal | Grade I IIB |
| AOI-3 | -30°47'28.63"S 17°55’38.45”E | Possible Kraal | Grade I IIB |
| AOI-4 | -30°54'28.13"S 17°56’9.04”E- | Historical Structure | *to be confirmed on site |
| AOI-5 | -30°50'32.02"S 17°53’29.51”E | Archaeology | Grade I IIB |
| AOI-6 | -30°49'14.03"S 17°54’0.67"E | Archaeology | Grade I IIB |



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| | | | |
|---|---|---|---|
| AOI-7 | -30°50'13.50"S 17°53’21.87"E | Archaeology | Grade I IIB |
| AOI-8 | -30°49'51.84"S 17°51’20.20"E | Archaeology | Grade I IIB |
| AOI | -30°52’48.71"S17°52'25.07"E | Possible Lithics | Grade IV A |
| Possible Burial | -30°53’13.49"S17°52'46.63"E | Archaeology & BGG | Grade I IIB |
| Structure | -30°53’13.49"S17°52'46.63"E | Confirmed Building and Structures | *to be confirmed on site |

**12.2 Significance Assessment**

Significance ratings vary between HIGH, MEDIUM and LOW. The implementation of the aforementioned mitigation measures will reduce the impact rating to LOW or at least MEDIUM. The significance is determined through a synthesis of the characteristics described above (refer to the formula below) and can be assessed as low, medium or high:

$$S = (E+D+M) \times P$$

where S = Significance weighting, E = Extent, D = Duration, M = Magnitude, P = Probability.

Significance ratings vary between HIGH negative and MEDIUM negative. The implementation of the aforementioned mitigation measures will reduce the impact rating to LOW negative or at least MEDIUM contrary, as per table 6 above and in line with ICOMOS international standards for significance of heritage resources.

ICOMOS RATING

-Very high (World Heritage Sites)
-High (Nationally significant sites)
-Medium (regionally significant sites)
-Low (locally significant sites)

*Table 8: Table indicating significance rating scale as per international standards*

| SIGNIFICANCE RATING | SIGNIFICANCE DESCRIPTION |
|---|---|
| LOW | Locally significant sites for that area |
| MEDIUM | Regionally significant sites |
| HIGH | Nationally significant sites |
| VERY HIGH | Internationally significant sites &/ World heritage listing |



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**SIGNIFICANCE RATING EVALUATION**

The three red polygon areas identified in above Figure 21 as potential paleontological risk areas with possible stone age material and lithics highly likely to be recovered through ground or surface reconnaissance.

The significance rating are proposed and do not provide an adequate rating scale. These ratings are provided as a guideline and are not to be understood as the final rating. The significance of some have been excluded as a field assessment will need to confirm their architectural and aesthetic significance. These scales and ratings are preemptive and not accurate.

The exact geospatial information /or location co-ordinates of these structures are presented in the table below:

| FEATURES | CO-ORDINATES | ID/ DESCRIPTION | SIGNIFICANCE RATING |
|---|---|---|---|
| AOI- | -30°46'17.44"S;17°57'37.50"E | Possible Lithics & Palaeotological | *to be confirmed on site |
| AOI 1 | -30°46'43.60"S17°56'49.09"E | Archaeological Site | *to be confirmed on site |
| AOI-2 | -30°47'14.82"S 17°56’23.19”E | Possible Kraal | MEDIUM |
| AOI-3 | -30°47'28.63"S 17°55’38.45”E | Possible Kraal | MEDIUM |
| AOI-4 | -30°54'28.13"S 17°56’9.04”E- | Historical Structure | *to be confirmed on site |
| AOI-5 | -30°50'32.02"S 17°53’29.51”E | Archaeological Site | LOW |
| AOI-6 | -30°49'14.03"S 17°54’0.67"E | Archaeological Site | LOW |
| AOI-7 | -30°50'13.50"S 17°53’21.87"E | Archaeological Site | LOW |
| AOI-8 | -30°49'51.84"S 17°51’20.20"E | Archaeological Site | LOW |
| AOI | -30°52’48.71"S17°52'25.07"E | Possible Lithics | *to be confirmed on site |
| Possible Burial | -30°53’13.49"S17°52'46.63"E | Archaeological Site & BGG | LOW |
| Structure | -30°53’13.49"S17°52'46.63"E | Confirmed Building and Structures | *to be confirmed on site |



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## 11. ASSESSMENT CONCLUSION AND RECOMMENDATIONS

This report included background information on the Stone Age, Iron Age, and pre-colonial and historical archaeology of the region in order to contextualize the likely heritage resources of the area under investigation as well as relevant heritage legislation and conservation policies. The general aim of the impact assessment is to determine the extent of the proposed project on the identified heritage resources and, through deduction, attempt to predict any possible impacts on any of the unidentified heritage resources. All impacts are envisaged to occur during construction activities, during the surface earthwork.

The nature of burrow pits in the larger Garies area provides that possible sub-surface material may be identifiable onsite. Unmarked human remains as well as buried ostrich eggshell caches may be uncovered or exposed during excavations and/ or earth moving activities

This impact assessment is only subject to the AIA. And HIA components. A suitable and qualified palaeontologist is additionally needed to the paleontological assessment of the proposed development footprint. An Archaeologist for site minimal mapping and recording of the structures is further needed, site recording and sampling, social consultation and permitting (relevant heritage authorities) and authorization (affected and associated parties) should also be conducted by a qualified archaeologist.

The following recommendations regarding heritage resources are proposed:

### a. Archaeological

The proposed prospecting right application site did not yield any confirmable archaeological sites or material. Based on the results of this desktop Phase I observations, it is the considered opinion of the author that the receiving environment for the proposed prospecting is LOW TO MEDIUM potential to yield previously unidentified archaeologicalsites during prospecting work.

In the event that excavations and earthmoving activities expose significant archaeological or heritage resources, such activities must stop and SAHRA must be notified immediately.

- If exposed during development, archaeological resources must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999) and at the expense of the developer;
- Stone age material is likely to be identified through field-based assessment, with that; archaeological mitigation accordingly recommended for lithics and stone tool assemblages. A suitably qualified Stone Age archaeologist has investigated the archaeological occurrences of stone age material.
- The NCHPRA should be contacted and/ or informed of any areas where archaeological, heritage and culturalresources are identified and/ or exist to facilitate the protection and conservation thereof
- In the event of exposing human remains during construction, the matter will fall into the domain of the South African Heritage Resources Agency and will require a professional archaeologist to undertake mitigation if needed. Such work will also be at the expense of the developer.
- Topographic Map Sheet 1: 2500 000



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- Ethnographic information from NAARIS indicated no historical information available
- The likelihood of finding archaeological resources is HIGH, especially around Klipheuvel due to its topographyseen with map 1:10 000 Ref 30`7DD_18. potential Iron age sites and could therefore yield archaeological resources, included grave/burial sites.
- Considering that this area is within the proposed project area, anticipated impact is HIGH.
- desktop research does not provide adequate information for the Grading of any possible archaeologicalresources. it is therefore recommended that a field assessment be conducted.

**b. Palaeontological Sensitivity**

The project Environmental Control Officer (ECO) and/ or Environmental Assessment Practitioner (EAP) responsible for the development must remain aware that all sedimentary deposits have the potential to contain fossils and they should thus monitor all substantial excavations into sedimentary bedrock for fossil remains. The following section presents the evaluation of the palaeontolgical review of the proposed mining area:

*Table 9: Table indicating palaeontological sensitivity description*

| COLOUR | SENSITIVITY | REQUIRED ACTION |
|---|---|---|
| RED | Very High | Field assessment and protocol for chance finds is require |
| ORANGE/YELLOW | High | Desktop assessment is required, and based on the outcomeof the desktop, a field assessment maybe likely |
| GREEN | Moderate | The desktop study is required |
| BLUE | Low | No palaeontological studies are required howeverprotocol for finds is required |
| GREY | Insignificant/zero | No palaeontological studies are required |
| WHITE/CLEAR | Unknown | This area will require a minimum of desktop study |

The proposed study area has a general **LOW** palaeontological sensitivity. Significant impacts on palaeontological heritage resources due to the proposed alternative mining development are not anticipated, in the larger area.

Therefore, pending the discovery of significant new fossil remains during development, no further specialist palaeontological heritage studies or mitigation are recommended for this project. In the case of any substantial new fossil finds made during construction (e.g. vertebrate teeth, bones, burrows, petrified wood, shells), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to SAHRA.



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**Aesthetics and Visual Impacts**

- Low aesthetic and visual impacts to be considered in the erection of the roads. During the construction phase,large construction vehicles and equipment will alter the natural character of the study area and expose visualreceptor locations to visual impacts associated with construction.
- The construction activities may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings. Vehicles and trucks travelling to and from the proposed site on gravel access roads are also expected to increase dust emissions.
- The increased traffic on gravel roads and the resultant dust plumes could create a visual impact and may evoke negative sentiments from surrounding viewers. Surface disturbance during construction would also expose bare soil which could visually contrast with the surrounding environment.
- Additionally, temporarily stockpiling soil during construction may alter the landscape. Wind blowing over these disturbed areas could therefore result in dust which would have a visual impact. The significance of visual impacts without mitigation measures during construction is rated as moderate.
- With carefully planned mitigation measures, the project ECO or Contractor may reduce aesthetic impacts during construction phase if any heritage resources outside of the dilapidated built environment structures are identified.
- A full-scale Palaeontological Impact Assessment (PIA) is recommended to be undertaken by a qualified Palaeontologist with necessary procedures and mitigation recommendations be developed and proposed.
- Only in the eastern part of the site where it is a high likelihood of paleontological material to be uncovered.
- Consult a professional palaeontologist to conduct a physical palaeontological review on the western and northern extent of the site where the areas are unknown.

## CUMULATIVE IMPACTS

Beneficial and adverse impacts can be direct or indirect, as well as cumulative, as implied by the examples. 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 development is considered the total impact associated with the proposed development when combined with other past, present, and reasonably foreseeable future development projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed development project was undertaken during the preparation of this report.

The total impact arising from the proposed project (under the control of the applicant), other activities (that may be under the control of others, including other developers, local communities, and government) and other background pressures and trends which may be unregulated.

The project's impact is, therefore one part of the total cumulative impact on the environment. The analysis of a project's incremental impacts combined with the effects of other projects can often give a more accurate understanding of the likely results of the project's presence than just considering its impacts in isolation.



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The impacts of the proposed prospecting were assessed by comparing the post- project situation to a pre-existing baseline.

Where projects can be regarded as in isolation this provides a suitable method of evaluating a project's impact. However, in this case, there are several infrastructure developments, including agricultural activities where baselineshave already been affected. The proposed prospecting will continue to add to the impacts in the region, it was deemed appropriate to consider the cumulative effects of the proposed development.

Although indirect impacts may be more difficult to foresee, assess and quantify, they must form part of the assessment process.

**Cumulative impact rating takes into consideration the four stages of development:**

- **Pre-application planning stage,** to identify environmental opportunities and constraints (e.g. vulnerable heritage resources), alternatives and potential fatal flaws to the proposed project that should be addressed incorporated into early project planning and design.
- **Screening stage,** to assist decision-makers determine whether or not a proposed project requires environmental/heritage assessment and, if so, what level of input is required.
- **Scoping stage,** to identify key issues and alternatives associated with the proposed project, to respond to issues raised by other stakeholders and, where further specialist input is required, to assist in drafting and reviewing specialist terms of reference.
- **Impact assessment stage,** to predict and assess potential impacts of the proposed development and recommend management actions and monitoring programmes.

The following **assessment criteria** have been used to determine the impacts of the proposed development on possible identified heritage resources:

Following the revision of the BID and NID documents the sites cumulative rating score is foreseen. This will need to be substantiated by an on-site or field assessment. We cannot at this time through a Phase I make an accurate assessment of the Cumulative impacts without a field-based assessment We can however make the following deductions regarding the mining prospect at **Pre-application and/ or planning stage**, were it is confirmed that are no archaeological resources falling within the project area, no cumulative impacts will be presented.

Given the developmental landscape nature of the proposed project area, there may be cumulative impacts that are of concern on this site. Monitoring may be a necessary and essential part of the **screening and scoping stages** to ensure that at the impact and during the construction phase of the development, the cumulative impacts are addressed and monitored appropriately. Due to the nature of proposed mining excavations and activities of the current landscape within an earmarked for development heritage screening will need to be supplemented with physical field-based assessment to provide cumulative impacts accurately. As the various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects. Cultural significance is site-specific and relates to the content and context of the site.

However, in the absence of a cumulative rating assessment, a likelihood and probability assessment is provided. This serves as a guideline to provide sufficient in addressing the possibility, likelihood and



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probability of the proposed development adversely affecting the identified and confirmed archaeological and heritage resources.

## LIKELIHOOD & PROBABILITY SCALES

*Table 10: Table indicating likelihood and probability criteria and rating scales*

| CRITERIA | RATING SCALE | NOTES |
|---|---|---|
| Probability % (the likelihood of an occurring) | Low | It is highly unlikely or less than 50% likely that an impact will occur |
| | Medium | It is between 50%-70% certain that an impact will occur |
| | High | It is more than 75% certain that an impact will occur, or itis definite that the impact will occur |
| Significance(all impacts including potential risk, and cumulative impact | Low | Low consequence and low probability Low consequence and medium probability<br>Low consequence and high probability |
| | Medium | Medium consequence and low probability Medium consequence and medium probability Medium consequence and high probability<br>High consequence and low probability |
| | High | High consequence and medium probability<br><br>High consequence and high probability |

Adapted from Ubique Heritage Consultants (2018)*

The HIA consisted of a preliminary desktop review of relevant archival material sources, relevant database surveys, and geographic maps overview, including aerial and digital satellite imagery. Based on the outcome of Phase II a comparative rating of significance will be assigned to heritage resources as prescribed in the National Heritage Resources Act (Act 25 of 1999). Careful planning can minimize the impact of archaeological surveys on development projects by selecting options that cause the least amount of inconvenience and delay. The **probability** of identifying cultural heritage, archaeological and heritage assets on the proposed area is granted a **MEDIUN TO LOW** rating. However, the **significance rating** is granted a **MEDIUM TO HIGH** probability, depending on the findings of the Phase II survey.

### c. DISCUSSION: EVALUATION OF RESULTS

All possible care has been taken during the comprehensive intensive desktop study to identify sites and interest areas of cultural importance within the proposed development area. However, it is essential to note that a field survey is required as some heritage sites may have been overlooked and/or remain unidentified due to their subterranean/ subsurface nature or due to vegetation cover.

Therefore, a Phase II field-based ground reconnaissance survey is recommended to confirm any heritage features and/or objects such as architectural features, stone tool scatters, artefacts, human remains, or



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fossils. Should any cultural material be uncovered or observed during construction, all operations must be stopped within the immediate vicinity, and a qualified archaeologist and/ or cultural heritage practitioner must be contacted for an assessment of the finds and provide and affect the appropriate mitigation processes.

Permission for the development to proceed can be given only once the heritage resources authority has received and approved a Phase 2 report and is satisfied that measures are in place to ensure that the archaeological sites that will be impacted upon by the development have been adequately recorded and sampled.

Archaeological resources are point-specific, it will be required that a walk-down survey should be carried out prior to construction to check whether any further mitigation-worthy archaeological resources are present within the newly proposed development footprint.

Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to assess the significance of the site (or material) in question and the finds are appropriately documented.
One grave site, burial ground and or/ areas possibly containing graves has been identified through the desktop assessment. Inthe unlikely event of any unmarked human burials, graves and/ or burial grounds are identified a full phase II HIA/ orAIA process is recommended and encouraged. It should be kept in mind that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during construction activities, such activities should be halted inorder for an investigation, analysis and recommendations for mitigation to be provided for by suitable and qualified specialists.

**CONCLUSIONS AND RECOMMENDATIONS**

The HIA consisted of a preliminary desktop review of relevant archival material sources, relevant databases survey, geographic maps overview, including aerial and digital satellite imagery. It should be noted that the implementation of the proposed mitigation measures is subject to prior approval from SAHRA and/ NC PHRA's.

All possible care has been taken during the comprehensive field survey and intensive desktop study to identify sites of cultural importance within the development areas.

However, it is essential to note that some heritage sites may have been missed due to their subterranean nature or due to dense vegetation cover. No subsurface investigation (i.e. excavations or sampling) was undertaken since a permit from SAHRA is required for such activities.

Therefore, should any heritage features and/or objects such as architectural features, stone tool scatters, artefacts, human remains, or fossils be uncovered or observed during construction, operations must be stopped, and a qualified archaeologist contacted for an assessment of the find.

Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to assess the significance of the site (or material) in question. The cultural landscape qualities of the region are made up of a pre-colonial element consisting of



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limited Stone Age occupation and much more densely Iron Age occupation, as well as a much later colonial (farmer) component, which eventually gave rise to the current urban element.

The study area has not been extensively impacted by industrial and residential developments in the area. Some modern structures are found on-site, these structures have historical or architectural significance and satellite, as well as historic maps, confirm and provide evidence that the structures are older than 60 years, and further mitigation will necessary for this site.

Although the region is known for its large number of old houses, some of which are declared provincial heritage sites, as well as sites of natural heritage significance, these would not be impacted by the proposed development, as all the activities would take place within an already developed landscape.

The presence of sub-surface heritage resources has not been confirmed through the web-based archival, historical and geospatial assessment conducted. This evaluation provided the basis for the recommendation that the proposedmining project be halted until a field-based heritage impact assessment is conducted, to provide effective monitoringfor unidentified heritage resources conducted as topographic identification of heritage resources provided for none.

The literature review, field research and subsequent impact assessment confirmed that the project area is situated within a historical and contemporary cultural landscape dotted with settlements that have long local history.

An on-foot field survey and associated ground reconnaissance is recommended to establish and assess these cumulative impacts of flagged and identified heritage resources. The proposed project site has not been significantly disturbed by any existing and previous land use activities and current activities and existing developments.

The impact assessment is only subject to the AIA and HIA. Although a desktop palaeosensitivity review was undertaken as part of this HIA assessment, no palaeontological impact assessment was undertaken. The following mitigation recommendations are provided:

- Due to the nature of the project, and palaeontological sensitivity a qualified palaeontological foot survey will be necessary for the site. From the desktop palaeontological review conducted, the development may not lead to detrimental impacts on the palaeontological resources of the area along the proposed areas' eastern extent.

- The monitoring of the development progress by an ECO is recommended during the planning and construction phases is recommended; should any subsurface palaeontological, archaeological or historical material, or burials are exposed during construction activities, all activities should be suspended, and the archaeological specialist should be notified immediately.

- A field-based social impact assessment (Phase III) is recommended should the public participation process provide that such structures are present. A full-scale Phase II HIA is recommended should burial grounds. Human remains or graves be unearthed or uncovered.

- The project environmental control officer (ECO) be informed of the "Chance finds Protocol" to be implemented and adhered to should any cultural heritage structures, objects, materials, features or



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graves of significance be uncovered during earth-moving activities in the construction phase of the project.

- Construction teams to be inducted to identify heritage features before engaging any earth-moving equipment on-site during initial project construction.

- The appointed archaeologist be on-site to monitor the clearing of the vegetation during the ground and earth moving activities. The practitioner shall advise on the legislative approach to be followed thereafter should the discoveries provide for a secondary Phase 2 Impact assessment to be undertaken

- A complete Phase II Heritage Impact assessment to be conducted, including an intensive public participation and/orstakeholder engagement process to be undertaken for the relocation of any graves, or burial grounds identified or uncovered during construction and/ or during prospecting activities.

- The Phase II HIA will include a detailed Palaeontological assessment to ensure the area's palaeo-environmental sensitivity is assessed and rated, with the appropriate recommendations and mitigation requirements presented.

- A full-scale Palaeontological Impact Assessment (PIA) is recommended to be undertaken by a qualified Palaeontologist with necessary procedures and mitigation recommendations be developed and proposed. The Palaeontological field-based monitoring is recommended to be conducted where Paleontological resources may be identifiable prior to and/or during construction. The areas' Paleontological resources chance finds a protocol to be strictly adhered to where possible and evidence of any accidental finds be immediately reported (see Appendix A and E). No objections to the proposed development going ahead provided effective monitoring is conducted appropriately.

- This HIA has identified two occurrence of heritage resources, these buildings or structures that may be impacted negatively by the proposed development. A permit for their destruction may be necessary from the relevant local heritage authority.

It is the professional opinion that the listed project development and its associated activities will have a significant impact on potential and identified archaeological and cultural heritage resources within the site-specific area. Impact analysis of cultural heritage resources under threat of the proposed development is based on the present understanding of the development type.

This HIA/ AIA is subject to the relevant heritage resources agency (SAHRA) accreditation and approval. The final pronouncement of the project lies with the appropriate heritage resources agency.



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*APPENDIX 1: DEFINITION OF TERMS/TERMINOLOGY*

- *Archaeology- the study of past human cultures through human beings' material culture remains.*
- *Artefact- Entities whose characteristics result in or partially result from human activity. The shape and the other attributes of the artefact are not altered by the removal of the surroundings in which they are discovered. Examples of artefacts include potsherds, iron objects, lithics, beads, hut remains, shells etc.*
- *Assemblage- A group of artefacts recurring together at a particular time, space and place, and representing the sum of human activities.*
- *Archaeological Material- artefacts resulting from human agents which are in a state of disuse and are in, or on land, which are older than 100years, including artefacts, human and hominid remain, features, structures and sites.*
- *Conservation- means all the processes of looking instead after a place so as to retain its cultural significance*
- *Cultural Heritage Resources- refers to physical, and cultural properties such as archaeological and palaeontological sites, historic and prehistoric places, buildings, structures and materials, cultural sites such as places of ritual or religious importance and their associated materials; burial sites or graves and their associated materials, geological or natural features of cultural significance or scientific significance. Cultural Heritage Resources also include intangible resources such as religious practices, ritual ceremonies, oral histories, memories and indigenous knowledge, structures, places, natural feature aesthetics and scientific architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.*
- *Cultural Significance- means aesthetic, historical, scientific, social or spiritual value for past, present or future generations. Also encompasses the complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/ research and social values.*
- *Ceramic Traditions- the cultural representation of ceramics, a series of ceramic units that constitutes ceramic tradition.*
- *Culture- is defined as the learned and shared commonalities that people have, do and think*
- *A cultural landscape- refers to a distinct geographic area with cultural significance*
- *Cultural Resources Management- a system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation to safeguard the past.*
- *Excavation - The method of data acquisition in archaeology involves the systematic unearthing of remains through the removal of lithospheric deposits*



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*of soil, stone and rock materials covering and accompanying it.*

- *Heritage- That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the NHRA Act 25 of 1999.*
- *Phase 1HIA Assessment- Is an in-depth investigation which identifies archaeological and heritage resources, sites, assets and objects, assessment of their significance and comments on the impact of a given development on the sites. Recommendations for the site mitigation of conservation are also made in this phase.*
- *Site - A distinct spatial clustering of artefacts, objects, features, structures and organic environmental remains indicating human agency and activity. These include surface sites, caves and rock shelters, more significant open-air sites, sealed sites (deposits) and rover deposits.*
- *Stratigraphy- the principle examines and describes the observable layers of sediments and the arrangement of strata in deposits, usually detectable via transverse cross-section*
- *Stratified Sampling- a sampling strategy where a study area is subdivided into appropriate zones-often based on the probable location of the archaeological regions, after which each zone is sampled at random*
- *Systematic Sampling- a sampling strategy whereby a grid of sample blocks is set up over the survey area, and each of these blocks is equally spaced and searched*
- *Tradition- Artefact types, assemblages of tools, architectural styles, economic practices or art styles that last longer than a phase and even a horizon are described by the term tradition. A typical example of this is the early Iron Age tradition of Southern Africa.*
- *Impact- the positive or negative effects on human well-being and/ or the environment.*
- *In Situ-material culture and surrounding deposits in their original location and context, for example, an archaeological site that has not been disturbed by farming*
- *IA- Iron Age period is an archaeological term used to define a period associated with domesticated livestock and grains, metalworking and ceramic manufacture.*
- *I&AP-Interested and Affected Parties- Interested and affected parties Individuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a suggestion or movement and its consequences.*
- *Mitigation- Anticipating and preventing adverse impacts and risks, then to minimise them, rehabilitate or repair has implications to the extent feasible.*
- *Public participation process- means a process of involving the public in order to identify issues and concerns and obtain feedback on options and impacts associated with a proposed project, programme or development. Public*



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*Participation Process in terms of NEMA refers to a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters*

- *Palaeontology- Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.*
- *GIS- Geographic Information systems are computer software that allows layering of various types of data to produce complex maps; useful for predicting site location and for representing the analysis of collected data within sites and across regions.*
- *Management- actions associated with the proposed development, that avoid, mitigate, restore, rehabilitate or compensate for the negative or adverse impacts and implications.*
- *Oral Histories- The historical narratives, stories and traditions passed from generation to generation by word of mouth*
- *Fossil- mineralised bone and / organic material of animals, shellfish plant and marine life.*



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*APPENDIX 2: STATEMENT OF HERITAGE SIGNIFICANCE*

*Rating the significance of archaeological sites and consequently grading the potential impact on the resources is linked to the importance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions.*

*Historical structures are defined by Section 34 of the National Heritage Resources Act, of 1999, while other historical and culturally significant sites, places and features, are generally determined by community preferences.*

*The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with particular reference to subsection 3 are used when determining the cultural significance or other particular value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture.*

*Aesthetic Value: Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscapes.*

*Historical Value: Historic value encompasses the history of aesthetics, science and society and therefore, to a large extent, underlies all of the attributes discussed here. Usually, a place has historical value because of the influence of an event, person, phase or activity.*

*Scientific Value: The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.*

*Social Value: Social value includes the qualities for which a place has become a focus of spiritual, political, national, or another cultural sentiment to a certain group. It is essential for heritage specialists input in the EIA process to consider the heritage management structure set up by the NHR Act.*

*It makes provision for a 3-tier system of management, including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority.*

*The Act makes provision for two types or forms of protection of heritage resources, i.e.*



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*formally protected and generallyprotected sites:*

*Formally Protected Sites*

- *Grade 1 or national heritage sites, which are managed by SAHRA*
- *Grade 2 or provincial heritage sites, which are managed by the PHRA.*
- *Grade 3 or local heritage sites.*

*General Protection*

- *Human burials were older than 60 years.*
- *Archaeological and palaeontological sites.*
- *Shipwrecks and associated remains older than 70 years.*
- *Structures were older than 60 years.*



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*APPENDIX 3: HERITAGE IMPACT ASSESSMENT PHASES*

- *Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.*
- *Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.*
- *Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.*
- *Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.*
- *Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation orcollection (after receiving a permit) of sites that may be lost.*
- *Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.*

*APPENDIX 4: PROCEDURE FOR CHANCE PALAEONTOLOGICAL FINDS*

*A basic chance finds Palaeontological Protocol is suggested as follows: The chance finds protocol to be included in the Environmental Management Programme (EMPr) for the proposed development project. Should substantial fossil remains be encountered at the surface or exposed during construction, the ECO should safeguard these, preferably in situ. The following protocol must be followed in the case of construction revealing newpalaeontological material, such as a big fossil find:*

- *The responsible officer (e.g. the ECO or contractor manager) shall inform a palaeontologist of major or unusual discoveries during excavation, found by the ContractorStaff.*
- *If a major in situ occurrence is exposed, the excavation will immediately cease in that area so that the discovery will not be disturbed or altered in any way until the designated specialist or scientists have had a reasonable opportunity to investigate the finding.*
- *If the palaeontologist is convinced that this is a major find, an inspection of the site must be scheduled assoon as possible in order to minimize delays to the development.*
- *From the site visit, the palaeontologist will make one of the following recommendations: o The material is of no value so development can proceed, or:*
  - *Fossil material is of some interest and a representative sample should be collectedand put aside for further study and to be incorporated into a recognized fossil repository after a permit was obtained from SAHRA for the removal of the fossils,after which the development may proceed, or:*
  - *The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed.*
- *If any fossils are found then a schedule of monitoring will be set up between the*



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*developer and palaeontologist in case of further discoveries.*

- *They should then alert the South African Heritage Resources Agency as soon as possible (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za).*

- *This is to ensure that appropriate action (i.e. recording, sampling or collection of fossils, recording of relevantgeological data) can be taken by a professional palaeontologist at the proponent's expense.*



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*APPENDIX 5: NHRA LEGISLATION IN DETAIL*

*The National Heritage Resources Act (NHRA) Act 25 0f 1999, according to the above-mentioned act, the following is protected as cultural heritage resources:*

a. *Archaeological artefacts, structures and sites older than 100 years*
b. *Ethnographic art objects (e.g. prehistoric rock art) and ethnography 6*
c. *Objects of decorative and visual arts*
d. *Military objects, structures and sites older than 75 years,*
e. *Historical objects, structures and sites are older than 60 years*
f. *Proclaimed heritage sites*
g. *Graveyards and graves older than 60 years*
h. *Meteorites and fossils*
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. *Sites of Archaeological and palaeontological importance*
g. *Graves and burial grounds*
h. *Sites of significance relating to the history of slavery*
i. *Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)*

*A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.*

*An Archaeological Impact Assessment (AIA) only looks at archaeological resources.*
*An HIA must be done under the following circumstances:*

a. *The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length.*
b. *The construction of a bridge or similar structure exceeding 50m in length*
c. *Any development or other activity that will change the character of a site and exceed 5000m2 or involve three or more existing erven or subdivisions thereof*
d. *Re-zoning of a site exceeding 10 000 m2*
e. *Any other category provided for in the regulations of SAHRA or*


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*a provincial heritage authority*

*Structures Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.*

- *A structure means any building, works, device or other facility made by people and which is fixed to land and includes any fixtures, fittings and equipment associated therewith.*
- *Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.*

*Archaeology, palaeontology and meteorites Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial)*

a. *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
b. *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
c. *trade-in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
d. *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.*
e. *alter or demolish any structure or part of a structure that is older than 60 years as protected. The above mentioned may only be disturbed or moved by an archaeologist ,after receiving a permit from the South African Heritage Resources Agency (SAHRA).*

*In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed. Human remains Graves and burial grounds are divided into the following:*

a. *ancestral graves*
b. *royal graves and graves of traditional leaders*
c. *graves of victims of conflict*
d. *graves designated by the Minister*
e. *historical graves and cemeteries*
f. *human remains*

*In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:*

a. *destroy, damage, alter, exhume or remove from its original position of 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 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; or*

c. *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals. Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations.*

*Exhumation of graves must conform to the standards set out in the Ordinance on Excavations (Ordinance no. 12of 1980) (replacing the old Transvaal Ordinance no. 7 of 1925).*

*Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.*

*Human remains can only be handled by a registered undertaker or an institution declared under the Human Tissues Act (Act 65 of 1983 as amended).*

1. *The National Environmental Management Act This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.*

2. *Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation‟s cultural heritage should be avoided as far as possible, and where this is not possible the disturbance should be minimized and remedied.*



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*APPENDIX 7: BURIAL GROUNDS, GRAVES MANAGEMENT AND DEVELOPMENT*

*Graves younger than 60 years are protected in terms of Section 2(1) of the Removal of Graves and Dead Bodies Ordinance 7 of 1925 as well as the Human Tissues Act 65 of 1983.*

*– Graves older than 60 years, situated outside a formal cemetery administered by Local Authority are protected in terms of Section 36 of the NHRA as well as the Human Tissues Act of 1983. Accordingly, such graves are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of NHRA) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation.*

*The protocol for the management of graves older than 60 years situated outside a formal cemetery administered by a local authority is detailed in Section 36 of the NHRA: (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 victims 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—*



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*(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.*

*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; and*



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*(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 essential 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.*

*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.*


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*(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 (3), 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 the 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*



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*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 their 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 they approve 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-enter the remains of that person in a prominent place in the capital of the Republic.*

***General Policy.***

*(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*



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*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 organizations' 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.*



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