heritage
management
consulting

LW CONSULTANTS: THE PROPOSED KLEIN TORQUAY PRA PROJECT, PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

HERITAGE SCOPING STUDY

Submitted subject to Section 38(3) and Section 38(8) of the NHRA

Prepared For:
Lindie Wiehahn
LW Consultants

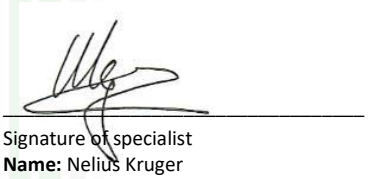
Project Name	Date	Version	Status
Klein Torquay PRA Project	10 November 2022	1.0	Draft

HERITAGE SCOPING STUDY (HS) OF DEMARACTED AREAS ON REMAINING EXTENT OF FARM KLEIN TORQUAY 249 FOR THE PROPOSED KLEIN TORQUAY PRA PROJECT IN THE PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

SPECIALIST DECLARATION OF INDEPENDENCE

I, Nelius Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Klein Torquay PRA Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, EC-PHRA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.



Signature of specialist
Name: Nelius Kruger
Date: 10 November 2022

The Heritage Consultant promotes the conservation of sensitive archaeological and heritage resources and uncompromisingly adheres to relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980). In order to ensure best practices and ethics in the examination, conservation and mitigation of archaeological and heritage resources, The Heritage Consultant follows the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment as set out by the South African Heritage Resources Agency (SAHRA) and the CRM section of the Association for South African Professional Archaeologists (ASAPA).

EXECUTIVE SUMMARY

This report details the results of a Heritage Scoping Study (HS) for the proposed Klein Torquay PRA Project on Remaining Extent of Farm Klein Torquay 249 west of Douglas in the Pixley ka Seme District Municipality, Northern Cape Province. The project entails the prospecting for diamonds within the boundaries of the project area which totals **638.44ha** in surface extent. The report includes background information on the area's archaeology, its representation in Southern Africa, and the history of the larger area under investigation. The HS considers sites such as archaeological and historical sites and features, graves and places of religious and cultural significance and considerations are made with regards to potential impact of the proposed project on heritage resources.

Project Title	Klein Torquay PRA Project
Project Type / Scope	Prospecting
Project Impact Footprint/s Area	**Proposed Prospecting Area:** 638.44ha
Project Location	S23.806775 E29.252986
1:50 000 Map Sheet	2923BD
Farm Portion / Parcel	Remaining Extent of Farm Klein Torquay 249
Magisterial District / Municipal Area	Pixley ka Seme District Municipality
Province	Northern Cape Province

The Northern Cape holds traces of various types of archaeological sites inclusive of fossil, prehistoric and historical sites. Of palaeontological and Stone Age significance is a major fossil-bearing and archaeological complex of karstic deposits in the escarpment of the Ghaap Plateau, around 100 km southwest of Taung. In addition, the ancient bedrock of the well-known Nooitgedacht Glacial Pavements, comprising a 300-million-year-old geological feature between Kimberley and Douglas, were utilized during the Later Stone Age period in the late Holocene as panels for rock engravings. Sites dating to the Iron Age occur in the north eastern part of the Northwest Province but environmental factors delegated that the spread of Iron Age farming westwards from the 17th century was constrained mainly to the area east of the Langeberg Mountains. However, evidence of an Iron Age presence as far as the Upington area in the eighteenth century occurs in the larger landscape area. Moving into recent times, the archaeological record reflects the development of a rich colonial frontier, characterised by, amongst others, a complex industrial archaeological landscape such as diamond prospecting developments along the Orange River and at Kimberley, which herald the modern era in South African history. Finally, the Northwest Province saw a number of war conflicts, particularly the Anglo Boer War (or the South African War) left behind the remnants of battlefields, skirmishes and concentration camps. Locally, the landscape around Klein Torquay is primarily well known for the occurrence of Stone Age and Colonial Period heritage. For example, the Canteen Kopje archaeological site located no more than 15km east of the project area, contains a long and exceptionally rich Earlier Stone Age sequence, spanning circa >0.5 to 1.7 million years as well as more recent archaeological levels in the overlying Hutton Sands, which contain material known as Fauresmith, Middle Stone Age, Later Stone Age, and late Iron Age with evidence of protocolonial/colonial contact and interaction.

Much of the project area seem to have been transformed by historical and recent agriculture and quarrying risking the sterilization of these zones of heritage remains. The synthesis of data in this report suggests a landscape which holds cultural heritage resources and it is possible that sensitive heritage receptors will occur

within the Klein Torquay Prospecting area. As such, there is a risk of potential direct / peripheral impact to heritage resources emanating from the project. In terms of the probability of site impact on the Klein Torquay farm portion, the following should be noted:

- In this area, deep Hutton Sands rest on decomposing dolerite and calcrete formations where Stone Age artefacts are known to occur in these dolerite and occasional calcrete patches. In addition, Stone Age remains associated with geo-morphological exposures along the Orange River, as well as rock outcrops and hills are known to exist in this area. Such zones and geomorphological exposures might prove sensitive in terms of the occurrence of stone artefacts and Earlier, Middle and Later Stone Age material.
- Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing as settlement areas and single hills and rock outcrops. Iron Age settlements are relatively scarce in this part of the Northern Cape Province and, cognizant of the nature of the landscape there is generally a low probability of impact to Iron Age occurrences.
- It is evident that the project area has been subjected to quarrying activities in past years and it is possible that sites and structures derived from early mining might occur in the project area and, if older than 60 years, such features are protected under the National Heritage Resource Act (NHRA 1999).
- A previous heritage assessment in the area noted glacial paving along the Orange River on other portions of Torquay 157 where a small remnant piece of rock showing striations was formed when glaziers covered large sections of the southern hemisphere. These Glacial Pavings might be of geological value.
- European farmers, settling in the area since the middle of the 19th century, divided up the landscape into a number of farms which form the framework for agricultural, residential and other forms of development in present day. A farmstead occurs on Klein Torquay and historical aerial photos indicate that the site is older than 60 years and generally protected under the National Heritage Resource Act (NHRA 1999). As such, the site is sensitive in terms of the heritage landscape.
- Burials might occur in association with the Klein Torquay farmstead and such resources are highly sensitive in terms of its social representation. Impact on burial sites should be avoided at all times.

As a general guideline and to reduce impacts on heritage resources to a minimum, the following recommendations should be considered in the planning, implementation and management phases of the Project:

- The project area falls within a moderate paleontologically sensitive zone and a Palaeontological Desktop Assessment (PDA) was commissioned for the proposed project. Cognisance should be taken of further recommendations included in the PDA Report.
- The synthesis of data in this report suggests a landscape which holds cultural heritage resources and a medium probability of occurrences of cultural heritage potential occurring in its surrounds exists. As such, there is a risk of potential impact to heritage resources emanating from the project.
- The term “Living Heritage” can broadly refer to a place of cultural heritage and sacred nature; with cultural attributions that are not generally physically manifested. Ritual and symbolic spaces and practices, and the material residues thereof convey an intangible cultural significance beyond the physical site or artefact, where the meaning of the ritual area speaks directly of a sense of place and lived experience. Such sites might occur on the Klein Torquay properties or its surroundings and due cognisance should be taken of these sites of “Living Heritage” in the cultural landscape.
- It is recommended that all graves and cemeteries that might occur in the project landscape be conserved and excluded from impact emanating from the development. Where impact on such resources would prove to be inevitable, the correct human remains repatriation procedures should be observed at all times. These procedures should include public notification of intent to relocate the remains, consultation with descendant communities, close liaison with - and approval from local futurities, adherence to any local laws and / bylaws and correct grave relocation methodologies.

- It is possible that groups, farmers and locals living in the area have occupied the region for many generations and have expressed long-term cultural associations with the region. Therefore, it is important to ascertain from these respondents whether there are any further undetected sites of cultural significance in the area to which they relate and / or attach cultural meaning.

It should be noted that this HS and site sensitivity included above are solely based on off-site desktop findings and the heritage sensitivity of the Klein Torquay properties remain tentative pending further detailed site inspection as part of the Heritage Impact Assessment (HIA) process, subject to section 38 of the National Heritage Resources Act (NHRA - Act 25 of 1999).

NOTATIONS AND TERMS/TERMINOLOGY

Absolute dating: Absolute dating provides specific dates or range of dates expressed in years.

Archaeological record: The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact: Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the Southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage: A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

Context: An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context,* disturbance or displacement by later ecological action or human activities occurred.

Cultural Heritage Resource: The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape: A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM): A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Feature: Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Lithic: Stone tools or waste from stone tool manufacturing found on archaeological sites.

Matrix: The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Midden: Refuse that accumulates in a concentrated heap.

Microlith: A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith: A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Phase 1 CRM Assessment: An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study: In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure: A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Provenience: Provenience is the 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 in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling: A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Scoping Assessment: The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Site (Archaeological): A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

Stratigraphy: This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Systematic Sampling: A probabilistic 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.

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.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 BACKGROUND

1.1 Scope and Project Brief

LW Consultants was commissioned by LW Consultants to conduct a Heritage Scoping Study (HS) study for the proposed Klein Torquay PRA Project in the Northern Cape Province. Keno C Diamonds (Pty) Ltd intends to embark on prospecting activities on Remaining Extent of Farm Klein Torquay 249 in the Northern Cape Province over an area which totals **638.44ha** in surface extent (refer to Figure 1-1).

Prospecting activities are designed to determining the gravel resource potential of the proposed application area. The prospecting activities will be a combination of both non-invasive and invasive methods. A suitable level of feasibility study (technical and economic evaluation) will also be undertaken. The initial prospecting activities will be non-invasive and restricted to a desktop study which included a literature survey, plus aerial photograph and satellite image interpretation, and ground validation of targets in the first year. Subsequent phases will be of the invasive-type, typically pitting, or trenching aimed at recovering suitably representative samples to determine grade and quality. The entire proposed prospecting project at Klein Torquay 249 – Remaining Extent, Herbert, will be conducted in four phases as described below over a period of 60 months. This prospecting will consist of non-invasive and invasive (Bulk Sampling) activities. The review of available information that exists over the area of interest will be undertaken by means of conducting a literature review from satellite images and other available.

- **PHASE 1**

Review of Past Exploration Results

In order to direct the exploration programme in an efficient manner, there will be a review of all information and data gathered during previous exploration. A site investigation of the target areas will be undertaken to identify infrastructure and determine any potential problems that may need to be addressed.

Imagery Analysis & Geological Mapping

High-resolution satellite images will be studied and used to geologically map the application area. Contacts between various lithologies will be mapped and specific attention will be given to delineate and define areas underlain by alluvial gravels.

- **PHASE 2**

RC-drilling – Drilling is done in phases, over anomalous target areas, using reconnaissance lines or a grid of 200m X 200m or 100m X 50m depending on the level of confidence in the targets and the level of information required. The holes will be approximately 5 metres deep depending on local depth to bedrock (It is envisaged that at least 300 holes will be drilled). If initial drilling proves that only Rooikoppie gravels exist on the property and gravels only go 1m or less deep, drilling will cease and pitting will continue.

- **PHASE 3**

Invasive Prospecting Pits

Invasive Prospecting Pits will be positioned also on a grid of 200m X 200m or 100m X 50 m.

- **PHASE 4**

Bulk Sampling

The rationale of this HS is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance on a desktop level; to consider the impact of the proposed project on such heritage resources, and to submit initial recommendations with regard

to the cultural resources management measures that may be required at affected sites / features. Ultimately, the process aims to identify significant heritage issues or constraints which may be encountered during project development. In addition, the study identifies relevant heritage mitigation and management actions in order to inform time frames, infrastructure options and possible "show stoppers".

1.2 Project Direction

Mr Neels Kruger acts as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA).

1.3 Project Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs should always include an assessment of heritage resources. The heritage component of the EIA 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 than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources.

Based hereon, this project **terms of reference for** heritage specialist input area**:**

- Provide a description of the heritage landscape of the project area in terms of cultural context and provenience by means of a detailed desktop background study;
- Provide a description of known and documented historical archaeological artefacts, structures (including graves) and settlements – if present - in the project area by means of a detailed desktop study;
- Compile the above into a broad heritage baseline for the project area and discuss the nature and degree of significance of this heritage bassline landscape;
- Provide a level of probability of site distribution and occurrence in the project area.
- Estimate the extent and severity of potential developmental impacts on the heritage landscape as a result of the planned development and associated actions;
- Drawing on findings from this desktop assent, guide the project planning in terms of potential heritage impact.
- Recommend further heritage assessment requirements for the project based on the heritage landscape and its estimated sensitivity.
- Provide an integrated Heritage Scoping Report complying to SAHRA's minimum standards for Heritage Impact Assessment Studies and Reporting and the National Heritage Resources Act, 1999.
- Provide a PDA Report, complying to SAHRA's minimum standards for Heritage Desktop Study Studies and Reporting and the National Heritage Resources Act, 1999.
- Liaise and consult with the relevant Heritage Resources Authority (Northern Cape-PHRA) with regards to the initial NID, the HIA process and review comments from the authority

APPLICANT: LIDINO TRADING

SKETCH PLAN PREPARED IN ACCORDANCE WITH REGULATION 2(2)

SKETCH PLAN FOR THE
APPLICATION FOR A PROSPECTING RIGHT IN TERMS OF SECTION 16 OF THE MPRDA, 2002

OVER THE AREA LETTERED A,B,C,D,E,F,G,H,I,J,K,L,M AND N
IN EXTENT OF 912.17 Ha
SITUATED
ON THE PORTION 1 AND REMAINDER OF THE FARM KLEIN TORQUAY 241,
IN THE MAGISTERIAL DISTRICT OF HERBERT,
PROVINCE: NORTHERN CAPE PROVINCE

SURVEY SYSTEM WGS 84
CO-ORDINATES: WG 25

Name	E	S
A	23.775787	-29.262465
B	23.785898	-29.257719
C	23.789329	-29.263164
D	23.793880	-29.263753
E	23.796758	-29.268613
F	23.802198	-29.268718
G	23.804089	-29.266291
H	23.806775	-29.252986
I	23.817095	-29.252986
J	23.806387	-29.286597
K	23.796777	-29.287632
L	23.788443	-29.288523
M	23.780348	-29.282200
N	23.777001	-29.273863

PLAN APPROVED ..... DATE .....

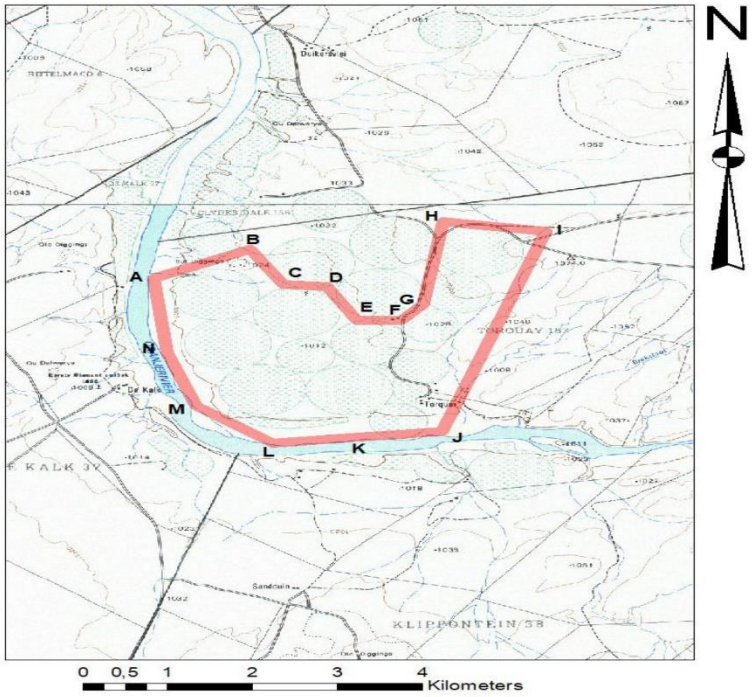
REGIONAL MANAGER, FREE STATE

DRAWN BY: ENGEDI MINERALS AND ENERGY (PTY) LTD
COMPILED BY: ENGEDI MINERALS AND ENERGY (PTY) LTD

COMPANY NAME: ENGEDI MINERALS AND ENERGY (PTY) LTD. (GEOLOGICAL , GIS & ENVIRONMETAL CONSULTANTS)

SIGNATURE 28 APRIL 2021 DATE

SKETCH PLAN OF THE PORTION 1 AND THE REMAINDER OF THE FARM KLEIN TORQUAY 249



Compiled by: ENGEDI MINERALS AND ENERGY (PTY) LTD 1

Figure 1-1: Project plan indicating the proposed prospecting extent subject to the Klein Torquay PRA Project.

2 LEGISLATIVE FRAMEWORK

2.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

2.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and its provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are 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
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites
g. Grave yards and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites of scientific or technological value.

In addition, the national estate includes the following:

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

With regards to activities and work on archaeological and heritage sites this Act states that:

"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-

(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 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)."

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;

(c) 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)."

b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves and burial grounds are commonly divided into the following subsets:

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

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 Ordinance on Excavations (Ordinance no. 12 of 1980) 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.

c. National Heritage Resources Act No 25 of 1999, Section 35

This act (Act 107 of 1998) 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. 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.

2.1.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact

assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

A detailed guideline of statutory terms and requirements is supplied in Addendum 1.

2.2 Rating of significance

The National Heritage Resources Act (Act no 25 of 1999) also stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- *Grade I:* Heritage resources with qualities so exceptional that they are of special national significance;
- *Grade II:* Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region;
- *Grade III:* Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, as set out in section 3(3) of the act.

Significance is influenced by the context and state of the archaeological site. Six criteria were considered following Kruger (2019):

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

The categories of significance were based on the above criteria the above and the grading system outlined in NHRA and summarised below:

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinternment [including 2a, 2b & 3]

3 REGIONAL CONTEXT

3.1 Area Location

The proposed Klein Torquay PRA Project occurs on Remaining Extent of Farm Klein Torquay 249 in the Pixley ka Seme District Municipality of the Northern Cape Province. The site is situated more or less 25km south of the town of Douglas. Kimberley occurs approximately 100km north-east of the study area. The Orange River flanks the project area to the south.

The study areas appear on 1:50000 map sheet 2923BD (see Figure 3-1), generally at the following coordinate:

Klein Torquay: S23.806775 E29.252986

3.2 Area Description: Receiving Environment

Douglas and its surrounds lay within the Savanna biome which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The environmental factors delimiting the biome are complex and include altitude, rainfall, geology and soil types, with rainfall being the major delimiting factor. Fire and grazing also keep the grassy layer dominant. The most recent classification of the area by Mucina & Rutherford shows that the site is classified as Ghaap Plateau Vaalbosveld. Van Schalwyk (2022) noted that the present Orange River between Douglas and Prieska displays a meandering channel morphology, best developed in areas underlain by the Dwyka Group. All the different fluvial terrace deposits are covered by Rooikoppie gravels, which represent mobile, multi-cycle deflation and gravitational deposits and/or elevated (inverted) fluvial deposits and preserved and recycled repeatedly from one successive land surface to the next. The area forms further part of the old Palaeo River Valley which flowed from north to south and the Vaal River. The country rocks are lavas of the Ventersdorp supergroup and remnants of the Dwyka Tillite and Shale. The anticipated deposits are situated in channels and are covered in calcrete in some places. The deposits normally consists of thick medium to coarse grained fluvial gravels of mixed lithological composition (Lava, Dolomite, Fe-shale, Chert, Quartzite, Agate, Quartz etc.). The Orange River occurs directly south of the project area.

3.3 Site Description

The project area on Klein Torquay seems to be largely transformed with evidence of extensive agriculture and quarrying visible across much of the project area. As such, the current land-use is mainly farming and agriculture similar to areas around the Orange River closer to Douglas. Neighboring farms are being used for livestock grazing, game farming as well as agriculture. The major land use of the study area as classified by the Environmental Potential Atlas of South Africa (2000) is vacant / unspecified land. There are no significant landscape features in the project area but the Orange River flows directly south of the project area from east to west.

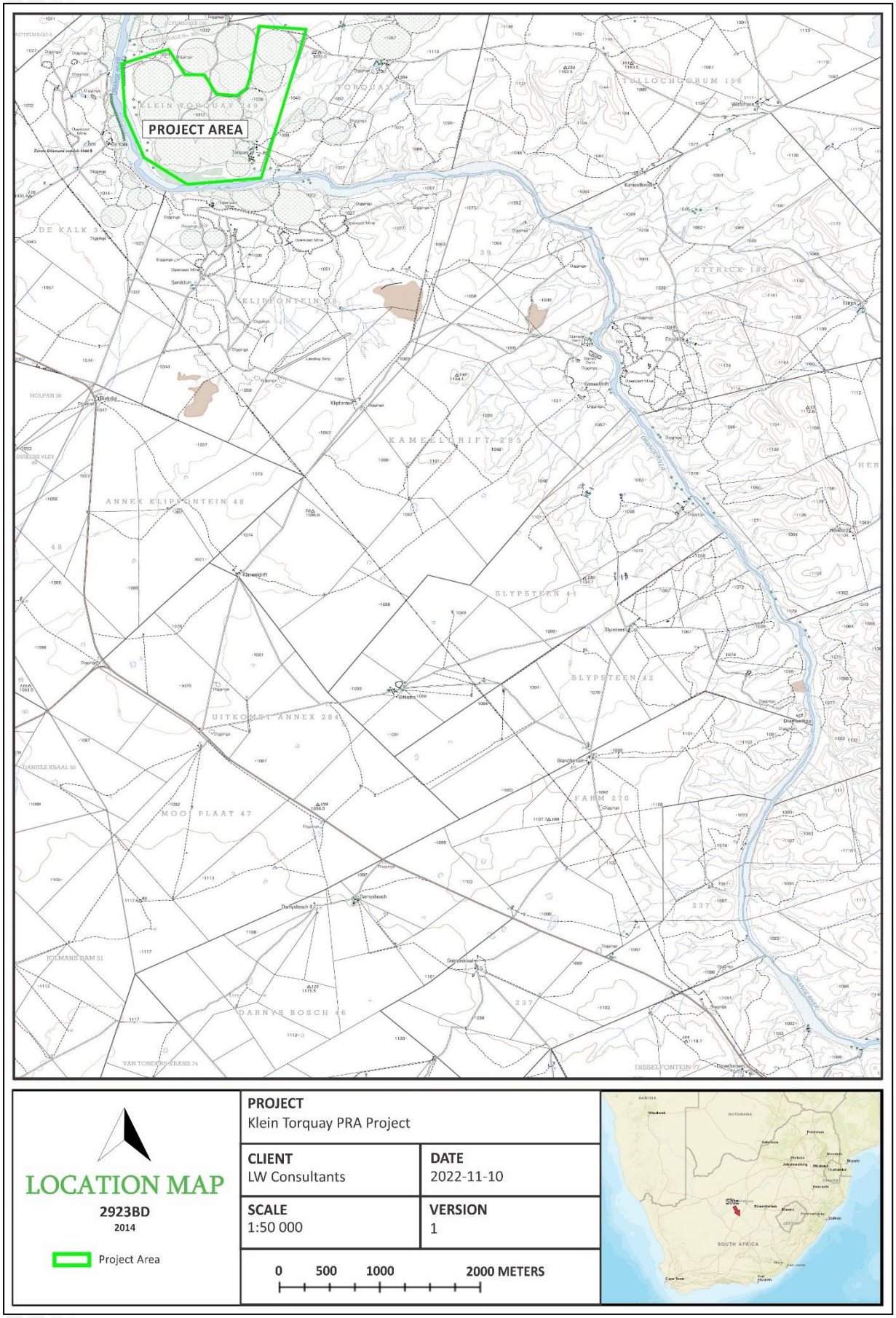


Figure 3-1: 1:50 00 Map representation of the location of the proposed Klein Torquay PRA Project (sheet 2923BD).

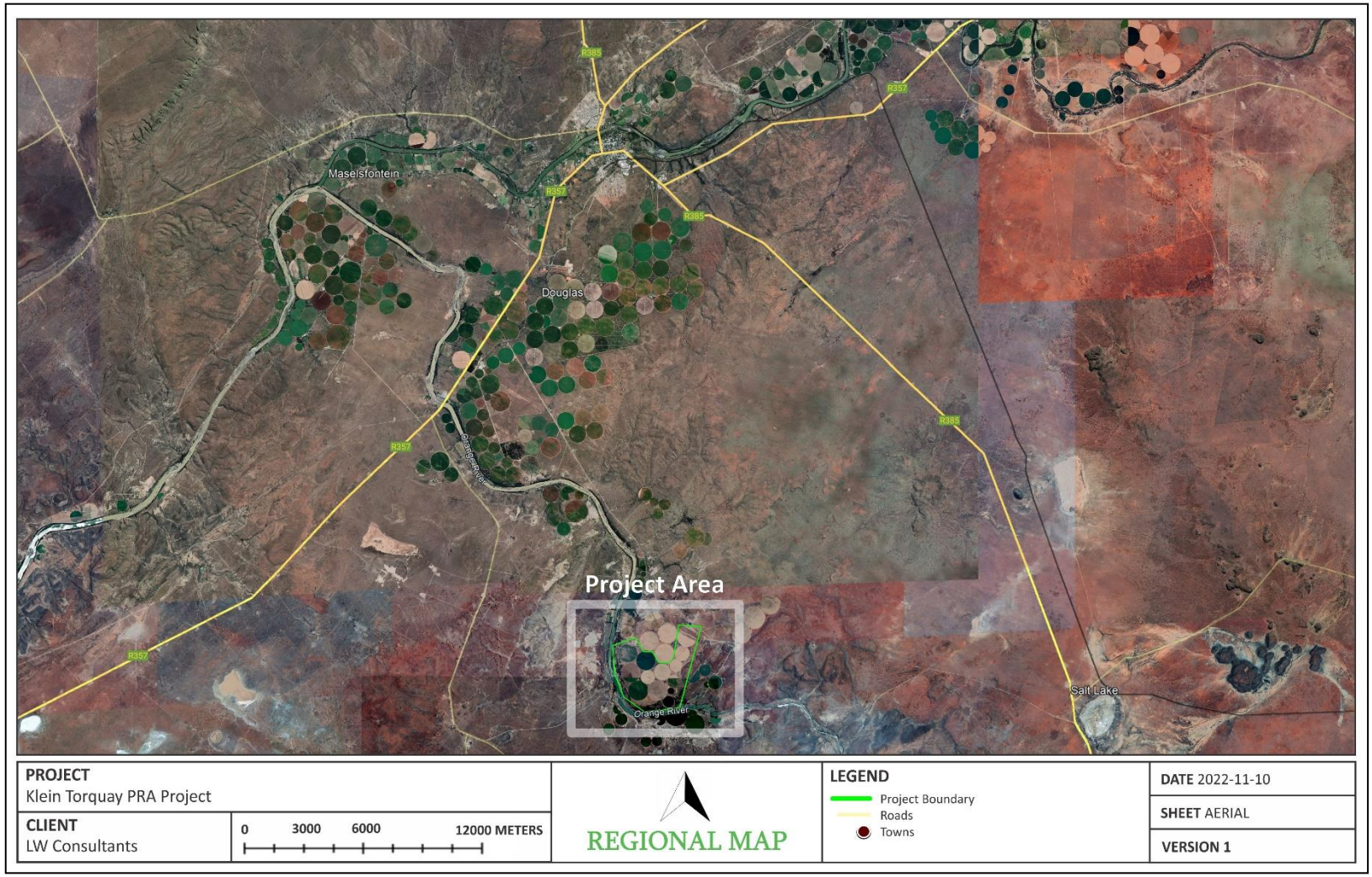


Figure 3-2: Aerial map providing a regional context for the proposed Klein Torquay PRA Project area.

4 METHOD OF ENQUIRY

4.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

4.1.1 Desktop Study

The larger landscape around Douglas has been relatively well documented in terms of its archaeology and history. A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies, archaeological and archival sources, aerial photographs, historical maps and local histories, all pertaining to the project area and the larger landscape of this section of the Northern Cape Province.

A number of Cultural Resources Management (CRM) projects have been conducted in the Douglas area and of particular reference is a Phase 1 Cultural Heritage Impact Assessment for the proposed prospecting right combined with a waste licence application for the prospecting of diamonds alluvial, diamonds general, diamonds in kimberlite and diamonds near Douglas on Portion 4 of the farm Stratford 154 and Portion 2 of the Farm Torquay 157 (Van Schalkwyk 2022)1. Many other studies, captured on the South African Heritage Resources Information System (SAHRIS), were conducted for prospecting and mining right applications. Some of the studies include:

- Beaumont, P.B. 2002. Archaeological Report: Construction of a Temporary Bridge across the Vaal River at Windsorton, Erf 1, for Floodplain (Island) Diamond Reclamation.
- Beaumont, P.B. 2005a. Archaeological Impact Assessment of a Portion of the Remnant of Farm 225, near Barkly West, Northern Cape.
- Beaumont, P.B. 2005b. Archaeological Impact Assessment of a Portion of the Delportshoop Commonage, Northern Cape.
- Beaumont, P.B. 2006. Phase 1 Heritage Assessment Report on Portion 4 of the Farm Slypklip North 32, Frances Baard District Municipality, Northern Cape Province.
- Beaumont, P.B. 2007a. Phase 1 Heritage Impact Assessment Report on Parts of Portion 2 and the Remainder of the Farm Holsdam 229 near Barkly West, Frances Baard District Municipality, Northern Cape Province.
- Beaumont, P.B. 2007b. Phase 1 Heritage Impact Assessment Report on the Farm Eureka 200 near Kimberley, Francis Baard District Municipality, Northern Cape Province.
- Beaumont, P.B. 2008. Phase 1 Heritage Impact Assessment Report on the Proposed Northgate Housing development on Portions of the Original Farm Roode Pan 70, near Kimberley in the Sol Plaatjie Municipality of the Northern Cape Province.
- Dreyer, C.2003. Archaeological and Historical Investigation of the Proposed Pipeline Installed at Hanover, Northern Cape.
- Dreyer, C. 2005a. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Riverside 208, Barkly West, Northern Cape.
- Dreyer, C. 2005b. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farms Melkvlei 221 and Longlands 231, Barkly West, Northern Cape.
- Dreyer, C. 2005c. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Development on Erven 687 and 711, Barkly West, Northern Cape.

[1] Van Schalkwyk, J. A . 2022. Phase 1 Cultural Heritage Impact Assessment: The proposed prospecting right combined with a waste licence application for the prospecting of diamonds alluvial, diamonds general, diamonds in kimberlite and diamonds near Douglas on Portion 4 of the farm Stratford 154 and Portion 2 of the Farm Torquay 157, Northern Cape Province

- Dreyer, C. 2006a. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Developments at the Big Hole, Kimberley, Northern Cape.
- Dreyer, C. 2006b. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Winter's Rush (Longlands 350), Barkly West, Northern Cape.
- Dreyer, C. 2006c. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Holpan 161, Barkly West, Northern Cape.
- Dreyer, C. 2008. Archaeological and Culture Historical Assessment of the proposed Residential Developments at Kimberley, Northern Cape.
- Henderson, Z.L. 2003. Archaeological Survey of Van Aswegenshoek 134.
- Morris, D. 2001. Report on Historical Rubbish Midden at Kamfersdam.
- Morris, D. 2002. Report on an Inspection of Cemeteries at Sydney-on-Vaal.
- Morris, D. 2003a. Archaeological Survey of the Farm Koodoosberg No 141.
- Morris, D. 2003b. Archaeological Impact Assessment Rietputs 15, Windsorton.
- Morris, D. 2005a. Phase 1 Archaeological Impact Assessment of the so-called 'Kemo Dump' (National Site Number 2824DB039) on Remainder of Erf 5024, Erf 6376 and Erf 5058, Vooruitzight 81, Kimberley, Northern Cape.
- Morris, D. 2005b. Site Visit to Inspect Cultural Material on the Mine Debris Dumps adjacent to the Kimberley Mine at the Site of the Proposed Hotel.
- Morris, D. 2005c. Phase 1 Archaeological Impact Assessment for De Beers Consolidated Mines Ltd (Contract 0616-AC-244-05) to evaluate Heritage Resources on properties as Indicated.
- Morris, D. 2005d. Archaeological Impact Assessment of Abrahamoos Fontein near Plooysburg, Northern Cape
- Morris, D. 2005e. Archaeological Impact Assessment at Taaibosch Fontein near Plooysburg, Northern Cape.
- Morris, D. 2005f. Archaeological Impact Assessment on the Claim of Mr. Medwyn Jacobs, Erf 86, near Barkley West.
- Morris, D. 2005g. Archaeological Impact Assessment on Windsorton, Erf 1, Northern Cape.
- Morris, D. 2006a. Report on a Phase 1 Archaeological Impact Assessment of a Proposed Clay Quarry at Roodepan 70, Kimberley, Northern Cape, NC30/5/1/3/3/2/1/358EM.
- Morris, D.2006b. Site Visit to Inspect an Area of Proposed Debris Washing along Kenilworth Road, on Erven 14741, in the Magisterial District of Kimberley.
- Morris, D. 2006c. Report on a Phase 1 Archaeological Impact Assessment of Proposed Prospecting on Uitkyk 106, Locks Verdriet 105 and Brakpan 107, West of Kimberley, Northern Cape.
- Morris, D. 2006d. Archaeological and Heritage Impact Assessment on Portion 20 Mosesberg, near Schmidtsdrift, Northern Cape.
- Morris, D. 2006e. Archaeological Impact Assessment on the Claim of Mr. Setlhabi at Waldeck's Plant, Pniel, near Barkley West, Northern Cape.
- Morris, D. 2007. Archaeological Impact Assessment at Longlands 350 near Barkly West, Northern Cape: Collective Application List of E. Nyanyiwa.
- Morris, D. 2009. Report on a Phase 1Archaeological Assessment of a proposed mining site at the Eddie Williams Oval, Kimberley, Northern Cape.
- Nel, J. (Archaic Heritage Project Management). 2008. Final Report: Heritage Resources Scoping and Preliminary Assessment. Transnet Freight Line EIA, Eastern Cape and Northern Cape.
- Nelson, C.2007. Upgrading of the TR502 Road, Barkly West Magisterial District, Northern Cape Province.
- Rossouw, L. 2006. A Preliminary Evaluation of Archaeological and Palaeontological Impact with regard to the Application for Prospecting Rights on the Farms Doornfontein 12, Grasbult

5, Schoolplaats 3, Schoolplaats Annex 4 and Pontdrift 2 in the Warrenton District, Northern Cape.

- Rossouw, L. (National Museum, Bloemfontein). 2008. Phase 1 Archaeological Impact Assessment of Farm Fourteen Streams, Warrenton District, Northern Cape Province.
- Van Ryneveld, K. 2005a. Cultural Resources Management Impact Assessment: Portion 1 of Roode Pan 146, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005b. Cultural Resources Management Impact Assessment: Portions of Paardeberg 154, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005c. Cultural Resources Management Impact Assessment: (Portions of) Leeuwpoort 161, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005d. Cultural Resources Management Impact Assessment: (Portions of) Paardeberg 12, Paardeberg-East, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005e. Cultural Resources Management Impact Assessment: Rooipoort – (Portions of) Klipfontein 99, Berg Plaats 100, Vogelstruispan 98, Vogelstruispan 101 and Zand Plaas 102, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005f. Cultural Heritage Impact Assessment: (Southern Portion of) Camp 3, Erf 1, Windsorton, Barkly West District, Northern Cape, South Africa.
- Van Ryneveld, K. 2006a. Stamper Claim on a Portion of the Farm Longlands, Barkly West, Northern Cape, South Africa.
- Van Ryneveld, K. 2006c. Cultural Resources Management Impact Assessment:A 400ha Portion of Van Zoelen's Laagte 158, Windsorton District, Northern Cape, South Africa.
- Van Ryneveld, K. 2007b. Proposed Phase 2 Archaeological Mitigation and Management for the Residential Development, Remainder of Portion 1 of the Farm van Zoelen's Laagte 158, Windsorton, Barkly-West District, Northern Cape, South Africa.
- Van Ryneveld, K. . 2007c. Phase 1 Archaeological Impact Assessment – Sewer Purification Plant, Ikutseng Township, Warrenton, Northern Cape, South Africa.
- Van Ryneveld, K. . 2007d. Phase 1 Archaeological Impact Assessment: Portion of the farm Platfontein 68, Kimberley District, Northern Cape, South Africa.
- Van Schalkwyk, J.A. 2008. Heritage Impact Survey Report for the Development of Visitor Facilities in the Makala National Park, Northern Cape Province.

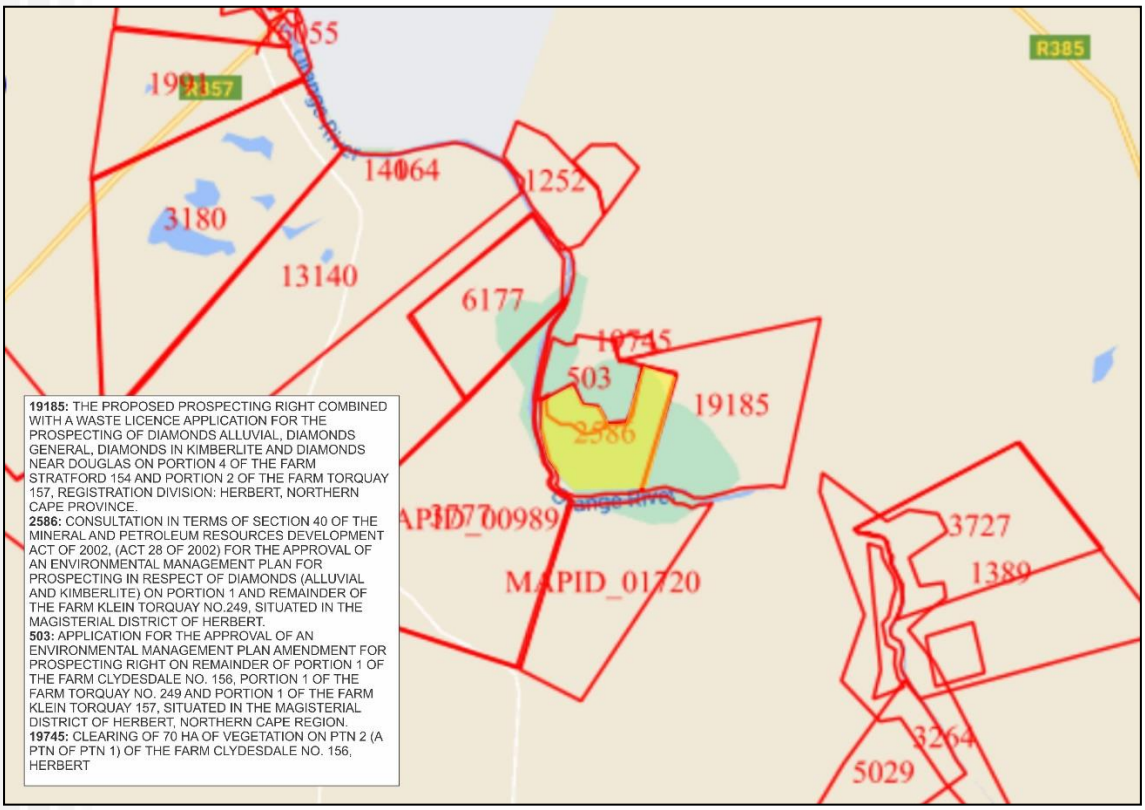


Figure 4-1: SAHRIS Map of the project area indicating current commercial projects and environmental applications lodged in the project area.

4.1.2 Remote Sensing

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. The site assessment of the project area relied heavily on this method to assist the challenging foot site survey. Here, depressions, variation in vegetation, soil marks and landmarks were examined and specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. In addition, historical aerial photos obtained during the archival search were scrutinized and features that were regarded as important in terms of heritage value were identified. By superimposing high frequency aerial photographs with images generated with Google Earth as well as historical aerial imagery, potential sensitive areas were subsequently identified and geo-referenced.

4.1.3 Map Data

Similar to the aerial survey, the assessment of the project area relied heavily on archive and more recent map renderings of the Douglas area to assist in the potential identification of heritage sites, where historical and current maps of the project area were examined. By merging data obtained from the desktop study and the aerial survey, sites and areas of possible heritage potential were plotted on these maps of the larger Douglas area using GIS software. These maps were then superimposed on high-definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes.

4.2 Limitations

The main limitation of this Scoping Study is the fact that it was undertaken at a desktop level, employing

secondary information and data generated through off-site methods (e.g. aerial survey, literature review). As such, the study merely infers a level of probability of the presence of cultural, historical, or archaeological sites of significance. In this instance, detailed field assessments would have to be required once impact areas have been established in order to confirm the presence of sites of significance.

As this study was conducted on desktop level only, it should be noted that the findings are not a complete representation of the heritage landscape of the project area as the possibility exists that individual sites could be missed due to the sometimes inaccurate and often subjective nature of desktop data. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

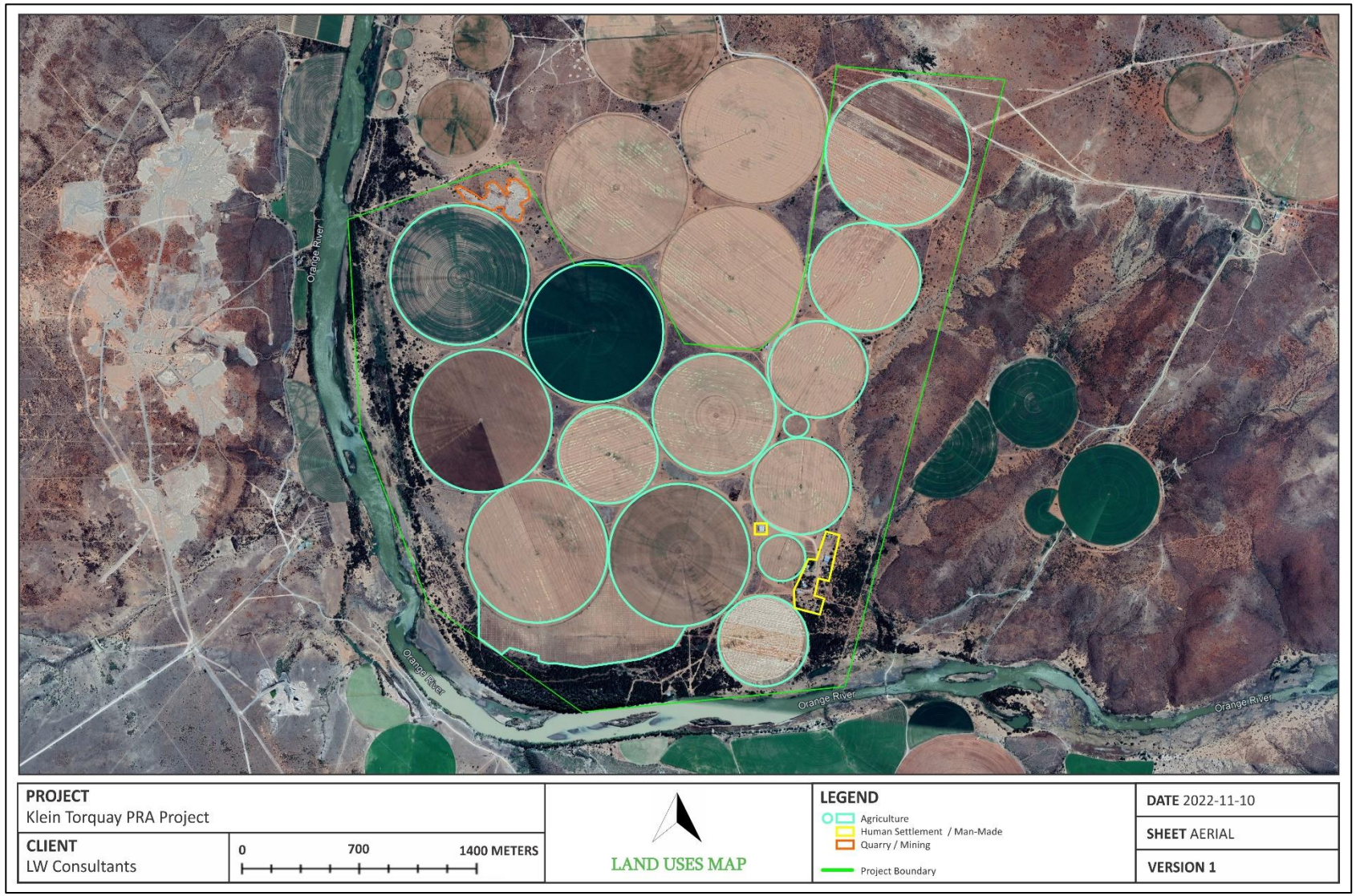


Figure 4-2: Aerial image indicating existing land uses identified from the image, for the Klein Torquay landscape.

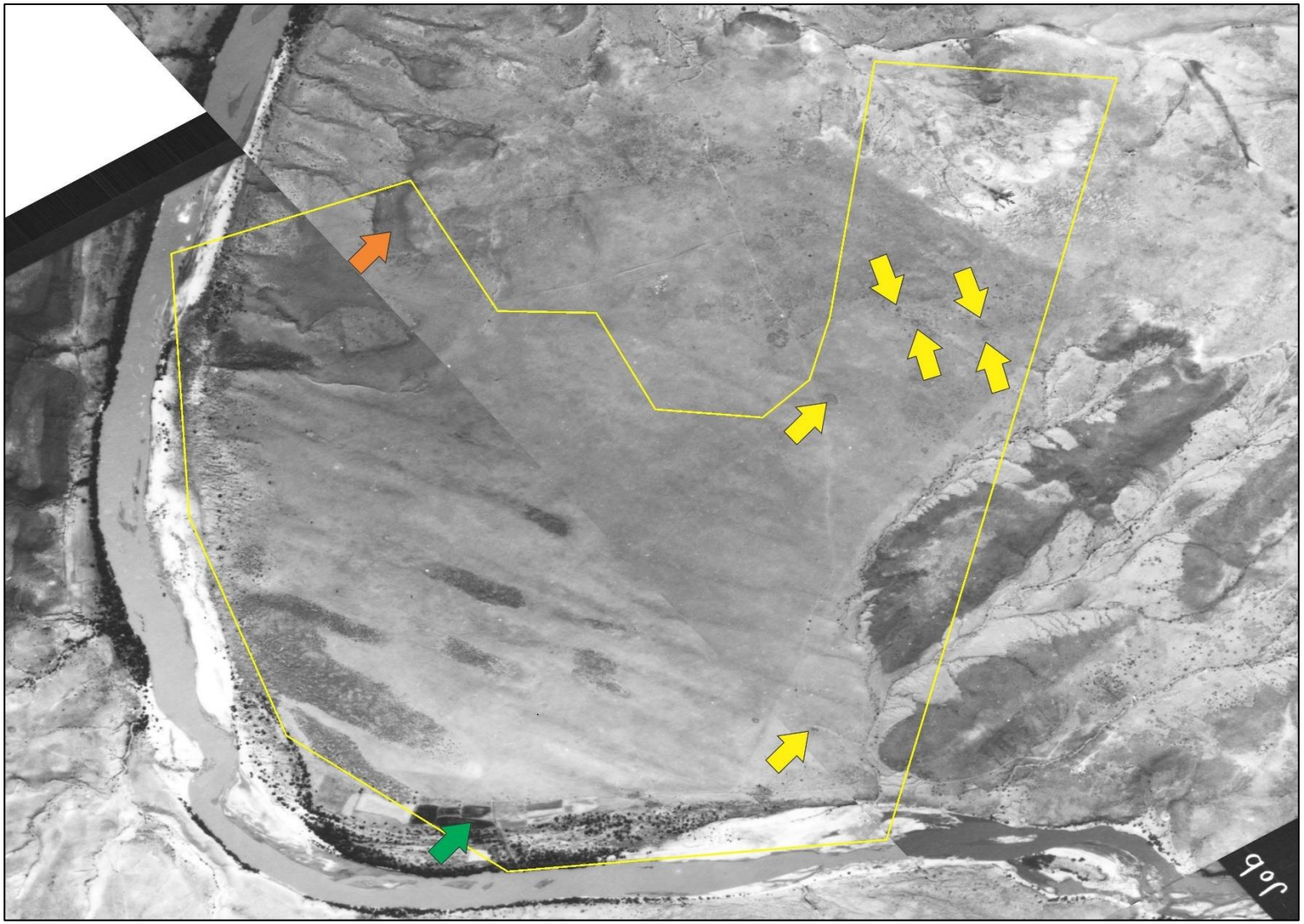


Figure 4-3: Historical aerial imagery dating to 1957 indicating the application area (yellow outline) within the historical landscape over the past century. A farmsteads and potential man-made structures are indicated with the yellow arrows, the green arrow indicates agricultural lands and a quarry is indicated with the orange arrow.

Figure 4-4: Historical aerial imagery dating to 1976 indicating the application area (yellow outline) within the historical landscape over the past century. A farmsteads and potential man-made structures are indicated with the yellow arrows, the green arrow indicates agricultural lands and a quarry is indicated with the orange arrow.

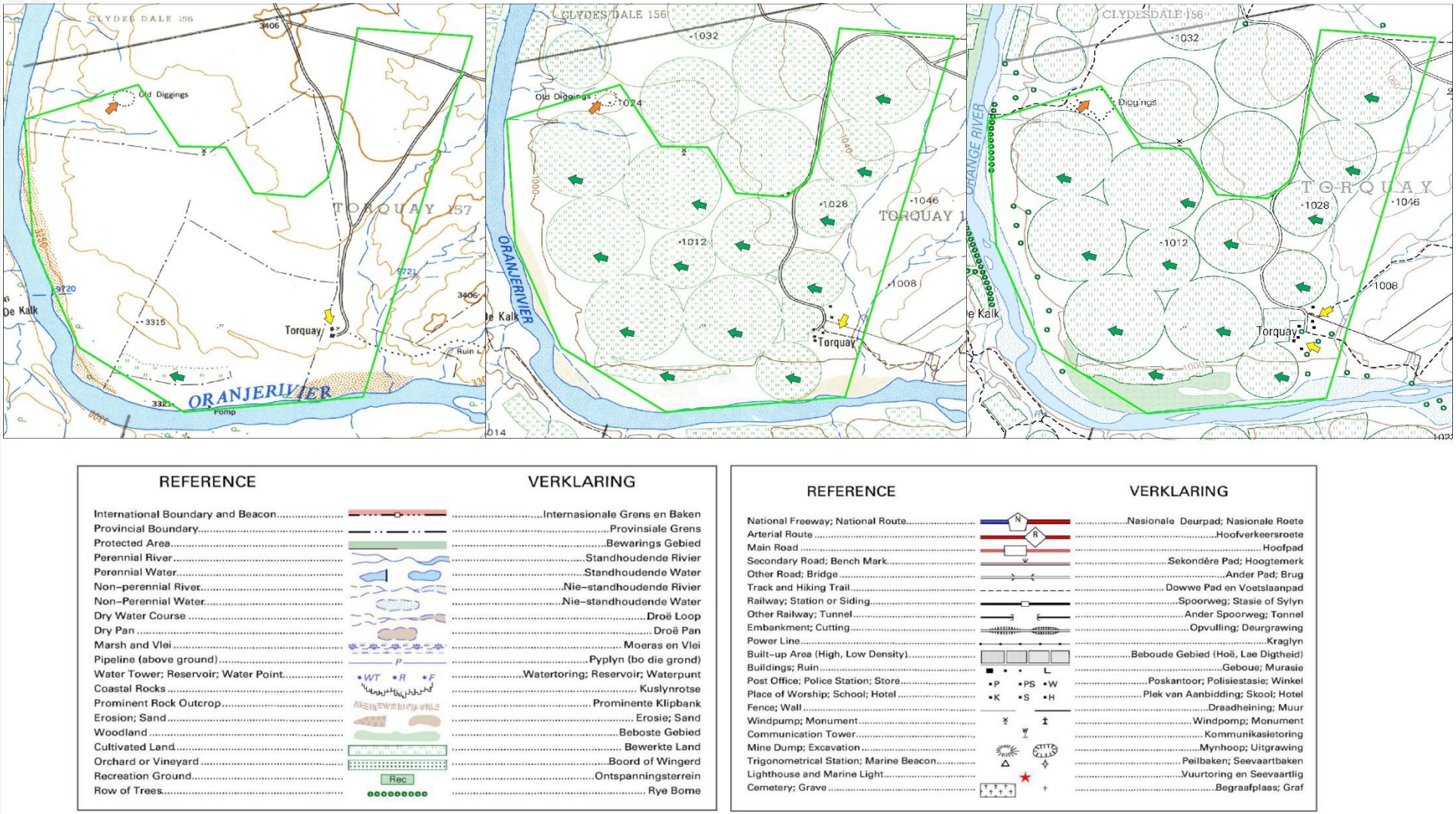


Figure 4-5: A series of historical topographic maps dating to 1964 (left), 1983 (centre) and 2004 (right) indicating the prospecting area (green outline) within the historical landscape. The farmsteads and potential man-made structures are indicated with the yellow arrows, the green arrow indicates agricultural lands and a quarry is indicated with the orange arrow.

Figure 4-5: Map Griqualand, dating 1900, showing the project area on Torquay (yellow outline) (Field Intelligence Department).

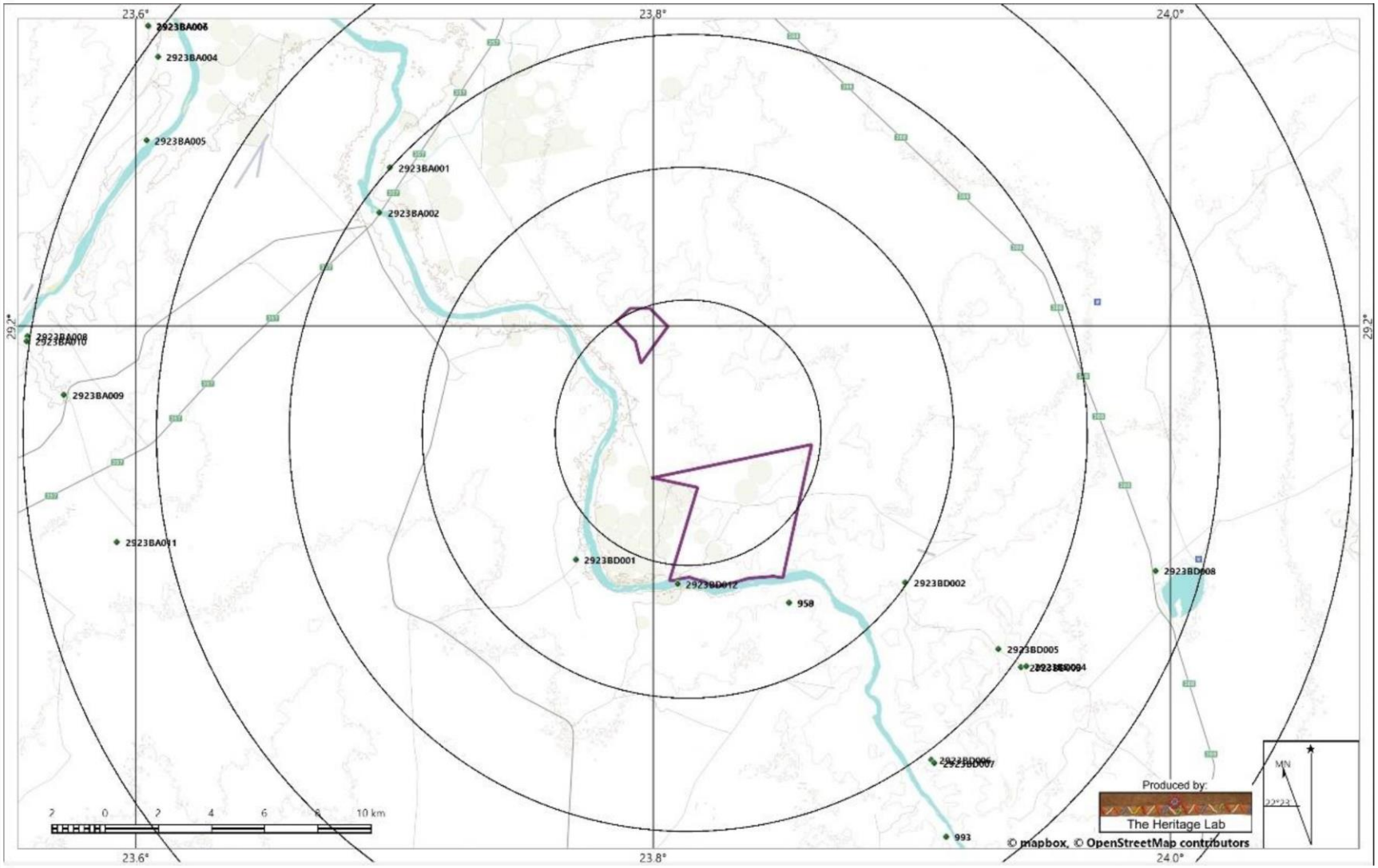


Figure 4-5: Location of known heritage sites and features in relation to the project area noted by Van Schalkwyk (2022).

5 ARCHAEO-HISTORICAL CONTEXT

5.1 The archaeology of Southern Africa

Archaeology in Southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

Table 1 Chronological Periods across Southern Africa

.	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: *Australopithecines* *Homo habilis* *Homo erectus*	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens sapiens* including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

5.2 Discussion: The Douglas Heritage Landscape

The 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 river beds. Sites dating to the Iron Age occur in the north eastern part of the Province but environmental factors delegated that the spread of Iron Age farming westwards from the 17th century was constrained mainly to the area east of the Langeberg Mountains. However, evidence of an Iron Age presence as far as the Upington area in the eighteenth century occurs in this area. Moving into recent times, the archaeological record reflects the development of a rich colonial frontier, characterised by, amongst others, a complex industrial archaeological landscape such as mining developments at Kimberley, which herald the modern era in South African history. Finally, the Northern Cape Province saw a number of war conflicts, particularly the Anglo

Boer War (or the South African War) left behind the remnants of battlefields, skirmishes and concentration camps.

5.2.1 Palaeontology & Early History

Palaeontological assessments on areas around Kuruman note that the area is underlain by rocks older than 1000 million years, which makes them too old to contain hard-bodied fossils (e.g Beaumont 2009). This overburden consists mainly of un-fossiliferous Kalahari sand, which is relatively recent in geological age. An indurated calcareous layer frequently occurs at the interface of the sandy overburden and the rock beneath. This layer may contain fossil remains in more suitable localities, although none have been reported from such contexts in this area.

5.2.2 Early History and the Stone Ages

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and *Homo habilis* have been found in dolomite caves and underground dwellings in the Riverton Area at places such as Sterkfontein and Swartkrans near Krugersdorp. Homo habilis, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles. The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with *Homo erectus*, who manufactured hand axes and cleavers from as early as one and a half million years ago. Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Orange River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and point s that may have had long wooden sticks as hafts and were used as spears. The Stone Age archaeological wealth of the Northern Cape is unequalled by any of the other provinces in South Africa. Stone Age sites are not randomly scattered within the landscape and they occur either near water sources or close to local sources of two highly-prized raw materials, specularite and jaspilite. As such, tools dating to all phases of the Stone Age are mostly found in the vicinity of larger watercourses.

Figure 5-1: Early Stone Age (Acheulian) handaxe from the Kathu Pan site (http://www.museumsnc.co.za).

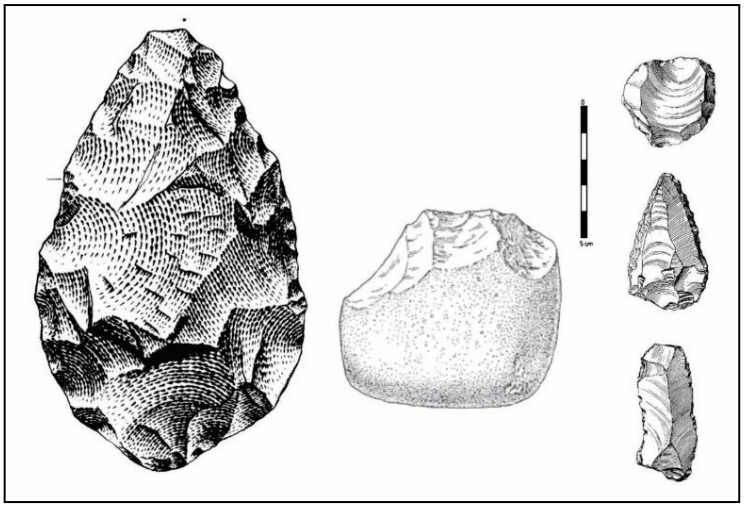


Figure 5-2: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

The Northern Cape has traces of various types of archaeological sites inclusive of fossil, prehistoric and historical sites. Of palaeontological and Stone Age significance is a major fossil-bearing and archaeological complex of karstic deposits at Groot Kloof in the escarpment of the Ghaap Plateau, around 100 km southwest of Taung. The region is known for open fluvial and lacustrine sites sampling Lower and Middle Pleistocene tool types and the long, but discontinuous sequence of Wonderwerk Cave. Small pockets of Later Stone Age artefact-bearing breccia and rock art also occur. The significance of Groot Kloof is underscored by current debate about the emergence of modern humans in which the appearance of modern behaviour is posited to have occurred in this and other regions (Curnoe et al. 2005). In addition, the glacially scoured (smoothed and striated) ancient bedrock of the well-known Nooitgedacht Glacial Pavements, comprising a 300 million year old geological feature between Kimberley and Douglas, were utilized during the Later Stone Age period in the late Holocene as panels for rock engravings. In his Phase 1 Cultural Heritage Impact Assessment on the adjacent farm Stratford 154 and Portion 2 of the Farm Torquay 157, Van Schalkwyk (2022) encountered small remnant piece of rock showing striations cause when glaziers covered large sections of the southern hemisphere. He noted that it can probably be linked in time to the same type of rock found a short distance to the west of Douglas.

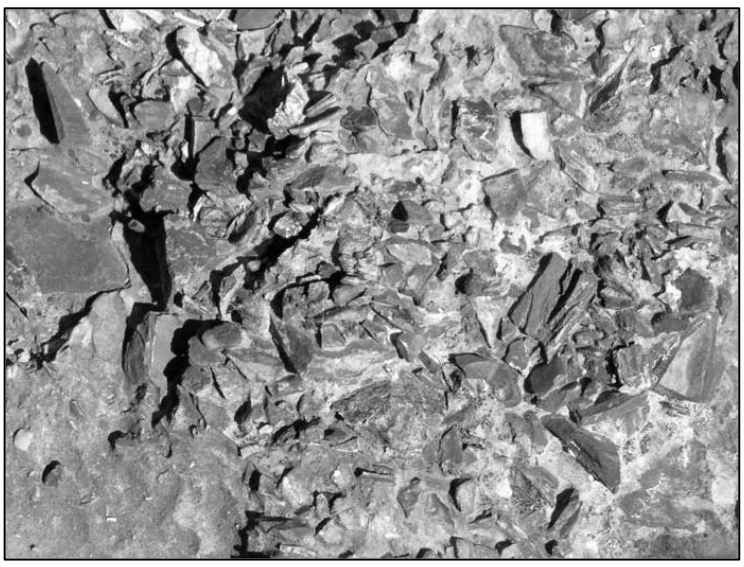


Figure 5-3: Intrusive breccia containing a Late Stone Age industry. Note the high density of lithics.

Figure 5-4: Glacial paving noted by Van Schalkwyk (2022) on Torquay.

The Stone Age archaeological wealth of the Northern Cape is unequalled by any of the other provinces in South Africa. Stone Age sites are not randomly scattered within the landscape and they occur either near water sources or close to local sources of two highly-prized raw materials, specularite and jaspilite. As such, tools dating to all phases of the Stone Age are mostly found in the vicinity of larger watercourses. Surveys around Kimberley have documented Acheullian industries and continuity between Earlier Stone Age (ESA) and Middle Stone Age (MSA) lithic technologies in the same area. Excavations at other well-known sites in the wider region attest to further ESA and MSA occupation, some of which have yielded have yielded significant Stone Age assemblages that all inform on our general understanding of the technological sequences of the Stone Age in the Northern Cape and the Northwest (e.g. see Beaumont 2008, 2009; Morris 2006; Morris 2007; Dreyer 2007). Within the greater Kimberley region ESA and MSA sites with long research histories include Doornlaagte, Pniel, Canteen Koppie and Rooidam (Beaumont & Morris 1990). Open air ESA and MSA sites are often associated with raw material outcrops, dolines, playas (palaeo-lakes) and palaeo-river channels. In addition low density ESA, MSA and Later Stone Age (LSA) occurrences remain regular phenomena characterizing the cultural landscape of the region. LSA use of the more immediate region is most prominently evidenced by the Wildebeest Kuil Rock Art Center and adjoining Rock Art site (see later reference) . Here, a number of lithic artefacts with spatial distribution indicative of separate residential and knapping areas occur around the hill. Of note around Barkly West and Delportshoop is the Canteen Kopje Earlier Stone Age situated outside Barkly West. The rich Stone Age site is a Provincial Heritage Site which has yielded an as yet unpublished basal date of some 2.3 million years, making the site one of the oldest in South Africa. In 2016 the site became threatened by mining after the Department of Minerals and Energy issued a permit for part of the site to be mined. In his Phase 1 Cultural Heritage Impact Assessment, Van Schalkwyk (2022) encountered large numbers of stone tools dating to the MSA were on the edge of a ridge and he classified the tools as points and scrapers and other others were noted to be indistinct.

Figure 5-5: MSA Lithics noted by Van Schalkwyk (2022) on the farm Stratford adjacent to Torquay.

Figure 5-6: MSA Lithics noted by Van Schalkwyk (2022) on the farm Stratford adjacent to Torquay.

It is important to note a concern raised by Morris (2014: unpaged) that a "consistent issue in the assessment of the presence or absence of archaeological deposits in and around Kathu … is the fact that the landscape is often capped by (1) calcrete (not uniformly ancient – Walker et al 2013) and (2) younger Gordonia Formation Aeolian sands (Almond 2014)". That subsurface archaeological remains may occur under overlying soils and calcretes should be taken into account when archaeological and heritage surveys are undertaken.

5.2.3 The Later Stone Age (LSA) and Rock Art

The Late Stone Age commenced twenty thousand years ago or somewhat earlier. The various types of Later Stone Age industries scattered across the country are associated with the historical San and Khoi-Khoi people. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi herded cattle and small stock during the last two thousand years. Late Stone Age people manufactured tools that were small but highly effective, such as arrow heads and knives. Later Stone Age (LSA) sites occur both at the coast and inland as caves deposits, rock shelters, open sites and shell deposits. Rock engravings are mostly found in the interior plateau of South Africa for example in Kimberley and the Karoo. Evidence exists of rock art paintings occurring in caves and shelters at the Wonderwerk Caves, Kuruman Hills, Ghaap Escarpment and scattered sites in the Karoo. Rock engravings have also been identified at Driekopseiland that is positioned in the close vicinity of Kimberley Town. Driekopseiland is evident of more than ninety percent of geometric engraving sites (Morris 1988). Geometrics have been identified at the Kuruman valley and the middle Orange area (Morris 1988). Engravings tend to be found at rock walls, low outcrops, or clusters of surface stone. The Wildebeest Kuil 1 Rock Art site, a declared Provincial Heritage Site (2008), is characterized by a fairly prominent hill surrounded by a number of 'kuils' or non-perennial water holes and wetlands. The hill itself is host to more than 400 petroglyphs, including both naturalistic and abstract engravings, in fine-line and pecked technique. LSA deposits are scattered about the immediate terrain with deposits closer to the hill indicative of residential outlines and activity or knapping areas. Extensive LSA use of the landscape is evidenced by even more engravings on the glacial pavements of the farm Nooitgedacht, just north of Platfontein. Further afield the Driekopseiland site, one of the most prolific engraving sites in the country is host to more than 3,600 images, engraved into the glaciated andesite of the Riet River's banks (Morris 1990a). Closer to the Vaal River, at the Bushmans' Fountain site, Klipfontein, more than 4,500 engravings have been recorded across the approximate 9ha site (Morris 1990b). The many petroglyph sites across the Northern Cape signal an aesthetic and spiritual expression of a modern LSA cognition. The LSA archaeological record is directly associated with San history, dating conservatively back to around 40-27kya, whilst the Khoe is reported to have entered the country around 2kya (Mitchell 2002). Both groups are known to have traded with Later Iron Age communities and Colonial settlers.

5.2.4 Rock Art and the Wildebeest Kuil Rock Art Center

Rock engravings are mostly situated in the semi-arid plateau with most of these engravings situated at the Orange – Vaal basin, Karoo and Namibia. The upper Vaal, Limpopo basin and eastern Free State regions have a small quantity of rock engravings as well. Generally, rock paintings exist at cave areas and rock engravings at open surface areas. The Cape interior consists of a technical, formal and thematic variation between and within sites (Morris 1988). Two major techniques existed namely the incised and pecked engravings. Morris (1988) indicated technical and formal characteristics through space and a sharp contrast exists between engravings positioned north of the Orange River that are mostly pecked and those in the Karoo where scraping was mostly used. According to Morris (1988) hairline engravings occur at the North and the South, but they are rare at the Vryburg region. Finger painting techniques mostly occur at the Kuruman Hills, Asbestos Mountains, Ghaap Escarpment, Langeberg, Koranaberg ranges, scattered sites at the Karoo and the Kareeberge (Morris 1988). The development petroglyphs (i.e. carving or line drawing on rock) were associated with three different types of techniques, namely incised fine lines, pecked engravings and scraped engravings. According to Peter Beaumont the pecked and scraped engravings at the Upper Karoo are coeval (i.e. having the same age or date of origin) (Beaumont P B et al. 1989). Dating of rock art includes the use of carbonate fraction dating of ostrich eggshell pieces, dating of charcoal and ostrich eggshell at various rock art shelters. Unifacial points, double segments and thin – walled sherds may indicate the presence of the Khoikhoi at the Northern Cape during 2500 BP (years Before the Present) (Beaumont 1989).

Figure 5-7: Petroglyphs at the Wildebeest Kuil 1 Rock Art site.

The Wildebeest Kuil 1 Rock Art site, a declared Provincial Heritage Site (2008), is characterized by a fairly prominent hill surrounded by a number of 'kuils' or non-perennial water holes and wetlands. The hill itself is host to more than 400 petroglyphs, including both naturalistic and abstract engravings, in fine-line and pecked technique. Later Stone Age (LSA) deposits are scattered about the immediate terrain with deposits closer to the hill indicative of residential outlines and activity or knapping area. The Wildebeest Kuil Rock Art Center offers an interpretive display and educational film introduces the visitor to San Rock Art, the lifeways of the San and specifically Later Stone Age (LSA) archaeology. Arts and crafts by local !Xun and Khwe artists are on display and for sale together with a small selection of relevant literature. In 2006 the site was nominated as Provincial Heritage Site and officially declared as such in September 2008, making Wildebeest Kuil the first declared Provincial Heritage Site since declaration of the National Heritage Resources Act (NHRA 1999).

5.2.5 Pastoralism and the last 2000 years

Until 2000 years ago, hunter-gatherer communities traded, exchanged goods, encountered and interacted with other hunter-gatherer communities. From about 2000 years ago the social dynamics of the Southern African landscape started changing with the immigration of two 'other' groups of people, different in physique, political, economic and social systems, beliefs and rituals. One of these groups, the Khoekhoen pastoralists or herders entered Southern Africa with domestic animals, namely fat-tailed sheep and goats, travelling through the south towards the coast. They also introduced thin-walled pottery common in the interior and along the coastal regions of Southern Africa. Their economic systems were directed by the accumulation of wealth in domestic stock numbers and their political make-up was more hierarchical than that of the hunter-gatherers.

5.2.6 Iron Age / Farmer Period

The beginnings of the Iron Age (Farmer Period) in southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture of pottery. The Tlharo seems to have been the first Tswana group to enter the Kuruman area. They originated from the Hurutshe further to the north-east, and after splitting from this group during the end of the 17th century, moved in a southern direction down the Molopo River. Their early settlements included Khuis, Madibeng, Heuningvlei, Langeberg and Tsineng (Snyman, 1992). As mentioned earlier, the town of Tsineng (Tsenin) is located in the general vicinity of the present study area. The second important Tswana group from the wider area is the Tlhaping. They originated from the Rolong and during the mid-1700s moved southward along the Harts and Vaal Rivers to the vicinity of Campbell from where they traveled westwards into the area falling between Tsantsabane and Majeng on the edge of the Kalahari Desert. The Tlhaping established a capital on a perennial river known as Nokaneng. Their ruler during this time was king Maswe. Although the exact locality of Nokaneng is not known, one possibility is that the present non-perennial river Ga-Mogara used to be the Nokaneng River. This possibility was supported by the missionary John Campbell who in 1820 referred to the Ga-Mogara River as the Nokaneng (Snyman, 1992). Interestingly, Robert Moffat indicated Nokaneng to have been situated to the east of the Langeberg. This said, it is important to note that Breutz (1992) stresses the point that the actual capital Nokaneng was in fact located in the direct vicinity of Postmasburg. During the reign of Molehabangwe, who had succeeded his father Maswe in 1775, a confederation was formed which consisted of a stratified society comprised of the Tlhaping, Rolong, Tlharo, Kgalagadi and San. While the Tlhaping was seen as the ruler class, the Kgalagadi and San were viewed as vassals (Snyman, 1992). The Tlhaping conducted extensive trading activities with the Korana to the south and the Tswana to the north. During 1770 some of the Korana groups crossed the Orange River and came to the land of the Tlhaping. Although the initial contact was peaceful, conflict soon erupted. The better-armed Korana managed to force the Tlhaping out of the area in approximately 1790. This move was further augmented by the fact that the Nokaneng River had dried up. The Tlhaping first moved to Kathu and then to Ga-Mopedi on the Kuruman River. The Tlhaping eventually established themselves at Dithakong on the Moshaweng River (Snyman, 1992).

5.2.7 Prehistoric Mining and Metallurgy

Surface occurrence of specularite (i.e. a variety of hematite) and prehistoric specularite workings are known to occur in the Northern Cape. One of these historic mines occurs at Doornfontein near Postmasburg, which dates to 1200 BP (Thackeray 1983). Specularite used to be transported in ostrich eggshells and pottery containers (Thackeray 1983). Various oral accounts indicate that Skeyfontein was visited by Khoi Herding people, Iron Age Tswana and San hunter – gatherers. More recently, asbestos mines were operated north-

west of Kuruman on the farms Riries and Mt Vera during the 20th century. The archaeological excavations undertaken by Beaumont and Bashier (1974) and Thackeray et al (1983) have revealed that the mining of specularite at Doornfontein and Tsantsabane/Blinkklipkop commenced during this time. Blinkklipkop for example is located 66.7km south of the study area. During this initial period the mining activities would have been undertaken by San hunter-gatherers and Kora pastoralists. Only after the 17th century were such mining activities likely also undertaken by the Iron Age Tswana groups.

5.2.8 Later History: Reorganization, Colonial Contact and living heritage.

The 18th century was defined as a period of conflict when the Griqua, Korana and white settlers were competing for the availability of land. This period is also known for the occurrence of the Mfecane or the so called Difaqane that resulted in a time period of instability that started in the middle 1820's. The conflict time period related to the Mfecane or Difaqane was the result of the influx of the then displaced people. The continuous conflict resulted in tribal groups migrating to hilltop areas in the need of finding safe environments. From early Colonial times interest in the Northern Cape was firmly vested in its mineral wealth; early settlers speculated about mountains rich in copper towards the north-west. The landscape around the study area was scarcely populated in Historical times and it was only towards the early 19th century that missionaries, hunters and traders access the region. These pioneers were followed by Colonial farmers who negotiated with local chiefs for land, or occupied areas that were perceived to be vacant. In some areas short-lived Boer Republics were established.

Since 1869, the various gravels along the Vaal River have been worked intensively for their content of high-grade alluvial diamonds. The standard size of a digger's claim was 15 x 15 metres. The diamond-bearing gravels, covered by a layer of sterile red sand, were washed by hand in simple rotary pans. The left-over concentrate of heavy material was then carefully sorted for diamonds. The search for diamonds continues along the Vaal River in the Windsorton, Douglas and Delportshoop areas and further downstream. Most of the European-owned farms in this region were proclaimed during the 19th century but various claims and counter claims to ownership of the territory were made following the discovery of diamonds in 1869-70. For example, the Presidents of the Free State and Transvaal Republics met in the area with the Griqua Chief Nicolaas Waterboer and his agent David Arnot, Griqua lawyer and diplomat on 18 August 1870 to discuss land ownership and rights. The Griqua representatives walked out in a huff and the Free State proclaimed the territory theirs. But this was not the end of the story, the dispute being settled eventually by the Keate Award (in favour of Waterboer, who placed himself under British protection), and the proclamation of the Crown Colony of Griqualand West on 27 October 1871.

5.2.9 The Anglo-Boer War

The Anglo-Boer War saw Kimberley besieged by the *Boers* on the 14th of October 1899, with British forces suffering heavy losses. The Boers moved quickly to try to capture the British enclave when war broke out between the British and the two Boer republics in October 1899. The town was ill-prepared but the defenders organised an energetic and effective improvised defense that was able to prevent it from being taken. Cecil John Rhodes, who had made his fortune in the town, and who controlled all the mining activities, moved into the town at the onset of the siege. His presence was controversial, as his involvement in the Jameson Raid made him one of the primary protagonists behind war breaking out. Rhodes was constantly at loggerheads with the military, but he was nonetheless instrumental in organising the defense of the town. The Boers shelled the town with their superior artillery in an attempt to force the garrison to capitulate. Engineers of the De Beers company manufactured a one-off gun named Long Cecil, however the Boers soon countered with a much larger siege gun that terrified the residents, forcing many to take shelter in the Kimberley Mine. The British military had to change its strategy for the war as public opinion demanded that

the sieges of Kimberley, Ladysmith and Mafeking be relieved before the Boer capitals were assaulted. The first attempt at relief of Kimberley under Lord Methuen was stopped at the battles of Modder River and Magersfontein. The 124-day siege was finally relieved on 15 February 1900 by a cavalry division under Lieutenant-General John French, part of a larger force under Lord Roberts. The battle against the Boer general Piet Cronjé continued at Paardeberg immediately after the town itself was relieved.

Figure 5-8: Map indicating main events surrounding the siege of Kimberley.

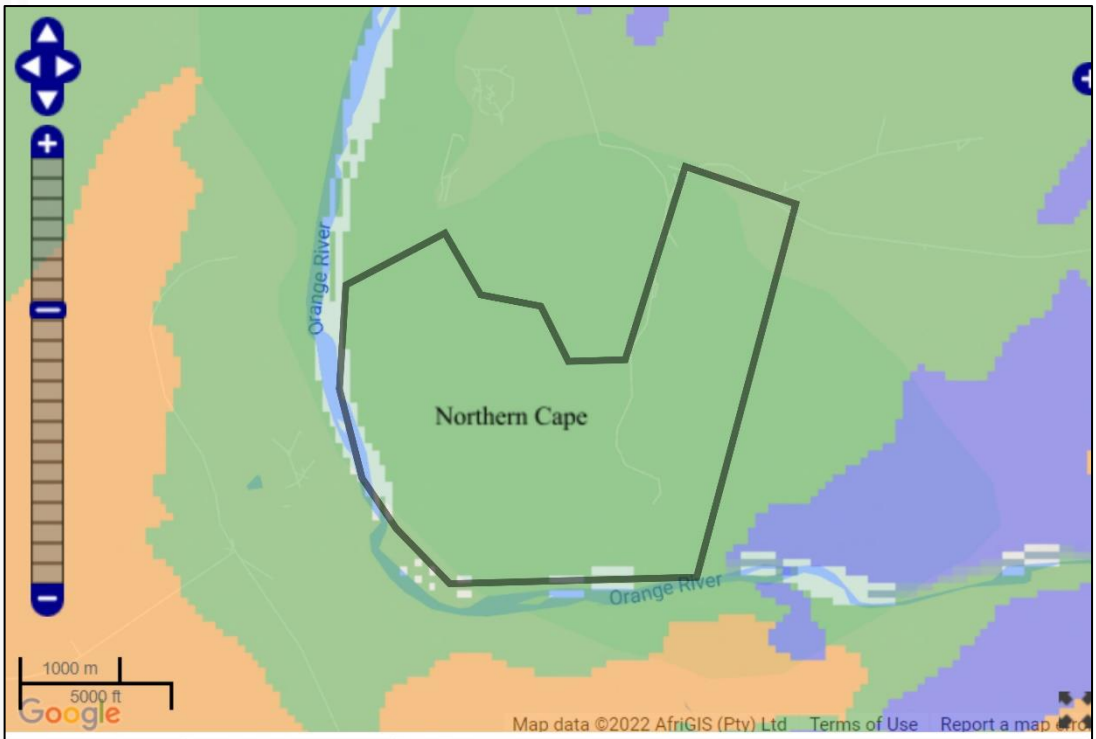
6 KLEIN TORQUAY: HERITAGE SENSTIVITY AND SITE PROBABILITY

In terms of heritage resources, the landscape around Klein Torquay is primarily well known for the occurrence of Stone Age and Colonial Period heritage remains. Large portions of the project subject property have been transformed by historical and recent agriculture and quarrying risking the sterilization of these zones of heritage remains.

6.1 Heritage Potential and Site Probability

6.1.1 Palaeontology

The project area falls within a moderate paleontologically sensitive zone and a Palaeontological Desktop Assessment (PDA) was commissioned for the proposed project. Cognisance should be taken of further recommendations included in the PDA Report.



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

Figure 6-1: SAHRIS Paleontological sensitivity map of the project area, indicating a moderate fossil sensitivity for the project area.

6.1.2 The Stone Age

Material from the earlier, middle and later Stone Age occur widely across the Northern Cape Province and local archaeological research has indicated how Stone Age material often occurs along drainage lines, in rock shelters, along ridges, the rims of pans and in cave sites. Stone Age occurrences are known to occur along

the eroded banks of the Orange River. For example, the Canteen Kopje near Kimberley contains a long and exceptionally rich Earlier Stone Age sequence, spanning circa >0.5 to 1.7 million years as well as more recent archaeological levels in the overlying Hutton Sands, which contain material known as Fauresmith, Middle Stone Age, Later Stone Age, and late Iron Age with evidence of protocolonial/colonial contact and interaction. Similarly, deep Hutton Sands in the project area rest on decomposing dolerite and calcrete formations where Stone Age artefacts are known to occur in these dolerite and occasional calcrete patches. These geomorphological exposures might prove sensitive in terms of the occurrence of stone artefacts and Earlier, Middle and Later Stone Age material. Stone Age manufacturing sites are known to occur along ridges near sources of stone suitable for stone tool making and Van Schalkwyk (2022) encountered large numbers of stone tools dating to the MSA on the edge of a ridge on the adjacent farm Stratford 154 and Portion 2 of the Farm Torquay 157. As such, ridges and mountains such areas could contain remnants of Stone Age manufacturing sites. In addition, Stone Age material might occur in exposures around the large number of water pans and the Orange River banks in the project area.

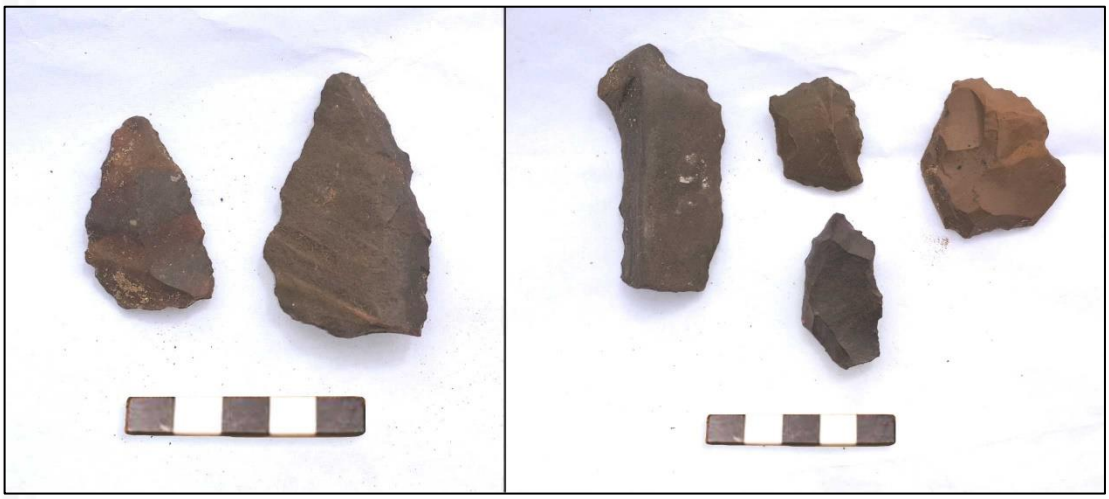


Figure 6-2: Examples of MSA points (left) and blades and scrapers (right) from the Orange River in the larger project landscape.

Figure 6-3: MSA Lithics on fine grained jasperlite from the Orange River in the larger project landscape.

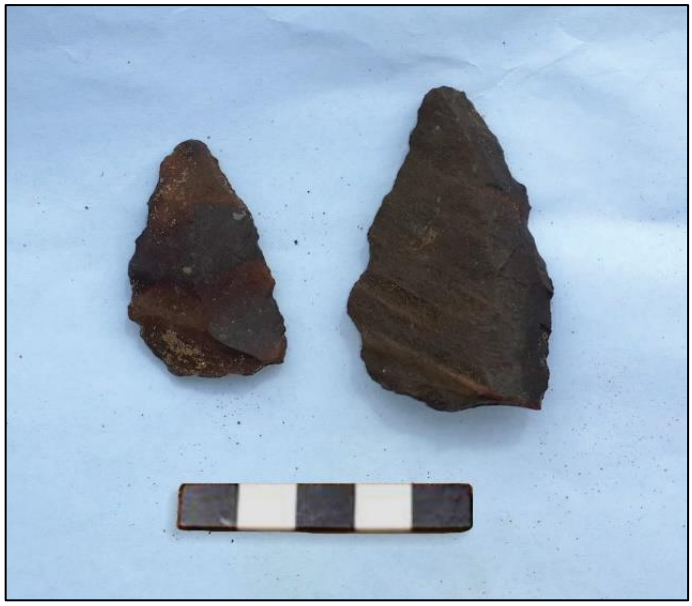


Figure 6-4: Examples of MSA points from the Orange River in the larger project landscape.

6.1.3 The Iron Age (Farmer Period)

Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing as settlement areas and single hills and rock outcrops. Iron Age settlements are relatively scarce in this part of the Northern Cape Province and, cognizant of the nature of the landscape there is generally a low probability of impact to Iron Age occurrences.

6.1.4 Colonial Period and recent times

The Northern Cape has a long and extensive Colonial Period settlement history. From around the first half of the 19th century, the area was frequented by explorers, missionaries and farmers who all contributed to a recent history of contact and conflict. An analysis of historical aerial photographs and topographic maps indicate that a farmstead and other buildings occur on Klein Torquay in the project area. The site is older than 60 years and the features are generally protected under the National Heritage Resource Act (NHRA 1999).

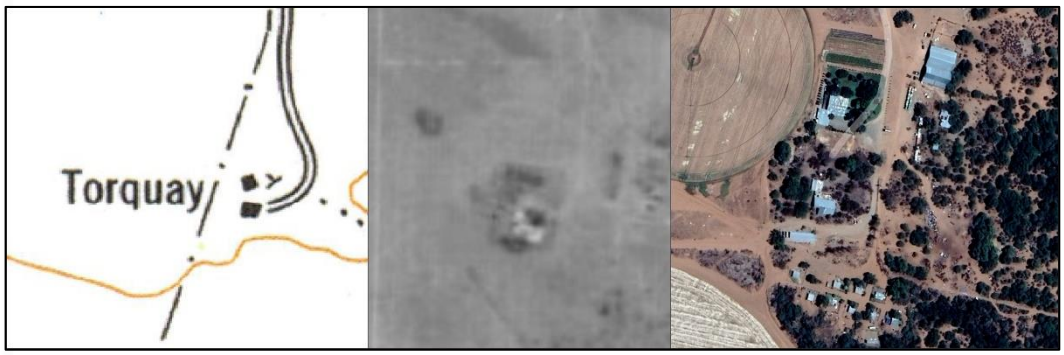


Figure 6-5: A topographic map (1963), left and an aerial image (1957, middle) as well as a current aerial image and indicating the presence of the Torquay homestead in the landscape.

6.1.5 Graves

It is possible that burials might occur in association with the Klein Torquay farmstead and such resources are highly sensitive in terms of its social representation. Impact on burial sites should be avoided at all times. In

the rural areas of the Northern Cape Province graves and cemeteries sometimes occur within settlements or around farmsteads but they are also randomly scattered around archaeological and historical settlements. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

6.1.6 Other Sites / Features

An old quarry is indicated on topographic maps of Klein Torquay and these diggings are also visible on aerial images of the project landscape. Special historical, cultural or social associations for the occurrences need to be established but it should be noted that sites and structures derived from early mining older than 60 years, are protected under the National Heritage Resource Act (NHRA 1999). Van Schalkwyk (2022) noted glacial paving along the Orange River on other portions of Torquay 157 where a small remnant piece of rock showing striations was formed when glaziers covered large sections of the southern hemisphere. These Glacial Pavings might be of geological value.

6.2 Site Probability

The synthesis of data in this report suggests a landscape which holds cultural heritage resources and even though it is improbable that sensitive heritage receptors will occur **within** the Klein Torquay Prospecting area, a medium probability of occurrences of cultural heritage potential occurring in its surrounds exists. The following table provides a n estimate as to archaeological remains to be expected within the study area and it surroundings based on the wealth of archaeological evidence in these regions:

Time Period	Sites Examples	Characteristic Material Culture	Archaeological Footprint	Probability of site occurrence
Palaeontology and Fossils	Ghaap Plateau	Fossilized faunal and botanical remain.	Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations. Exposed by road cuttings and quarry excavation.	Medium Probability
Earlier Stone Age	Tshipise Mapungubwe Bosbokpoort	Large hand axes, cleavers, cores and residue material.	Buried unless disturbed.	Medium Probability
Middle Stone Age	Uitenpast Maremani Tshipse Ha-Dowe Mapungubwe	Specialised formal stone tools such as points, blades and scrapers. Cores and residue.	Surface scatters, found in erosion gullies, dongas and open scatters.	Medium Probability
Later Stone Age	Mapungubwe	Specialised formal	Usually associated with rock	Medium – Low

	Machete Ratho	microlithic stone tools such as points, blades and scrapers as well as cores and residue. Rock Art.	shelters. Artefacts occur in buried deposits or surface scatters.	Probability
Early Iron Age	Broederstroom	Potsherds, iron objects, house remains, glass beads, ostrich egg shell beads, middens, fauna.	Generally buried with few ceramics on surface.	Improbable
Middle Iron Age	Mapungubwe Pontdrif Kromdraai	Potsherds, iron objects, house remains, glass beads, ostrich egg shell beads, middens, trade goods such as porcelain, some stone walling.	Sites are primarily open, visible kraals, grain bin foundations and ceramic scatters.	Improbable
Later Iron Age	Magaliesberg Kaditswene Molokwane	Potsherds, iron objects, house remains, glass beads, ostrich egg shell beads, middens, trade goods such as porcelain, extensive stone walling.	Khami/Venda sites specifically have a high visibility due to the stone walling and visible ceramic scatters kraal.	Low Probability
Mining / Metallurgy	Rooiberg Verdun	Residues associated with metallurgy including slag, ore, metal objects, and hammer stones.	Sites are primarily open, visible stone enclosures in secluded areas.	Medium Probability
Rock Art and Markings	Waterberg Olieboomspoort	Fine line and finger paintings, grooves, cupules, engravings.	Usually associated with rock shelters and outcrops.	Medium – Low Probability
Colonial Period: Structures	Schoemansdal Valdezia Mission Makapansgat	Foundation structures, house remains.	Colonial period sites generally have a high visibility due to preservation and visible material remains scatters.	High Probability
Colonial Period: Middens / Dumps	Schoemansdal Valdezia Mission Makapansgat	Glass, porcelain, potsherds, metal objects such as tin cans.	Colonial period sites generally have a high visibility due to preservation and visible material remains scatters.	High Probability
Battle and military sites	Fort Westfort Wonderboom Fort	Artefacts associated with conflict including spears, arrow heads, ammunition, rifles.	It is sometimes hard to identify sites of conflict as a result of the short duration and limited impact that such events incur.	Medium Probability
Burials over 100 years	Schoemansdal Makapansgat Maremani	Stone cairns, circles and ovals.	Prehistoric burials are sometimes hard to identify as they frequently occur in cattle kraals or as parts of stone wall structures.	High Probability
Burials younger than 60 years	Ga -Rankuwa	Marble head stones	More recent burials can be identified by headstones and grave dressings frequently present on these structures.	High Probability

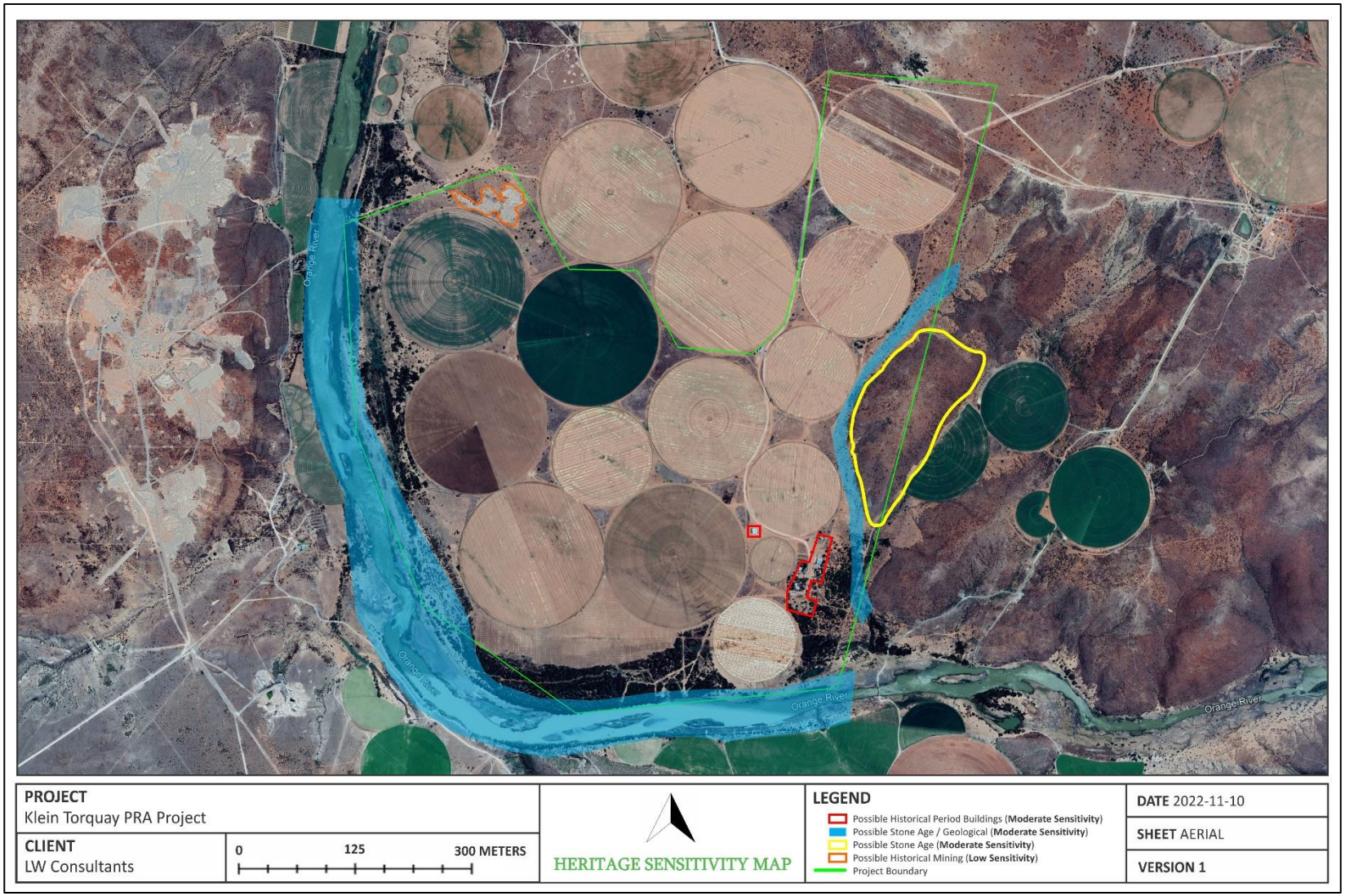


Figure 6-6: Aerial map indicating areas of heritage potential and sensitivity.

7 SITE SIGNIFICANCE AND POTENTIAL IMPACTS

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of Addendum 3.

7.1 General assessment of impacts on resources[2]

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, of any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

7.1.1 Direct, indirect and cumulative effects

Direct or primary effects on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

7.2 Impact Rating Criteria

7.2.1 Extent

Local	extend only as far as the footprint of the proposed activity/development
Site	Impact extends beyond the site footprint to immediate surrounds
Regional	within which development takes place, i.e. farm, suburb, town, community
National	Impact is on a national level

7.2.2 Duration

Short term	The impact will disappear with through mitigation or through natural processes
Medium term	The impact will last up to the end of the phases, where after it will be negated
Long term	impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention
Permanent	Permanent where mitigation either by natural process of by human intervention will not occur in such a way or in such a time span that the impact can be considered transient

7.2.3 Magnitude severity

Low	where the impact affects the resource in such a way that its heritage value is not affected
Medium	where the affected resource is altered but its heritage value continues to exist albeit in a modified way
High	where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed

7.2.4 Probability

Improbable	where the possibility of the impact to materialize is very low either because of design or historic experience;

[2] Based on: W inter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

Probable	where there is a distinct possibility that the impact will occur
Highly	probable, where it is most likely that the impact will occur; or
Definite	where the impact will definitely occur regardless of any mitigation measures.

7.2.5 Impact Significance

Low	negligible effect on heritage – no effect on decision
Medium	where it would have a moderate effect on heritage and – influences the decision
High	high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision
Very high	high risk of, an irreversible and possibly irreplaceable impact on heritage – central factor in decision-making

7.3 Impact Prediction

It should be stressed that the following Impact Predictions are made entirely at a desktop level, employing secondary information and data generated through off-site methods. Detailed field assessments will be required to confirm the presence of heritage sites and the absolute extent of impact on the heritage landscape.

This Heritage Scoping Report established the following possible impacts which emanate from the Klein Torquay PRA Project (please refer to Figure 6-8):

- The synthesis of data in this report suggests a landscape which holds cultural heritage resources and even though much of the project area has been transformed as a result of agriculture and quarrying, a medium probability of occurrences of cultural heritage potential occurring in its surrounds exists. As such, there is a risk of potential **direct and indirect impact** to heritage resources emanating from the project.

7.4 Evaluation of Direct Impacts: The Klein Torquay PRA Project

7.4.1 Archaeology

Stone Age material might occur in the landscape on decomposing dolerite and occasional calcrete patches in deep red sands, along hills and on the banks of the Orange River. It is possible that Stone Age archaeological remains might be impacted on within the project area.

7.4.2 Built Environment

The Klein Torquay farmsteads and other man-made features occur in the project area and these sites are most probably protected under the NHRA. As for the rest of the project area, the general landscape holds significance in terms of the built environment as the area comprises historical farming remnants and open plains.

7.4.3 Cultural Landscape

Generally, the proposed project area and its surrounds are characterised by vast farmland and open plains. The cultural landscape of the study area revolves strongly around agriculture and livestock grazing. Further away from the project area, the surroundings display undulating hills with flatter plains in the landscape.

7.4.4 Graves / Human Burials Sites

Graves might occur at the Klein Torquay farmstead and such resources is highly sensitive in terms of its social representation. Impact on burial sites should be avoided at all times. In the rural areas of the Northern Cape Province graves and cemeteries sometimes occur within settlements or around farmsteads but they are also randomly scattered around archaeological and historical settlements. The probability of human burials encountered around the Klein Torquay farmsteads should thus be considered. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur

sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface.

8 RECOMMENDATIONS

The cultural landscape of the Northern Cape encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. In terms of heritage resources, the landscape around Klein Torquay is primarily well known for the occurrence of Stone Age and Colonial Period heritage. Large portions of the property have been transformed by historical and recent agriculture as well as quarrying, risking the sterilization of these zones of heritage remains. In terms of the probability of site impact on the Klein Torquay farm portions, the following should be noted:

8.1 Klein Torquay Heritage Sensitivity

- In this area, deep Hutton Sands rest on decomposing dolerite and calcrete formations where Stone Age artefacts are known to occur in these dolerite and occasional calcrete patches. In addition, Stone Age remains associated with geo-morphological exposures along the Orange River, as well as rock outcrops and hills are known to exist in this area. Such zones and geomorphological exposures might prove sensitive in terms of the occurrence of stone artefacts and Earlier, Middle and Later Stone Age material.
- Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing as settlement areas and single hills and rock outcrops. Iron Age settlements are relatively scarce in this part of the Northern Cape Province and, cognizant of the nature of the landscape there is generally a low probability of impact to Iron Age occurrences.
- It is evident that the project area has been subjected to quarrying activities in past years and it is possible that sites and structures derived from early mining might occur in the project area and, if older than 60 years, such features are protected under the National Heritage Resource Act (NHRA 1999).
- A previous heritage assessment in the area noted glacial paving along the Orange River on other portions of Torquay 157 where a small remnant piece of rock showing striations was formed when glaziers covered large sections of the southern hemisphere. These Glacial Pavings might be of geological value.
- European farmers, settling in the area since the middle of the 19th century, divided up the landscape into a number of farms which form the framework for agricultural, residential and other forms of development in present day. A farmstead occurs on Klein Torquay and historical aerial photos indicate that the site is older than 60 years and generally protected under the National Heritage Resource Act (NHRA 1999). As such, the site is sensitive in terms of the heritage landscape.
- Burials might occur in association with the Klein Torquay farmstead and such resources are highly sensitive in terms of its social representation. Impact on burial sites should be avoided at all times.

8.2 Evaluation of Impact: The Project

As a general guideline and to reduce impacts on heritage resources to a minimum, the following recommendations should be considered in the planning, implementation and management phases of the Project:

- The project area falls within a moderate paleontologically sensitive zone and a Palaeontological Desktop Assessment (PDA) was commissioned for the proposed project. Cognisance should be taken of further recommendations included in the PDA Report.
- The synthesis of data in this report suggests a landscape which holds cultural heritage resources and a medium probability of occurrences of cultural heritage potential occurring in its surrounds exists. As

such, there is a risk of potential impact to heritage resources emanating from the project.

- The term "Living Heritage" can broadly refer to a place of cultural heritage and sacred nature; with cultural attributions that are not generally physically manifested. Ritual and symbolic spaces and practices, and the material residues thereof convey an intangible cultural significance beyond the physical site or artefact, where the meaning of the ritual area speaks directly of a sense of place and lived experience. Such sites might occur on the Klein Torquay properties or its surroundings and due cognisance should be taken of these sites of "Living Heritage" in the cultural landscape.
- It is recommended that all graves and cemeteries that might occur in the project landscape be conserved and excluded from impact emanating from the development. Where impact on such resources would prove to be inevitable, the correct human remains repatriation procedures should be observed at all times. These procedures should include public notification of intent to relocate the remains, consultation with descendant communities, close liaison with - and approval from local futurities, adherence to any local laws and / bylaws and correct grave relocation methodologies.
- It is possible that groups, farmers and locals living in the area have occupied the region for many generations and have expressed long-term cultural associations with the region. Therefore, it is important to ascertain from these respondents whether there are any further undetected sites of cultural significance in the area to which they relate and / or attach cultural meaning.

Ultimately, it is recommended that the archaeological and cultural heritage of this part of the Northern Cape Province be respected. The management of heritage resources, as stipulated by National and International Heritage resources agencies (e.g. SAHRA) should be aligned with any future activity by means of cultural mitigation and / or management plans developed in conjunction with heritage authorities and specialists.

8.3 Further Terms of Reference

It should be noted that this HS and site sensitivity included above are solely based on off-site desktop findings and the heritage sensitivity of the Klein Torquay properties remain tentative pending further detailed site inspection as part of the Heritage Impact Assessment (HIA) process, subject to section 38 of the National Heritage Resources Act (NHRA - Act 25 of 1999).

The following terms of reference for the HIA as part of the Environmental Authorisation Process, are required specifically for the Klein Torquay PRA Project terms of proposed operations:

- Provide a detailed description of all archaeological and heritage artefacts, structures, graves and settlements by means of the field inspection of all surface areas to be impacted by the planned exploration activities.
- Closely liaise with local communities and farm owners in order to identify additional archaeological, heritage and living heritage sites in the Project area.
- Contextualize any heritage resources and archaeological sites within the larger historical landscape by means of a detailed desktop-based background study.
- Estimate the level of significance/importance of the archaeological remains within the area.
- Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.
- If necessitated by the development, propose possible mitigation measures for heritage resources, subject to a mandate from local authorities and according to international standards for best practise in Cultural Resources Management (CRM).
- Develop protection procedures for sacred sites and any other heritage features excluded from mitigation in conjunction with traditional guardians and elders and the local community.
- Liaise and consult with the relevant heritage resources management authorities (South African Heritage Resources Agency, Stakeholders).

It must be emphasised that the conclusions and recommendations expressed in this heritage scoping and sensitivity investigation are primarily based on desktop study findings and is thus not representative of the Project area's complete archaeological an historical legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately. With reference to the potential impacts that may occur as a result of the operational activities of the proposed development it should be noted that such impacts are considered to be of a similar nature to those related to the construction phase

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10 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

10.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

10.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

d. National Heritage Resources Act No 25 of 1999, section 35

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 Act identifies heritage objects as:

- 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

With regards to activities and work on archaeological and heritage sites this Act states that:

"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-

(d) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(e) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(f) 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

(g) 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)."

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

(h) 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;

(i) 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;

(j) 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)."

e. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

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.

10.1.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

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 form 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,

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."

And:

"The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(k) The identification and mapping of all heritage resources in the area affected;

(l) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(m) an assessment of the impact of the development on such heritage resources;

(n) 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;

(o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64)."

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation.

10.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable.* Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

- Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance 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, 1999, while other historical and cultural 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 special reference to subsection 3 are used when determining the cultural significance or other special 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 townscape.

- *Historic 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 some kind of influence by 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 other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account 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. formally protected and generally protected 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 provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

Generally protected sites:

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

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinternment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

11 ADDENDUM 2: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE

11.1 Site Significance Matrix

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

11.2 Impact Assessment Criteria

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective, it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. site-specific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Impact Significance

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

11.3 Direct Impact Assessment Criteria

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

	TYPE OF DEVELOPMENT			
HERITAGE CONTEXT	**CATEGORY A**	**CATEGORY B**	**CATEGORY C**	**CATEGORY D**
CONTEXT 1 High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
CONTEXT 2 Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
CONTEXT 3 Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
CONTEXT 4 Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected

NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.

HERITAGE CONTEXTS	CATEGORIES OF DEVELOPMENT
Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources **Context 2:** Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources. **Context 3:** Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources **Context 4:** Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.	**Category A: Minimal intensity development** - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m2. **Category B: Low-key intensity development** - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m - Building footprints between 1000m2-2000m2 - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). **Category C: Moderate intensity development** - Rezoning of a site between 5000m2-10 000m2. - Linear development between 100m and 300m. - Building footprints between 2000m2 and 5000m2 - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%)

	Category D: High intensity development - Rezoning of a site in excess of 10 000m2 - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)

11.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

No further action / Monitoring

Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.

Avoidance

This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.

Mitigation

This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.

Compensation

Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.

Rehabilitation

Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:

- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
- Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource