A PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED TOWNSHIP ESTABLISHMENT ON VARIOUS PORTIONS OF ESTOIRE SETTLEMENT, MANGAUNG METROPOLITANT MUNICIPALITY, FREE STATE PROVINCE

BY

INTEGRATED SPECIALIST SERVICES (PTY) LTD

Authored by: Trust Mlilo and Joshua Kumbani (Professional Archaeologists and Heritage Management Specialists; ASAPA members)

DOCUMENT SYNOPSIS (EXECUTIVE SUMMARY)

Item	Description
Proposed development and location	A Phase 1 Archaeological/Heritage Impact Assessment for the proposed township establishment on various portions of Estoire settlement, Mangaung Metropolitan Municipality, Free State Province
Purpose of the study	Phase 1 Archaeological Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed township establishment on these resources within the area demarcated for the proposed development.
1:50 000Topo Map	2926AA
Coordinates	Refer to Figure 1
Municipalities	Mangaung Metropolitan Municipality
Predominant land use of surrounding area	Agriculture, stock farming, farmsteads, powerlines, road, and transport
Applicant	Housing Development Agency
Project Reference	Estoire KVDG0001
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Draft Report	13 /06/ 2021

This document serves to inform and guide the applicant (Housing Development Agency) and contractors about the possible impacts that the proposed township establishment may have on heritage resources (if any) located in the study area. In the same light, the document must also inform South African Heritage Resources Agency (SAHRA) about the presence, absence and significance of heritage resources located in the study area. As required by The National Heritage Resources Act 25 of 1999S, developments exceeding 5ha such as the proposed township establishment site require pre-development heritage assessment by a competent archaeology and heritage practitioner in order to identify, record and if necessary, salvage the irreplaceable heritage resources that may be impacted upon by the proposed development. In compliance with these laws KV Development Group instructed by Housing Development Agency tasked Integrated Specialist Services (Pty) Ltd to conduct a Phase 1 Archaeological and Heritage Impact Assessment (AIA/HIA) for the proposed Township Establishment on various portions of Estoire settlement, Mangaung Metropolitan Municipality, Free State Province. Desktop studies, drive-throughs and field walking were conducted in order to identity heritage landmarks within the proposed development site. The study area is not on entirely pristine landscape, having seen significant transformations owing to agriculture and residential developments. It is important to note that the project area has been heavily degraded over the past years as such *in situ* archaeological remains might have been washed away by agriculture activities and subsequent residential development and associated infrastructure in the area. Although the general area is known for historical and MSA& LIA occurrences, no archaeological resources were identifiable on the surface, even though this may be due to the tall grass that inhibits ground surface visibility. In addition, sub-surface archaeological material and unmarked graves may still exist and when encountered during clearance and construction of the proposed township infrastructure, work must be stopped forth-with and the finds must be reported to the South African Heritage Resource Agency (SAHRA) or the heritage practitioner (see appended Chance Finds Procedure). This report must also be submitted to the SAHRA or PHRA Free State for review.

NATIONAL LEGISLATION AND REGULATIONS GOVERNING THIS REPORT

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

DECLARATION OF INDEPENDENCE

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

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

Expertise:

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

Joshua Kumbani, PhD student (Wits University), MA Archaeology (University of Zimbabwe), BA Honours Archaeology (University of Zimbabwe), Certificate in Entreprenuership (University of Zimbabwe), Certificate in Leadership Development (University of Zimbabwe). Professional member of Association for Southern African Professional Archaeologists (ASAPA).

Independence

The views expressed in this document are the objective, independent views of Mr Trust Mlilo and Mr Joshua Kumbani. The survey was carried out under KV Development Group. Integrated Specialist Services (Pty) Ltd has no business, personal, financial or other interest in the proposed township establishment apart from fair remuneration for the work performed.

Conditions relating to this report

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

This report must not be altered or added to without the prior written consent of the authors and KV Development group. This also refers to electronic copies of the report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report.

If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

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

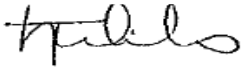
Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

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

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

The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the authorisation of the proposed township establishment proposed by the Housing Development Agency

Signed by



12/ 06/ 2021

Acknowledgements

The authors acknowledge KV Development Group for their assistance with project information and responding to technical queries related to the project.

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1. ABBRIVIATIONS

AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
BID	Background Information Document
EIA	Environmental Impact Assessment
EIA	Early Iron Age *(EIA refers to both Environmental Impact Assessment and the Early Iron Age but in both cases the acronym is internationally accepted. This means that it must be read and interpreted within the context in which it is used.)*
EIAR	Environmental Impact Assessment Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
ICOMOS	International Council of Monuments and Sites
ISS	Integrated Specialist Services (Pty) Ltd
LIA	Late Iron Age
LFC	Late Farming Community
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act 107 of 1998
NHRA	National Heritage Resources Act 25 of 1999
PHRA	Provincial Heritage Resource Agency

SAHRA	South African Heritage Resources Agency
ToR	Terms of Reference

2. KEY CONCEPTS AND TERMS

10.1 Periodization

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

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

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

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

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

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

10.2 Definitions

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

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

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

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

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

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

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

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

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

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

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

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting, and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project

which requires authorisation of permission by law, and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

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

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

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

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

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

10.3 Assumptions and disclaimer

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during clearance and construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA or PHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6). Recommendations contained in this document do not exempt the applicant from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. ISS assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

3. TERMS OF REFERENCE (ToR)

The author was tasked to conduct an AIA/HIA study for the proposed township establishment addressing the following issues:

- Archaeological and heritage potential of the proposed development site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the PHRA/ SAHRA to make an informed decision in respect of authorisation of the proposed township establishment.
- Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located in and around the proposed development site;
- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
- Describe the possible impacts of the proposed development on these cultural remains, according to a standard set of conventions;
- Propose viable mitigation measures to minimize possible negative impacts on the cultural resources;
- Review applicable legislative requirements;

4. INTRODUCTION

Integrated Specialist Services (Pty) Ltd was tasked by KV Development Group to conduct a Phase 1 AIA/ HIA for the proposed Township Establishment on various portions of Estoire Settlement, Mangaung Metropolitan Municipality, Free State Province. The proposed township establishment project area is predominantly residential and agricultural. However, according to Section 38 of the NHRA as prescribed by SAHRA regulations, a Heritage Impact Assessment is a pre-requisite for development exceeding 5ha. The overall purpose of this heritage report is to identify, assess any heritage resources that may be located in the study area and evaluate the positive and negative impacts of the proposed township establishment on these resources in order to make recommendations for their appropriate management. To achieve this, we conducted background research of published literature, maps, and databases (SHARIS) which was then followed by ground-truthing by means of drive-through surveys and field walking. Desktop studies had shown that Iron Age and historical sites were a possibility in the study area, but no significant archaeological sites were recorded during ground-truthing. While archaeological resources may have been located in the study area, subsequent developments such as residential developments, agriculture and associated infrastructure developments as well as excessive erosion have either obliterated these materials or reduced them to isolated finds that can only be identifiable as chance finds during construction. There is no archaeological reason why the proposed township establishment cannot be approved, taking full cognisance of clear procedures to follow in the event of chance findings.

5. POJECT LOCATION

The project is located within Mangaung Metropolitan Local Municipality and will transverse through various portions of Estoire settlement**,** Mangaung Metropolitan Municipality, Free State Province (see Figure 1&2)

Table 1:Coordinates of project area

Farms	Various portions of Estoire settlement, Mangaung Metropolitan Municipality
Local Municipality	Mangaung Metropolitan Local Municipality

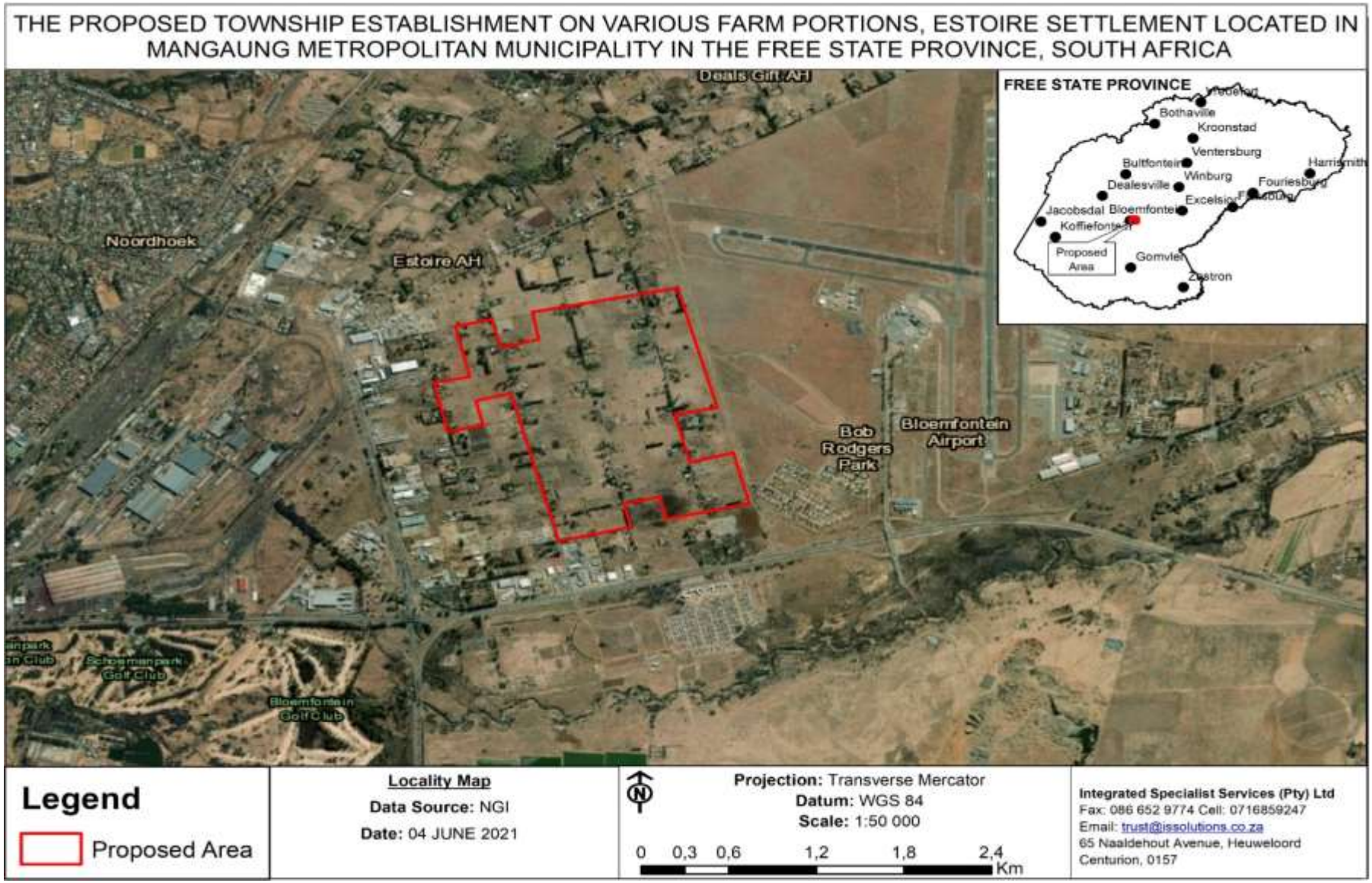

Figure 1: Location of the proposed project area (Integrated Specialist Services 2021)

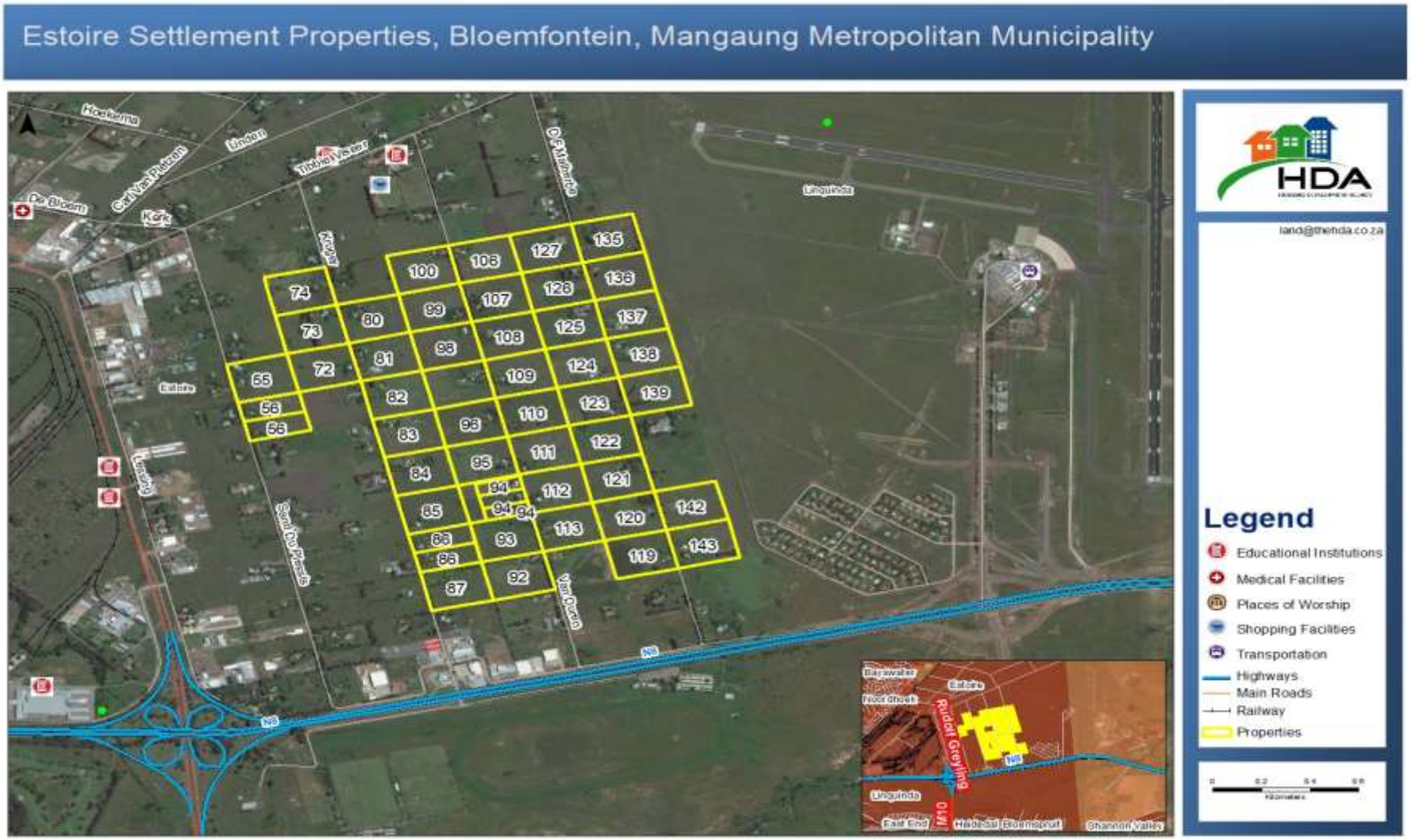

Figure 2: Location of the proposed project area (Housing Development Agency, 2021)

5.1 Project background and descriptions

The study is for the proposed township establishment on various farm Portion of Estoire Settlement located in the Mangaung Metropolitan Municipality in the Free State Province (see Figure 1&2).

6. ARCHAEOLOGICAL AND HERITAGE LEGAL FRAMEWORK

Two main pieces of legislations are relevant to the present study and there are presented here. Under the National Heritage Resources Act (Act 25 of 1999) (NHRA) and the National Environmental Management Act (NEMA), an AIA or HIA is required as a specialist sub-section of the EIA.

Heritage management and conservation in South Africa is governed by the NHRA and falls under the overall jurisdiction of the SAHRA and its PHRAs. There are different sections of the NHRA that are relevant to this study. The present proposed development is a listed activity in terms of Section 38 of the NHRA which stipulates that the following development categories require an HIA to be conducted by an independent heritage management consultant:

- Construction of a road, wall, powerline, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
  - ❖ Exceeding 5000 sq m
  - ❖ Involving three or more existing erven or subdivisions
  - ❖ Involving three or more erven or divisions that have been consolidated within past five years
  - ❖ Rezoning of site exceeding 10 000 sq m
  - ❖ The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- Any other development category, public open space, squares, parks, recreation grounds

Thus, any person undertaking any development in the above categories, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. Section 38 (2) (a) of the same act also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs). Because the proposed development will change the character of a site exceeding 5000 sq m, then an HIA is required according to this section of act.

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may **alter damage, destroy and relocate any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority**. This section may not apply to present study since none were identified. Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA,

destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered before or during construction. This means that any chance find must be reported to the heritage practitioner or SAHRA/LIHRA, who will assist in investigating the extent and significance of the finds and inform about further actions. Such actions may entail the removal of material after documenting the find site or mapping of larger sections before destruction. Section 36 (3) of the NHRA also stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. This section may apply in case of the discovery of chance burials, which is unlikely. The procedure for reporting chance finds also applies to the unlikely discovery of burials or graves by the developer or his contractors. Section 37 of the NHRA deals with public monuments and memorials but this may not apply to this study because no protected monument will be physically affected by the proposed project.

In addition, the new EIA Regulations (04 December 2014) promulgated in terms of NEMA (Act 107 of 1998) determine that any environmental reports will include cultural (heritage) issues. The new regulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts on the cultural (heritage) and social environment and for Specialist Studies in this regard. The end purpose of such a report is to alert the developer, the environmental consultant, SAHRA and interested and affected parties about existing heritage resources that may be affected by the proposed development, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.

Assessing the Significance of Heritage Resources

The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning aesthetic, historic, scientific, or social value for past, present, or future generations (Article 1.2). Social, religious, cultural, and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved.

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

based on the views expressed by the traditional authority and community representatives, consulted documentary review and physical integrity.

African indigenous cultural heritage significance is not limited to items, places or landscapes associated with pre-European contact. Indigenous cultural heritage significance is understood to encompass more than ancient archaeological sites and deposits, broad landscapes, and environments. It also refers to sacred places and story sites, as well as historic sites, including mission sites, memorials, and contact sites. This can also refer to modern sites with particular resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

Archaeological sites, as defined by the National Heritage Resources Act (Act 25 of 1999) as places in the landscape where people once 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 infrastructure developments such as powerlines, roads and other destructive economic activities such as mining and agriculture. This is true for the proposed project area whose main economic activities are agriculture, transport, and mining. It should be noted that once archaeological sites are destroyed, they cannot be replaced as site integrity and authenticity is permanently lost. Archaeological heritage contributes to our understanding of the history of the region and of our country and continent at large. By preserving links with our past, we may be able to appreciate the role past generations have played in the history of our country and the continent at large.

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 the aesthetic values commonly assessed in the analysis of landscapes and townscape.

Historical Value:

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually, a place has historical value because of 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 PHRA.
- Grade 3 or local heritage sites.

General Protection

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

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.

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.

An important aspect in assessing the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of the proposed township development outweigh the conservation issues at stake. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data /information, which would otherwise be lost.

Table 2: Evaluation of the proposed development as guided by the criteria in NHRA and NEMA.

ACT	Stipulation for developments	Requirement details
NHRA Section 38	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
	Construction of bridge or similar structure exceeding 50m in length	No
	Development exceeding 5000 sq m	yes
	Development involving three or more existing erven or subdivisions	Yes
	Development involving three or more erven or divisions that have been consolidated within past five years	No
	Rezoning of site exceeding 10 000 sq m	Not available
	Any other development category, public open space, squares, parks, recreation grounds	No
NHRA Section 34	Impacts on buildings and structures older than 60 years	Subject to identification during Phase 1
NHRA Section 35	Impacts on archaeological and palaeontological heritage resources	Subject to identification during Phase 1
NHRA Section 36	Impacts on graves	Subject to identification during Phase 1
NHRA Section 37	Impacts on public monuments	Subject to identification during Phase 1
Chapter 5 (21/04/2006) NEMA	HIA is required as part of an EIA	Yes

Other relevant legislations

The Human Tissue Act

Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925 is relevant to relocation of graves affected by development. Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act 25 of 1999. 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 Member of the Executive Committee (MEC) as well as the relevant Local Authorities.

7. METHODOLOGY

Our HIA study was structured in five phases, that is field survey, consultation, report compilation and report review. The methodology is informed by the SAHRA Guidelines on Impact assessment for development projects, as well as the relevant provisions of the local heritage and environmental legislation. We conducted desktop studies, field survey, consultation, report compilation and report review.

7.1 Phase I: Desktop studies

Desktop studies are very crucial for the success of any project because they determine not just what is known but also can identify gaps which must be closed during the study to meet the aims and objectives of the project. Literature on the archaeology and heritage character of the project was reviewed. A review of SAHRIS and other databases was conducted online. Further review of the relevant local and international legal frameworks was also done. Furthermore, relevant documents, databases such as Google Earth and any other available information were consulted. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage legislation, the history and archaeology of the area were studied.

The desktop studies were carried at university libraries, national libraries, local municipality libraries and archives. Electronic databases such as Google Earth, Google Map and Google Images were consulted as well. Special attention was given to provincial and local authority development plans so that the HIA contributes to the attainment of local objectives.

7.2 Phase ii: Fieldwork

The aim of the project is to provide the client with an HIA that will support decision making in order to ensure protection of the heritage resource base of the project area. The heritage resources must be identified, assessed, and ranked. This enables a proper definition of the resource and its boundaries. This requires the participation of a multi-disciplinary team with experience in heritage management, heritage, palaeontology, planning and risk

management fields. This fieldwork aimed at adding to the gaps identified during the review of the existing documentation. The field survey was undertaken on the 7th of May 2021 by a team of two archaeologists. The study team covered the entire study site because it is cleared and there are residential stands and access roads. The proposed township establishment site was surveyed through, access roads, main roads and public roads which cut across the sites. The focus of the survey involved a pedestrian survey which was conducted across the proposed study site. The pedestrian survey focussed on parts of the project area where it seemed as if disturbances may have occurred in the past, for example bald spots in the grass veld; stands of grass which are taller than the surrounding grass veld; the presence of exotic trees; evidence for building rubble, and ecological indicators such as invader weeds.

Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the proposed township establishment in order to suggest further action. The result of this investigation is a report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed township establishment.

The literature survey suggests that prior to the 20th century modern agriculture and associated infrastructure; the general project area would have been a rewarding region to locate heritage resources related to Stone Age and particularly Iron Age and historical sites (Bergh 1999). However, the situation today is completely different. The study area now lies on a clearly modified landscape that has previously been cleared for residential developments and associated infrastructure.

7.3 Phase iii: Consultation

The EIA Public Participation process will be conducted by the EAP and specialists. The EIA Public Participation Process will invite and address comments from affected communities and any registered heritage bodies on any matter related to the proposed township establishment including heritage concerns that may arise as a result of the project. The heritage team will investigate further information about the historical farmsteads and the location of the family.

7.4 Phase iv: Report compilation

Report compilation and impact assessment.

7.5 Phase v: Report review, finalisation and submission

Before the final draft of the HIA is submitted to the client, the report will be reviewed internally. The client will be provided with the opportunity make some inputs before the report is finalised.

8. PHOTOGRAPHIC PRESENTATION OF THE PROPOSED TOWNSHIP ESTABLISHMENT SITE

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

Plate 1: Photo **A**. showing the proposed township establishment project site

Plate 2: Photo **B**. showing agricultural activies within the proposed township establishment project site

C

Plate 2: Photo **C**. showing the proposed township establishment site

D

Plate 3: Photo **D**. showing proposed township establishment site

Plate 4: Photo **E**. showing proposed township establishment site

Plate 5: Photo **F**. showing tree scapes within the proposed township establishment site

G

Plate 6: Photo **G**. showing a sewer trench within the proposed township establishment site

H

Plate 7: Photo **H**. showing effects of stegnant wastewater on the proposed township establishment site

Plate 8: Photo **I**. showing access road within the proposed township establishment

Plate 9: Photo **J**. showing proposed township establishment site.

Plate 10: Photo **K**. showing proposed township establishment site.

Plate 11: Photo **L**. showing abandoned building within the proposed development site.

Plate 12: Photo **M**. showing human settlements around the proposed township establishment site.

Plate 13: Photo **N**. showing deforestation within human settlements of the proposed township establishment site.

9. ARCHAEOLOGICAL AND HERITAGE CONTEXT OF THE STUDY AREA

To understand the archaeological and heritage context of the study area, our study utilised previously conducted Archaeological and Heritage Impact reports. These were critical in our understanding of the heritage value of the proposed township establishment site. I now turn to the brief history of Bloemfontein where the project site is located.

The origin of South Africa's judicial capital Bloemfontein dates back to the mid-19th century in the establishment of a British outpost in the then Trans Orangia by Major H.D. Warden (Huffman 2010). Among other reasons, one of the influencing factors for the outpost was the danger that was posed by armed Khoe (Korana) and groups of mixed ancestry (Griqua). According to one interpretation, the city takes its name from Jan Bloem II, who was the leader of a Griqua group. In 1823, the missionary Rev Burchell hired armed Griqua for the protection of BaThlaping who were living at Dithakong, northwest of Bloemfontein (Huffman 2010). 'Dithakong' is a 'place of walls' and refers to a large concentration of stonewalling on a hill above the 19th century settlement. This group of the BaThlaping were some of the first Sotho-Tswana people to have come in contact with Europeans from the Cape around 1810.

Bloemfontein townlands, Bloemfontein No 654, was surveyed in 1889. The development of the town remained centred around the original settlement area and extended to the north-east up to what would later become known as Signal Hill and Naval Hill. Black residents settled on the southern side of the town which became known as Waaihoek. To date the town gained city status and later Metropolitan status in post-Apartheid South Africa. It is interesting to note that the First Black liberation movement the ANC was formed here in Mangaung.

Stone Age

Stone Age archaeology is prevalent in the larger province but is generally thin in the area under study. The ESA is generally associated with the earliest stone tool industry (Oldowan industry) which is marked by crude choppers and other unifacial core tools, followed by the still large but better fashioned hand axes and cleavers of the Acheulean techno-complex (Deacon and Deacon 1999). The MSA is better understood as a flake-technological stage characterized by faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology (Barham and Mitchell 2008). More technological and behavioural changes than those witnessed in the MSA, occurred during the LSA (~ 40-25 000, to recently, 100 years ago), which is also associated with Homo Sapiens (Barham and Mitchell 2008). For the first time there is evidence of people's activities derived from material other than stone tools (ostrich eggshell beads, ground bone arrowheads, small, bored stones and wood fragments) (Deacon and Deacon 1999). The LSA people are also credited with the production of rock art (engravings and paintings), which is an expression of their complex social and spiritual beliefs (Parkington et al. 2008).

To the northeast of the Free State Province, notable MSA/LSA remains have been reported around the Vredefort Dome. Some of these materials occur in cave where they are associated with transhumance, but some have been reported in open air area, especially close to the Vaal River (Pelser 2009). The finds include scrapers, blades,

cores, flakes, hammerstones, and small microlithic tools that occur as scattered finds. In general, little is known about the Stone Age archaeology of the area under study.

The proposed township establishment on various portions of Estoire settlement, Mangaung Metropolitan Municipality. The project is located in the Estoire area of Greater Mangaung Metropolitan Local Municipality of Free State Province of South Africa. The archaeological record of the Mangaung Metropolitan Municipality is dominated by by Stone Age surface occurrences mainly sported along river vallies. The Stone Age archaeological record of Modder River catchment east of Bloemfontein spans back to the early Middle Stone Age **(**Rossouw 2018**)**. Prehistoric archaeological remains previously recorded in the region include stone tools and mammal fossil remains from sealed and or exposed contexts. Along much of the course of Modder River and its tributaries between Sannaspos and Bloemfontein, alluvial deposits contain numerous occurrences of *in situ* Middle and Later Stone Age material eroding out of the overbank sediments where they are often found in association large mammal fossil remains (Churchill *et al.* 2000; Rossouw 1999, 2000, 2006). The incidence of surface scatters usually decreases away from localized areas such as alluvial contexts and dolerite-shale contact zones when stone tools largely occur as contextually derived individual finds in the open veld. Stone tools are mostly made of hornfels, a fine-grained isotropic rock found in the hot-contact zone between the dolerites and shales in the area.

Iron Age

Iron Age communities entered Southern Africa from West and East Africa around AD 200 and brought with them settled agriculture, metal working, animal husbandry, pottery making and social stratification, all of which are purported to mark a clear contrast from the Stone Age lifeways that the farmers came in contact with (Huffman 2007). Huffman (2007) argues that ceramics can be used to trace these movements, as well as the broad linguistic identities of people but not necessarily their specific social or political groupings. The earliest Iron Age expression in the general area under study is related to makers of Ntsuanatsatsi ceramic facies (AD 1450-1650) of the LIA. Perhaps the declining summer rainfall restricted the earlier EIA occupation to a diminishing belt close to the southeast Coast and northern parts of South Africa (Maggs 1994). The earliest Iron Age settlers who moved into the Orange Free State were Sotho-speaking groups such as the Fokeng, Kwena, Kgatla and Kubung, who entered the region from the north, the south, the east and the west. These Sotho clans settled throughout the larger part of what later became the Free State Province. They built stone walled settlements that were scattered along the lower slopes of mountains and along the ridges where stone for building material was abundant.

Huffman (2007) classifies Ntsuanatsatsi as Nguni, while Maggs (1976) classifies it as Sotho-Tswana, but one thing is clear, this was just the formative phase of the population agglomeration is evidence during the subsequent phases of both the Nguni and Sotho-Tswana, now using stone walling to demarcate space in the nucleated settlement patterns of the already established Central Cattle Pattern (CCP). The agglomeration was later intensified by the

Mfecane (the wars and population movements of the early 19th Century which culminated in the establishment of the Zulu Kingdom).

The stonewalled settlements of the LIA are better represented in the Free State, even though one may not expect to encounter a secure LIA occupation in prospecting right site. Examples of stone walled sites occur near Kroonstad and some occur along the lower reaches of the Renoster River. Large concentrations of stonewalled settlements are also found along the upper reaches of the Renoster and Vals Rivers, near Voorspoed Diamond Mine (Pistorius 2004). Noteworthy, is the site of Askoppies (ash heaps) located close to Vredefort Dome (Figure 1). This stone walled site with over 20 individual homesteads of between 8 and 15 scalloped areas (with hut foundation) produced impressive materials that include seashells, pottery, ivory bangles, hippo tusks, iron spears, cuprous earrings, bone pendants, smelting furnace remains, slag, tuyeres and a glass bead (Pelser 2009: 166-170). The ivory bangles are clearly status insignia showing that the occupants of the particular homestead may have been elite, a view supported by the associated large cattle kraal and perhaps the cuprous tear-drop earrings. The latter were clearly obtained through trade, perhaps with communities further to the north because these earrings (some of which are bronzes made from Rooiberg tin) are common in the large Sotho-Tswana town found in Magaliesburg-Rusternberg area (Bakker et al. 2004; Dreyer 1999; 2006).

The Sotho-Tswana produced pottery referred to as the Moloko cluster. According to Grant *et al*, (2007) Moloko is the archaeological name for the styles of pottery produced by Sotho-Tswana speakers. The Sotho-Tswana also erected stone walled structures. It is therefore important to note that thousands of similar stonewalled settlements lie scattered across the highveld of the Free State (Rossouw 2006.). The oldest type walling is located around the Ntsuanatsatsi Hill which is believed to be the legendary place of origin of BaFokeng. New archaeological research however indicates that the Fokeng group moved up from Northern KwaZulu-Natal and were originally Nguni speaking. As it is known, the type N walling emphasises on the centre/side axis expressed through concentric circles: the inner circle encompasses cattle byres and the men's court, while the female residential zone of beehive houses and grain bins constitutes the outer circle (Huffman 2007). An outer wall sometimes incorporates small stock enclosures because these animals are associated with women. This type of walling first dates to the 15th century. Oral tradition further states that the Tswana people from the west moved across the Vaal River and found BaFokeng at Ntsuanatsatsi and acculturated them. This interaction archaeologically created another different type of walling which was known as the Type V walling derived from Vegkop near Heilbron. Notably, this settlement type includes the most famous corbelled huts capturing the imagination of early travellers (Rossouw 2007).

Historical Heritage

The area between the Orange and Vaal Rivers, initially known as the Trans Gariep and later as the Trans Orangia, was originally inhabited by the KhoiSan who lived a nomadic life and later by the Sotho Tswana. The Orange Free State was defeated and occupied by the British on 13 March 1900 and placed under military administration and on

20 April 1900 the whole Orange Free State was annexed and became the Orange River Colony. Bloemfontein became the new British headquarters for this war. Although mainly stationed in the area that would later become the Tempe military base, evidence of military activities can be found on the surrounding proclaimed farms such as, for example, Lilyvale 2313, Hillandale 249 and Bayswater 2865 – the latter a section of the parent farm of the subject property. As such the Bloemfontein area is dotted with sites of historical significance some of which have already been destroyed as the city expanded in the past years. Major clashes occurred towards the east of Bloemfontein around Sannaspos and Thaba Nchu. War journals recorded extensive battles east of Bloemfontein in 1900 the battle at Sannaspos east of Bloemdstria., another clash on the farm Springfield in April 1900 before and this saw the British forces exchanging fire with the retreating Boers at the Modder River east of Sannaspos. study team checked on the historical maps and noted that in some cases there are no permanent structures indicated on British military maps dated ca. 1900 and 1913 with regards to the study area. Remains of built heritage associated with early European settlers, colonial wars, the Anglo Boer War, graveyards and other historical buildings and structures that are older than 60 years.

SAHRIS Database and Impact assessment reports in the proposed project area

Several archaeological and heritage studies were conducted within the project area since 2002 and these presents the nature and heritage character of the area. The HIA conducted in the area also provide some predictive evidence regarding the types and ranges of heritage resources to be expected in the proposed project area: (see reference list for HIA reports). The studies include mining, water pipeline and powerline projects completed by Dreyer, 2003, 2004a, 2004b, 2004c, 2004d, 2004e, 2008, Rossouw 2007, 2008, 2009, 2010, 2011, 2012, 2017a, 2017b, 2018, 2019).

Dreyer (2007) Archaeological and historical investigation of the proposed township establishment on Portions of the Farms Cecilia 2352, Kwaggafontein 2300 and Bloemfontein 654, Bloemfontein, Free State did not record any archaeological or historical material in the area. Dreyer (2008) in hist Heritage study for access road to the Airport noted that the Estoire agricultural holdings has been subjected to destructive agriculture activities which altered the landscape. Many developments and upgrading took place over the years and numerous land alterations had been done, resulting in severe damage to the environment and archaeological remains that might have occurred. His study did not record any archaeological and cultural remains or historical material in the area. Dreyer (2010) First Phase Archaeological and Heritage Assessment of the proposed installation of the Naval Hill reservoir & water pipeline, Bloemfontein noted that Naval Hill has always been a very prominent landmark in the Free State in general and in Bloemfontein in particular. It is known as an important focal for historical, cultural and natural objects. Naval Hill is probably the most important historical feature of Bloemfontein" The White Horse on the eastern slopes had been described as the only feature of this kind outside Wiltshire in the United Kingdom. The summit of Naval Hill contains numerous remnants of the Anglo. Boer War and other features dating from the past. Remains of earlier military activities occur in the form of remnants of corrugated iron buildings, concrete foundations, reservoir dams

and irrigation furrows, stone terrace walls and steps. SAHRIS website suggests that Rossouw did the bulk of Archaeological and heritage studies in the Bloemfontein area. However, the Naval Hill is located far from the current study area. In his Phase 1 Archaeological Impact Assessment of Portions of Lilyvale 2313 and Bayswater 2865, Bloemfontein Rossouw found scatters of MSA and LSA lithic tools. The distribution of the artefacts ranged from isolated flakes to small loose scatters of various pieces of debitage. His study also recorded a 900m long section of stone walling constructed by the British army. This wall is one of the last remaining traces of the British military occupation of the northern part of Bloemfontein. The walls were built by the British Engineers, which had their camp stationed at Tempe. The stone wall in the affected area is part of a wall which originally ran from the water towers east of Tempe (marked on the British Military map of 1913), to the edge of Hillandale farm. Some sections of these walls can still be seen in the Botanical Gardens, behind the Bloemfontein Spa, and in the Lilyvale area, between Hillsboro and the Lettie Fouche Nasorgsentrum. The study also recorded remains of derelict dwellings and a graveyard. Phillip (2020) in his heritage study for the development of an access road that leads to the R700 road through the Remainder of the farm The Kloof 2165 to the development area of a township with associated infra-structure on Portion 1 of the Farm The Kloof 2165 noted that the Bloemfontein area is overlain with cultural heritage of historical significance dating back to the early colonial white settlers, colonial wars, the Anglo Boer War, the First World War and the Second World war. Philip (2017) states that the Anglo-Boer War (ABW) concentration camps form an important part of South Africa's history and served in the immediate post-ABW years to forge a strong Afrikaner cohesion. Areas around the study area contains successive trail layers of human occupation and use starting from the Anglo-Boer War during which time it most likely formed part of camps of the white Bloemfontein concentration camps (Dreyer 2004a, 2004b, 2004c, 2004d, 2005; Henderson 2006; Henderson *et al.* 2008; Rossouw 2012).

Two key elements from the ABW that survived is the 'Dam van Trane' and a borehole that subsequently formed the centre of a monument, the 'Bron van Herinnering'. Subsequent uses of this area include the forming of a black labour camp at the end of the ABW and during World War I this area was used by the cavalry division. Understandably, concentration camp areas serve as visual reminders of this momentous event in the history of South Africa. It should be noted that no plans could be found to indicate the specific boundaries of the concentration camps, or the area occupied by the cavalry division other than being approximate in this area (Rossouw 2012). However, parts of the area under study were severely disturbed by first the erection of the Oranje-Volksfeeshuis during the 1960s when it was used for various Afrikaner festivals as well as used by the Tempe military base for various gatherings, and its subsequent demolition in the 1980s. The building activities, followed by repeated festivities and subsequent demolition activities would have severely disturbed the surface area

These historical events left a trail of well documented tangible heritage which include historical buildings and structures, battle fields and military camps, concentration camps, graveyards, monuments, and archival heritage housed in museums and archives. Rossouw's Phase 1 Archaeological Impact Assessment of the proposed new

Lourierpark township development on Portion 1 of the farm Brandkop 702, Bloemfontein, FS Province note that Widespread traces of prehistoric human habitation, in the form of stone tool scatters and individual surface finds, have previously been recorded at Bayswater 286, Lilyvale 2313 and Hillandale 249 (Goodwin and Van Riet Lowe 1929). Slypsteenberg, which is the site of the old Sydenham Leper Hospital and graveyard, is located in the vicinity of the study area, while the historically significant Brandkop farmstead, including the old farmhouse, cottage, graveyard, stone-walled compound, surrounding structures and dam walls, is situated in the study area. A recent study by Rossouw (2017) for Phase 1 Archaeological Impact Assessment of a new township development on Farm Rodenbeck 2972, Bloemfontein, FS Province noted that there are no major archaeological remains in the project area. Phase 1 Heritage Impact Assessment for Plot 32 Shannon Valley, Bloemfontein, Free State Province. Rossouw (2017b) Phase 1 Heritage Impact Assessment for Plot 32 Shannon Valley, Bloemfontein, Free State Province noted that the potential archaeological impact at the site is considered to be non-existent. Rossouw (2017c)'s Phase 1 Heritage Impact Assessment: Plot 4, Spitskop Smallholdings, Bloemfontein, Free State Province noted that historical records show no record of permanent dwellings within the study area around 60 years ago and the site has been extensively disturbed by previous farming activities and more recent residential development, with no evident traces of historically significant structures, graves or *in situ* Stone Age archaeological sites. Potential archaeological impact at the site is considered to be non-existent. Phase 1 Archaeological Impact Assessment of a proposed new quarry on Portion 9 (of 6) of the farm Mimosa Glen 885, Bloemfontein, FS Province done by Rossouw noted that the study area is located between archaeologically significant alluvial sediments of the Modder River located to the north of rich cultural remains previously recorded around the northern outskirts of Bloemfontein, including Anglo Boer War remnants, graveyards and historical structures, stone-built kraal structures and dam walls (Dreyer 2004a, 2004b, 2004c, 2004d, 2005; Henderson 2006; Henderson et al. 2008; Rossouw 2012). The study area is located in the vicinity of the south-western periphery of distribution of Late Iron Age stone-walled settlements in the Free State (Maggs 1976). The Stone Age archaeological record of Modder River catchment spans back to the early Middle Stone Age. Prehistoric archaeological remains previously recorded in the region include stone tools and mammal fossil remains from sealed and or exposed contexts. Along much of the course of the Modder River and its tributaries, alluvial deposits contain localized occurrences of in situ Middle and Later Stone Age material eroding out of the overbank sediments where they are often found in association with fossil mammal remains (Churchill *et al.* 2000; Rossouw 2006). Localized occurrences of *in situ* Middle and Later Stone Age material are preserved within overbank sediments of the Modder River and its tributaries between Maselspoort and Glen north of Bloemfontein (Rossouw 2006). Widespread traces of prehistoric human habitation, in the form of stone tool scatters and individual surface finds, have previously been recorded around the northern outskirts of Bloemfontein (Goodwin and van Riet Lowe 1929, Henderson et al. 2008; Rossouw 2012). The Phase 1 Heritage Impact Assessment for industrial development on Plot 14, Ribblesdale, Bloemfontein, Free State Province done by Rossouw (2018) confirmed that the study area is of low archaeological significance. Rossouw (2020) Phase 1 Heritage Impact Assessment proposed new quarry on remainder portion of Farm De Hoop 230, Bloemfontein, FS

Province observed that there is no above-ground evidence of building structures older than 60 years, Stone Age archaeological remains, graves or material of cultural significance within the confines of the development footprint. As far as the archaeological heritage is concerned, the proposed development is considered to be of low archaeological significance and is assigned a site rating of Generally Protected C.

Van Ryneveld (2008)'s Phase 1 Archaeological study for subdivision ERF 4621 Hammilton Bloemfontein in the Free State Province recorded only historical buildings protected by Section 34 of the NHRA. The structure is not a SAHRA declared National Heritage Resource, Provincial Heritage Resource or Registered Site. However, pre-dating 60 years of age, the site is subject to general protection under the NHRA 1999. Van Ryneve (2011) study for the proposed Mazelspoort to Phillip Sanders Bulkwater infrastructure pipeline, Bloemfontein, Free State Province did not record any significant archaeological remains along the pipeline route. In the same area Dreyer (2004) conducted a study at a site is situated north of the Mazelspoort to Philip Sanders Bulk Water Infrastructure Pipeline alignment while Dreyer (2007) assessed the area immediately north of the Modder River. Van Rynveld (2009) study for the proposed residential development on Portion 1, 2&3 of Strathearn 2154, Bloemfontein, Free State Province did not identify any significant archaeological remains. However, the study recorded buildings and structures which are older than 60 years which are protected in terms of Section 34 of the NHRA.

Henderson, Z. Coetzee, G, Nkhasi, K & Koortzen, C. (2007) Archaeological assessment report for subdivision Rayton 1/3, Bloemfontein District, Free State, South Africa noted that no known sites have been recorded in the immediate vicinity of the property. The property does, however lie within the corridor between the Tempe military camp and the area now known to have been part of military activity during the South African War (Henderson 2004). However, no artefacts relating to military activities were found on the property. Although no significant archaeological remains were recorded in the study area, the authors observed that the project area falls within a greater area known for Middle Stone Age material (Henderson 2004).

Phillip (2017) Phase I Heritage Impact Assessment Report for the proposed Hospital and Heritage Lifestyle Centre, Bloemfontein the rich history of the Bloemfontein area especially, sites of historical significance which are scattered in the town and surroundings. Gaigher (2019) study for the Proposed New Township Development outside Bloemfontein in the Mangaung Metropolitan Municipality in the Free State Province. Situated on a Portion of the Farm Klipfontein 716 and the Farm Ceres 626 observed that the study area was investigated during a field visit and through archival studies. The site was found to be devoid of any heritage sites with significance.

The findings by several CRM studies indicate that the project is a rich LIA landscape although most areas are now disturbed by residential and other infrastructure developments. The potential of encountering LIA remains on the proposed development site ranges from medium to high (see chance find procedure for proper handling of chance finds). In addition, the Project Area was also studied by means of maps on which it appears. The selected reports and other heritage studies conducted in the Mangaung area provide an insight into the heritage character of the

proposed development site. The identified archaeological and heritage sites mentioned in the reports are located outside the current study area.

Intangible Heritage

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

10. RESULTS OF THE FIELD STUDY

The main cause of impacts to archaeological sites is direct, physical disturbance of the archaeological remains themselves and their contexts. It is important to note that the heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. The severe impacts are likely to occur during clearance, construction of access roads and excavations. The excavation and clearance of topsoil will result in the relocation or destruction of all existing surface heritage material. Similarly, the clearing of access roads will impact material that lies buried beneath the surface. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to construction. It is important to note, that due to the localised nature of archaeological resources, that individual archaeological sites could be missed during the survey, although the probability of this is very low within the proposed township establishment site. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during excavation. The purpose of the AIA is to assess the sensitivity of the study area in terms of archaeology and heritage as well as to avoid or reduce the potential impacts of the proposed township establishment by means of mitigation measures (see appended Chance Find Procedure). The study concludes that the impacts to archaeological resources will be negligible since the site is built up (see Plate 1). The following section presents results of the field survey.

10.4 Archaeological Heritage Sites

Previous Phase 1 AIA and HIA studies conducted around the project area (e.g Dreyer 2004, Phillip (2019). Rossouw 2011, Rossouw 2017)) highlighted the potential for recovering MS, LIA and significant historical sites in the project area has potential to yield significant archaeological and cultural heritage resources. However, the proposed project site did not yield any confirmable archaeological sites or material. Some sections of the affected landscape are

heavily degraded from previous and current land use such as residential developments and associated infrastructure as well as excessive erosion and agriculture. The proposed development site is located within a heavily disturbed landscape characterised by approximately 60% of the land is built up and approximately 40% or less being for grazing livestock with few patches of thick bushes. This limited the chances of encountering significant in *situ* archaeological sites to be preserved in *situ*. As such the proposed township establishment, will be an additional development on the project area. It is the considered opinion of the authors that the chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as powerlines, road works, agricultural activities as well as dwellings that already exist on the project area.

Based on the field study results and field observations, the authors concluded that the receiving environment for the proposed development is low to medium potential to yield previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed township establishment. It should be noted that the lack of confirmable archaeological sites should rather be seen as a lack of research in the area and not as an indication that such features do not occur. As such the chance find procedure apply (see appended chance find procedure).

10.5 Burial grounds and graves

Human remains and burials are commonly found close to archaeological and historical sites; they may be found in abandoned and neglected burial sites 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. Archaeological and historical burials are usually identified when they are exposed through erosion and earth moving activities or infrastructure developments such as powerlines and roads. In some instances, packed stones or stones may indicate the presence of informal pre-colonial burials.

The field survey did not record any burial sites within the proposed township establishment site. Burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. Wherever they exist or not, they may not be tempered with or interfered with during any proposed development. It is important to note that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present (see appended Chance Find Procedure). Although the possibility of encountering previously unidentified burial sites is low within the township establishment site, should such sites be identified during subsurface excavations, they are still protected by the NHRA and the Human Tissue Act.

10.6 Buildings and Structures older than 60 years

The study identified isolated, dilapidated buildings and structures that are possibly older than 60 years. The actual age of the buildings could not be conclusively confirmed since some of the buildings were demolished, and we

could not get access to some sections the farm portions because permission was not granted. It anticipated that we would obtain information regarding the age of the buildings and structures during public participation meetings. Should any building or structure be confirmed to be older than 60 years, then Section 34 of the NHRA which protects buildings and structures that are older than 60 years will be triggered**.**

O

Plate 15: Photo **O**. showing demolished and dilapited residential unit within the development site. Note that the age of the structure could not be determined during the survey.

P

Plate 16: Photo **P**. showing delapidated water reservoir within the proposed township establishment site.

10.7 Public Monuments and Plaques

The study did not identify any public monuments and commemorative plaques within the proposed township establishment site.

10.8 Natural and Geological Heritage

The survey did not record any significant cave or sacred geological formations which are in the heritage register of the Free State Region.

10.9 Assessment of construction impacts

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

The significance of the impacts will be determined through a synthesis of the criteria below:

Table 3: Criteria Used for Rating of Impacts

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

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

Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

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

Table 4: Criteria for Rating of Classified Impacts

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

The significance of each activity should be rated without mitigation measures (WOM) and with mitigation (WM) measures for both construction, operational and closure phases of the proposed development

Table 5: **Impact Assessment Matrix for proposed township establishment**

Impacts and Mitigation measures relating to the construction during Operational Phase														
Activity/Aspect	**Impact /**	**Aspect**	**Nature**	**Magnitude**	**Extent**	**Duration**	**Probability**	**Significance before mitigation**	**Mitigation measures**	**Magnitude**	**Extent**	**Duration**	**Probability**	**Significance after mitigation**
Clearing and construction	Destruction of archaeological remains	Cultural heritage	-	6	1	1	3	24	• None required because no archaeological remains were recorded • Use chance find procedure to cater for accidental finds	2	1	1	1	4
	Disturbance of graves	Cultural heritage	-	4	1	1	3	18	• None required	2	1	1	1	4
	Disturbance of buildings and structures older than 60 years old	Operational	-	8	1	4	3	39	• Apply for section 34 demolition permits for any building or structure that will be confirmed to be older than 60 years old	2	1	2	2	10
Movement of equipment	Destruction public monuments and plaques	Operational	-	2	1	1	1	4	• Mitigation is not required because there are no public monuments within the mining right application site	2	1	1	4	4

10.10 Cumulative Impacts

Cumulative impacts are defined as Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed project considered the total impact associated with the proposed project when combined with other past, present, and reasonably foreseeable future developments projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed township establishment was undertaken during the preparation of this report. The total impact arising from the proposed township establishment (under the control of the applicant), other activities (that may be under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated. The project's impact is therefore one part of the total cumulative impact on the environment. The analysis of a project's incremental impacts combined with the effects of other projects can often give a more accurate understanding of the likely results of the project's presence than just considering its impacts in isolation. The impacts of the proposed development were assessed by comparing the post-project situation to a pre-existing baseline. The proposed township establishment will continue to add to the impacts in the area, it was deemed appropriate to consider the cumulative effects of proposed development.

This section considers the cumulative impacts that would result from the combination of the propose development project. There are existing residential developments in the project area. As such increased development in the project area will have a number of cumulative impacts on heritage resource whether known or covered in the ground. For example, during the construction phase they will be increase in human activity and movement of heavy construction equipment and vehicles that could change, alter or destroy heritage resources that may be buried beneath the surface. Cumulative impacts that could result from a combination of the proposed project and other actual or proposed future developments in the broader study area include site clearance and the removal of topsoil could result in damage to or the destruction of heritage resources that have not previously been recorded for example abandoned and unmarked graves. Heritage resources such as burial grounds and graves and archaeological and historical sites are common occurrences within the study area. These sites are often not visible and as a result, can be easily affected or lost. Vibrations and earth moving activities associated with construction has the potential to crack/damage graves marked by tombstones, which may occur in the greater study area. In addition, vibration from traffic has the potential to impact buildings and features of architectural and cultural significance.

No specific paleontological resources were found in the project area during the time of this study; however, this does not preclude the fact that paleontological resources may exist within the greater study area. As such, the proposed development has the potential to impact on possible paleontological resources in the area. Sites of archaeological, paleontological, or architectural significance were not specifically identified, and cumulative effects

are not applicable. The nature and severity of the possible cumulative effects may differ from site to site depending on the characteristics of the sites and variables.

Cumulative impacts that need attention are related to the impacts of access roads and impacts to buried heritage resources. Allowing the impact of the proposed township establishment to go beyond the surveyed area would result in a significant negative cumulative impact on sites outside the surveyed area. Movement of heavy construction vehicles must be monitored to ensure that they do not drive beyond the approved site. No significant cumulative impacts, over and above those already considered in the impact assessment, are foreseen at this stage of the assessment process. Cumulative impacts can be significant, if construction equipment and vehicles are not monitored to avoid driving through undetected heritage resources.

Table 6: Summary of findings

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	Buildings exist but the current state cannot warranty for conservation or determination of the age.
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists
Historical settlements and townscapes	None survives in the proposed area.
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	None
Graves and burial grounds	None were recorded
Movable objects	None
Overall comment	The surveyed area has no identifiable archaeological remains on the surface, but sub-surface chance finds are still possible (see Chance Finds Procedure

11. DISCUSSION

The proposed township establishment is not likely to affect any significant archaeological remains. However, there are buildings and structures whose ages could not be established during the Phase 1 Archaeological and Heritage Impact Assessment. These buildings and structures will require further investigations once the proposed project is approved. In the absence of confirmable ages of the identified buildings and structures, it is not clear if the proposed project triggers Section 34 of the NHRA which protects buildings and structures that are older than 60 years. The archaeological findings outside the study area attest to the fact that the project area is located within a rich cultural landscape. As such the potential for encountering subsurface archaeological remains and unmarked graves ranges from low to medium (See the appended Chance find procedure for handling of chance find). The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of previous clearance and ploughing that may have destroyed surface remains. In addition, surface visibility was compromised by thick vegetation cover. However, the absence of confirmable and significant archaeological cultural heritage sites is not evidence in itself that such sites did not exist within the proposed township establishment site. The significance of the site of Interest (the development site) is not limited to presence or absence of physical archaeological sites. It is important to note that the site has been sufficiently assessed in terms of conditions necessary for a Phase 1 Archaeology and Heritage Impact Assessment.

12. RECOMENDATIONS

1. From a heritage perspective supported by the findings of this study, the proposed township establishment and associated developments are feasible. However, the proposed township establishment should be approved to proceed as planned under observation that the development dimensions do not extend beyond the proposed sites.
2. A walkdown survey must be conducted to record all buildings and structures that are likely to be older than 60 years before the project commences.
3. A Phase 1 Palaeontological study may be required to assess the palaeontological potential of the proposed development site.
4. Contractors and workers must be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological, or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

5. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by SAHRA.
6. The footprint impact of the proposed development and associated infrastructure should be kept to minimal to limit the possibility of encountering chance finds.
7. Should any unmarked burials be exposed during excavation, affected families must be tracked and consulted, relevant rescue/ relocation permits must be obtained from SAHRA before any grave relocation can take place. Furthermore, a professional archaeologist must be retained to oversee the relocation process in accordance with the National Heritage Resources Act 25 of 1999.
8. Should chance archaeological materials or human burials remains be exposed during construction work on any section of the proposed development sites, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption in construction scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the PHRA and NHRA regulations (see appended Chance Find procedure for further details).
9. The Project Public Participation Process should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated to PHRA throughout the proposed project development. This form of extended community involvement would pre-empty any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study.
10. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMP there are no other significant cultural heritage resources barriers to the proposed Estoire Township Establishment. The Heritage authority may approve the proposed development to proceed as planned with special commendations to implement the recommendations here in made.

13. CONCLUSION

Integrated Specialist Services (Pty) Ltd was appointed by KV Development Group to carry out HIA for the proposed Township Establishment on Various Portions of Estoire Settlement, Mangaung Metropolitan Municipality, Free State Province. The study revealed that proposed development site has been significantly altered over several years of agricultural activities and other destructive land use patterns. It was anticipated that if any archaeological remains existed in the area, developments such as agriculture and associated infrastructure developments should have exposed them. In spite of the rich history and archaeology of the general area prior to commercial agriculture developments after the mid-20th century, field surveys on and within the proposed township establishment site did not yield any archaeological remains. In terms of the archaeology and heritage in respect of the proposed development, there are no obvious 'Fatal Flaws' or 'No-Go' areas. However, the potential for chance finds, still remains and the applicant and contractors are advised to be diligent and observant during clearance of the site. The procedure for reporting chance finds has clearly been laid out and if this report is adopted by SAHRA, then there are no archaeological reasons why the proposed township establishment project cannot be approved.

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15. APPENDIX 1 CHANCE FIND PROCEDURE FOR THE PROPOSED TOWNSHIP ESTABLISHMENT ON VARIOUS PORTIONS OF ESTOIRE SETTLEMENT, MANGAUNG METROPOLITAN MUNICIPALITY, FREE STATE PROVINCE.

JUNE 2021

ACRONYMS

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

CHANCE FIND PROCEDURE

INTRODUCTION

An Archaeological Chance Find Procedure (CFP) is a tool for the protection of previously unidentified cultural heritage resources during construction and excavation. The main purpose of a CFP is to raise awareness of all construction workers and management on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources. Chance Finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction activities. Chance Finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the site manager must ensure that all personnel on the proposed development site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance find procedure details the necessary steps to be taken if any culturally significant artefacts are found during construction.

DEFINITIONS

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

BACKGROUND

Proposed township establishment site is subject to heritage survey and assessment at planning stage in accordance with the NHRA. These surveys are based on surface indications alone and it is therefore possible that sites or significant archaeological remains can be missed during surveys because they occur beneath the surface. These are often accidentally exposed in the course of excavation work or any associated construction work and hence the need for a Chance Find Procedure to deal with accidental finds. In this case an extensive Archaeological Impact Assessment was completed by Mlilo (2021) over a large area earmarked

for development. The AIA/HIA conducted was very comprehensive covering the entire site. The studies did not record any significant archaeological or heritage resources.

PURPOSE

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

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

CHANCE FIND PROCEDURE

General

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

- All construction/clearance activity in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the find site.

- Briefly note the type of archaeological materials you think you've encountered, and their location, including, if possible, the depth below surface of the find
- Report your discovery to your supervisor or if they are unavailable, report to the project ECO who will provide further instructions.
- If the supervisor is not available, notify the Environmental Control Officer immediately. The Environmental Control Officer will then report the find to the Site Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide 25m buffer zone from all sides of the find.
- Record the find GPS location, if able.
- All remains are to be stabilised *in situ.*
- Secure the area to prevent any damage or loss of removable objects.
- Photograph the exposed materials, preferably with a scale (a yellow plastic field binder will suffice).
- The project archaeologist will undertake the inspection process in accordance with all project health and safety protocols under direction of the Health and Safety Officer.

- **Finds rescue strategy**: All investigation of archaeological soils will be undertaken by hand, all finds, remains and samples will be kept and submitted to a Museum as required by the heritage legislation. In the event that any artefacts need to be conserved, the relevant permit will be sought from the SAHRA.
- An on-site office and finds storage area will be provided, allowing storage of any artefacts or other archaeological material recovered during the monitoring process.
- In the case of human remains, in addition to the above, the SAHRA Burial Ground Unit will be contacted and the guidelines for the treatment of human remains will be adhered to. If skeletal remains are identified, an archaeological will be available to examine the remains.
- The project archaeologist will complete a report on the findings as part of the permit application process.
- Once authorisation has been given by SAHRA, the Applicant will be informed when construction activities can resume.

MANAGEMENT OF CHANCE FINDS

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

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

a. Heritage Specialist to inspect, evaluate and document the exposed burial or skeletal remains and determine further action in consultation with the SAPS and Traditional authorities:

b. Heritage specialist will investigate the age of the accidental exposure in order to determine whether the find is a burial older than 60 years under the jurisdiction of SAHRA or that the exposed burial is younger than 60 years under the jurisdiction of the Department of Health in terms of the Human Tissue Act.

c. The local SAPS will be notified to inspect the accidental exposure in order to determine where the site is a scene of crime or not.

d. Having inspected and evaluated the accidental exposure of human remains, the project Archaeologist will then track and consult the potential descendants or custodians of the affected burial.

e. The project archaeologist will consult with the traditional authorities, local municipality and SAPS to seek endorsement for the rescue of the remains. Consultation must be done in terms of NHRA (1999) Regulations 39, 40, 42;

f. Having obtained consent from affected families and stakeholders, the project archaeologist will then compile a Rescue Permit application and submit to SAHRA Burial Ground and Graves Unit.

g. As soon as the project archaeologist receives the rescue permit from SAHRA he will in collaboration with the company/contractor arrange for the relocation in terms of logistics and appointing of an experienced undertaker to conduct the relocation process.

h. The rescue process will be done under the supervision of the archaeologist, the site representative and affected family members. Retrieval of the remains shall be undertaken in such a manner as to reveal the stratigraphic and spatial relationship of the human skeletal remains with other archaeological features in the excavation (e.g., grave goods, hearths, burial pits, etc.). A catalogue and bagging system shall be utilised that will allow ready reassembly and relational analysis of all elements in a laboratory. The remains will not be touched with the naked hand; all Contractor personnel working on the excavation must wear clean cotton or non-powdered latex gloves when handling remains in order to minimise contamination of the remains with modern human DNA. The project archaeologist will document the process from exhumation to reburial.

i. Having fulfilled the requirements of the rescue/burial permit, the project archaeologist will compile a mitigation report which details the whole process from discovery to relocation. The report will be submitted to SAHRA and to the company.

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

16. APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED TOWNSHIP ESTABLISHMENT

Objective	• Protection of archaeological sites and land considered to be of cultural value; • Protection of known physical cultural property sites against vandalism, destruction, and theft; and • The preservation and appropriate management of new archaeological finds should these be discovered during construction.							
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Construction Phase								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Construction Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed form site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Mine Manager who in turn will inform LIHRA.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the LIHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as construction phase.						
Operational Phase								
		Same as construction phase.						

17. Appendix 3: HERITAGE MITIGATION MEASURE TABLE

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Archaeological and Burial Sites	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction and mining work which may disturb previously unidentified chance finds.	Possible damage to previously unidentified archaeological and burial sites during mining phase. • Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites. • Loss of historic cultural landscape; • Destruction of burial sites and associated graves • Loss of aesthetic value due to mining work • Loss of sense of place Loss of intangible heritage value due to change in land use	In situations where unpredicted impacts occur mining activities must be stopped, and the heritage authority should be notified immediately. Where remedial action is warranted, minimize disruption in mining scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate. • Where burial sites are accidentally disturbed during mining, the affected area should be demarcated as no-go zone by use of fencing during mining, and access thereto by the construction and mining teams must be denied. • Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritage officer responsible should secure relevant heritage and health authorities permits for possible relocation of affected graves accidentally encountered during construction and mining work.	• Contractor / • Project Manager • Archaeologist • Project EO	Fine and or imprisonment under the PHRA Act & NHRA	Monitoring measures should be issued as instruction within the project EMP. PM/EO/Archaeologists Monitor construction and mining work on sites where such development projects commences within the farm.

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

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

General principles for heritage resources management

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

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

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

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

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

(2) To ensure that heritage resources are effectively managed—

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

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

(3) Laws, procedures and administrative practices must—

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

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

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

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) take account of all relevant cultural values and indigenous knowledge systems;

(b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;

(c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;

(d) contribute to social and economic development;

(e) safeguard the options of present and future generations; and

(f) be fully researched, documented and recorded.

Burial grounds and graves

36. (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1) and must maintain such memorials.

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

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

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

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

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

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

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

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

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

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

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant

to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

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

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

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

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

General policy

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

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

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

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

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

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

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

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

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