

A Phase 1 Heritage Impact Assessment for the proposed Amelia Trading Shopping Centre and filling Station in Sasolburg in Metsimaholo Local Municipality of the Free State Province

Date: February 2020

Document Information

Item	Description
Proposed development and location	The development of a Shopping Centre and filling station on portion 4 of the farm Amelia 518, Sasolburg in Metsimaholo Local Municipality of the 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 project on these resources within the area demarcated for the proposed shopping centre and filling station development.
1:50 000 Topographic Map	2627
Coordinates	S26 00' 11.9; E28 06 ' 78.2' Centre of site, S26 52' 0.30; E27 53 ' 64.3' Milling factory, S26 52' 0.15; E27 53 ' 74.1', Powerline, S26 52' 0.36; E27 53 ' 58.5' Milling factory,
Municipalities	Metsimaholo Local Municipality under Fezile Dabi District Municipality.
Description of property	Portion 4 of Amelia Farm 518 (12, 0861 hectares)
Predominant land use of surrounding area	Vacant, commercial, old agriculture fields, residential, road and transport
Applicant	Amelia Trading 001 Trading Corporation
EAP	Hluli Environmental Consultancy
Heritage Consultant	Integrated Specialist Services (ISS)
Date of Report	Revised report 10 February 2020
Contact person	Foreman Bandama (fbandama@yahoo.co.uk)
Proposed development and location	The development of a Shopping Centre and filling station on portion 4 of the farm Amelia 518, Sasolburg in Metsimaholo Local Municipality of the Free State Province.

NATIONAL LEGISLATION AND REGULATIONS GOVERNING THIS REPORT

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

DECLARATION OF INDEPENDENCE

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

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

Expertise:

Trust Mlilo, MA. (Archaeology), BA Hons, PDGE and BA & (Univ. of Pretoria) 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.

Independence

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

Conditions relating to this report

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

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

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

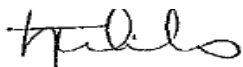
Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

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

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

The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the authorisation of shopping centre and filling station being proposed by Amelia Trading 001 Trading Corporation.

Signed by



10/ 02/ 2020

Acknowledgement

The author acknowledges Amelia Trading 001 Trading Corporation and the Hluli Environmental Consultancy (EAP) for their assistance with project information, and the associated project BID as well as responding to technical queries related to the project. Integrated Specialist Services would like to thank all the farmers /land owners who provided access to their farms and also provided vital information regarding existence of any heritage resources within their respective farms.

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ABBREVIATIONS

AIA	Archaeological Impact Assessment
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMP	Environmental Management Plan
HIA	Heritage Impact Assessment
ISS	Integrated Specialist Services
LIA	Late Iron Age
NHRA	Nation Heritage Resources Act, Act 25 of 1999
PM	Project Manager
PHRA	Provincial Heritage Agency
SM	Site Manager
SAHRA	South African Heritage Resources Agency

KEY CONCEPTS AND TERMS

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

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

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

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

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

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

Definitions 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

1 INTRODUCTION

Background

Integrated Specialist Services (Pty) Ltd was appointed by Hluli Environmental Consultancy to carry out a scoping and Phase 1 AIA/ HIA of the proposed shopping centre and filling station on Portion 4 of the farm Amelia 518 in Sasolburg. The study area is located approximately, about 6.5 kilometres east of Sasolburg's CBD to the east of the R89 highway within Metsimaholo Local Municipality in Free State Province. The proposed Amelia Trading development site is approximately 12 hectares (5ha for shopping mall and 1 ha for filling station and situated on previously cultivated piece of land (Figure 1). A portion of the site is zoned as commercial owing to existing shop and structure and the rest is zoned for agriculture. However, as prescribed by SAHRA and stipulated by legislation, an HIA is a pre-requisite for this kind of development. 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 development 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 (desktop studies) which was then followed by ground-truthing by means of drive-through surveys and field walking. Desktop studies had indicated that Iron Age and historical sites were a possibility in the study area but no such sites were recorded during ground-truthing. While heritage resources may have been located in the study area, subsequent developments such as industrial work and agriculture have either obliterated these materials or reduced them to isolated finds that can only be identifiable as chance finds during construction. If the recommendations of this report are adopted, there is no archaeological reason why construction cannot proceed, taking full cognizance of clear procedures to follow in the event of chance findings.

In line with SAHRA guidelines, this report, not necessarily in that order, provides:

- 1) Management summary
- 2) Methodology
- 3) Information with reference to the desktop study
- 4) Map and relevant geodetic images and data
- 5) GPS co-ordinates
- 6) Directions to the site
- 7) Site description and interpretation of the cultural area where the project will take place
- 8) Management details, description of affected cultural environment, photographic records of the project area
- 9) Recommendations regarding the significance of the site and recommendations regarding further monitoring of the site.
- 10) Conclusion

Description of the proposed project

ESM intends to develop a new shopping mall and filling station on portion 4 of the Farm Amelia 518 approximately 12 hectares in extent. The site consists of an existing shop, and abandoned milling structure and a brick moulding site. There is a residential area across the road barely 500m from the proposed development site. The site is located within old agriculture fields. In summary, the works will focus mainly on construction of:

- Shopping Mall
- Filling station
- Associated infrastructure

Since the proposed site is 12 hectares and entails the development and upgrading of a property greater than 5 hectares, the National Heritage Resources Act, 1999 (Act No. 25 of 1999) demands that an AIA/HIA of the development site be undertaken in terms of Section 38 (3) of the Act. Various other legislations also mandate that development such as this should be preceded by an AIA as shown below.

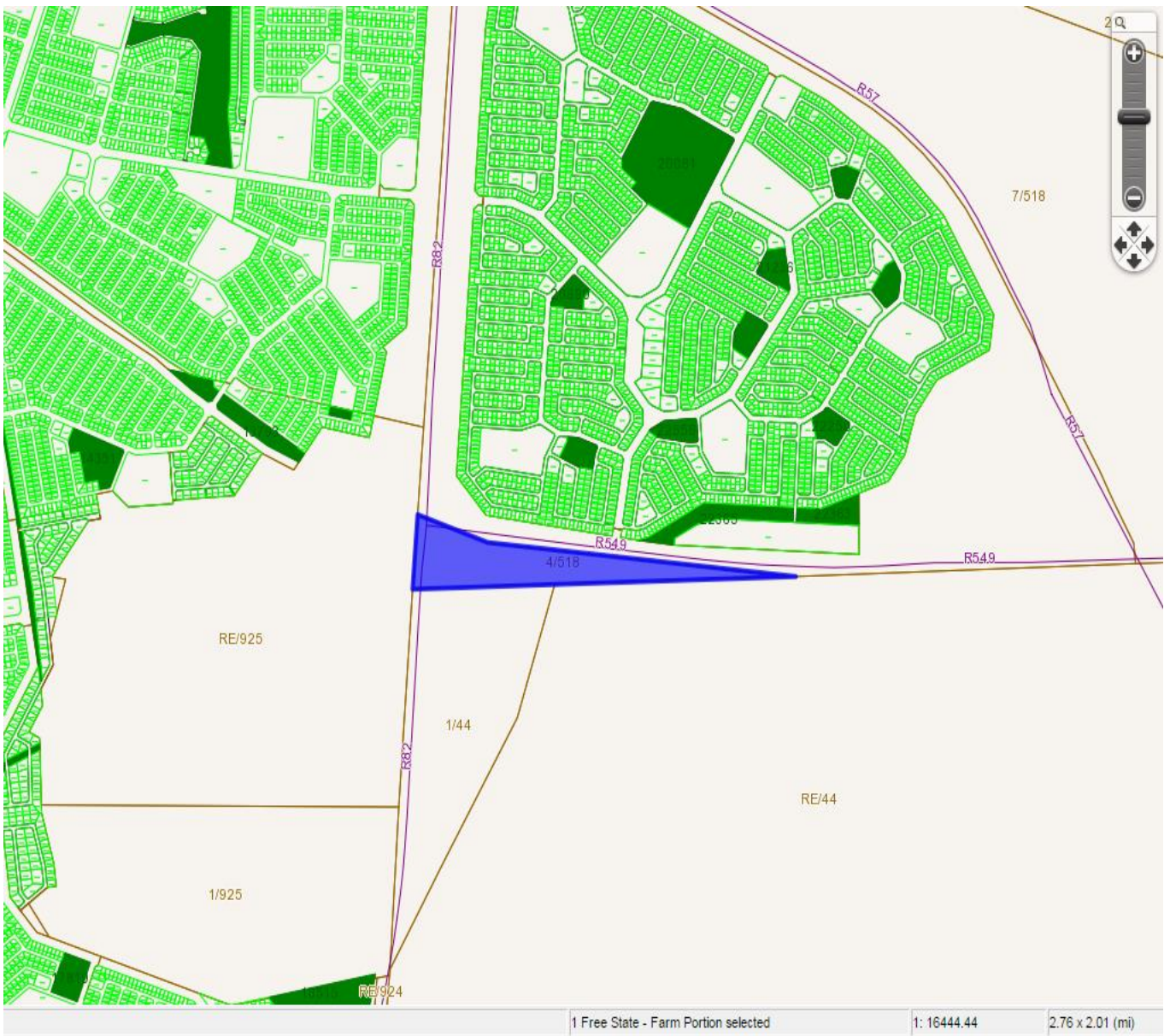


Figure 1: showing lay out plan of the proposed development (Citiplan 2015)

THE PROPERTY
PORTION 4 OF THE FARM
AMELIA 518

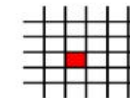
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PROVINCE: FREE STATE
 PROVINSIE:

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citiplan
 TOWN PLANNERS
 PO BOX 11199
 WIERDA PARK 0057
 CELL: 082 414 5321
 citiplan@vodamail.co.za

DESIGNED: ONTWERP:	PLAN NO. AMELIA 518
SHEET ? OF ? SHEET	SCALE: 1:7500
DATE/DATUM: January 2015	SKAAL:



Figure 2: showing Google image of the proposed development site (Citiplan 2015)

2 LEGAL REQUIREMENTS

Relevant pieces of legislations to the present study are presented here. Under the National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA), Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), and the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and 2014 Regulations, 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 proposed development is a listed activity in terms of Section 38 of the NHRA which stipulates that the following development categories require a 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 NHRA also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs).

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may alter, damage, destroy, relocate etc. any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority. 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 SAHRA or PHRA (the relevant PHRA), 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 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 likely discovery of burials or graves by the developer or his contractors. Section 37 of the NHRA deals with public monuments and memorials which exist in the proposed project area.

In addition, the new EIA Regulations (4 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 applicant, the environmental consultant, SAHRA or PHRA 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) are 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 true for the Metsimaholo Local Municipality (proposed project area) whose main economic activities are mining and agriculture. 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 also 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 a proposed 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 1: Evaluation of the proposed development as guided by the criteria in NHRA, MPRDA 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	No
	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	No
	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 (21/04/2006) NEMA	5	HIA is required as part of an EIA	Yes
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Other relevant legislations

The Human Tissue Act

Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925 Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial Member of the Executive Committee (MEC) as well as the relevant Local Authorities.

Terms of Reference

The author was instructed to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed development sites 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 EIA application.
- 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 impact of the proposed construction development on these cultural remains, according to a standard set of conventions;
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
- Review applicable legislative requirements;

PHOTOGRAPHIC PRESENTATION OF THE PROJECT SITE



Plate 1: Photo 1: Shows centre of proposed development site. Note the existing shop and abandoned milling site.



Plate 2: Photo 2: Shows centre of proposed development site. Note the existing shop and abandoned milling site.



Plate 3: Photo 3: Showing some structures within the proposed development site.



Plate 4: Photo 4: Showing the road marking the boundary of the site and old milling structures within the proposed development.



Plate 5: Photo 5: Shows centre of proposed development site. Note the existing shop and abandoned milling site.



Plate 6: Photo 6: Showing an old agriculture field behind existing shops



Plate 7: Photo 7: Showing the eastern side of the study area.

3 METHODOLOGY

This document falls under the screening and basic assessment phase of the HIA and therefore aims at providing an informed heritage-related opinion about the proposed development. This is usually achieved through a combination of a review of any existing literature and a basic site inspection. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage laws, the history and archaeology of the area were studied. The desktop study was followed by field surveys. The field assessment was conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of cultural significance on the development footprint. Initially a drive-through was undertaken around the proposed development as a way of acquiring the archaeological impression of the general area. This was then followed by a walk down survey in the study area, with a hand held Global Positioning System (GPS) for recording the location/position of each possible site. Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the proposed development 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 development.

3.1 Assumptions and Limitations

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

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information would apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed development activities will be limited to specific right of site as detailed in the development layout (Figure 1& 2).
- The construction team to provide link and access to the proposed site by using the existing access roads and there will be no construction beyond the demarcated site.

- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such the results herein discussed are based on superficially observed indicators. However, these surface observations concentrated on exposed sections such as road cuts and clear farmland.
- This study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area.

4 CULTURE HISTORY BACKGROUND OF THE PROJECT AREA

4.1 Stone Age Archaeology

Stone Age archaeology is prevalent in the larger province but is generally thin in the study area. 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). LSA material is recorded along ridges to the south of the current study area (Huffman 2008). Petroglyphs occur at Redan as well as along the Vaal River (Berg 1999). A rock engraving site that was declared a national monument was also discovered at Redan on the farm Macuvlei near Vereeniging and not very far from the project area. The Redan Rock Engraving site contains as many as 244 rock engravings done on an outcrop of rocks. Some of the engravings depicts animals, while others illustrate KhoiSan weapons. A large number of the engravings are geometric designs, such as circles and other symbolic figures. The Redan Rock art site is very significant site testifying that the Vaal area has long been inhabited by prehistoric communities such as the KhoiSan. Some of the remains are housed at the Vaal Teknorama Museum in Vereeniging.

To the south, notable MSA/LSA remains have been reported around the Vredefort Dome. Some of these materials occur in caves 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, very little is known about the Stone Age archaeology of the area under study.

4.2 Iron Age Archaeology

Agriculturalist communities entered southern Africa from West and East Africa around AD 200 and brought with them sedentary and 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. After missing out on the Early Iron Age occupation, 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).

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 accumulation 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 general area under study, even though one may not expect to encounter a secure LIA occupation on the clearly farmed development footprint. 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 remarkable materials that include sea shells, 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 symbols 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. These ornaments were evidently 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. Other researchers who surveyed the general area concur that the area covered by the Vredefort Dome

Conservancy and its surroundings are rich LIA remains in the form of stone-walls dating from the 17th century to early 19th Century (Bakker *et al.* 2004; Dreyer 1999; 2006).

4.3 Historical and mining heritage (~ AD 1800 to 1950)

Southern Africa was networked with the literate world for several centuries, but the period of written history in the study area corresponds to the increased arrival of travelers and white farmers in the 1800s. Before this, the Portuguese maritime expansion had begun around in the 15th Century culminating with Vasco da Gama reaching several places along South Africa's coast and trading with Khoekhoen (Khoi) and Bantu-speaking groups along the coast. From AD 1591 the Dutch and English ships joined the trade resulting in more permanent settler life, first in Cape Town before the white farmers (free burghers) pushed into the interior.

In 1820 a major British settlement was implanted on the eastern frontier of the Cape Colony, resulting in large numbers of the community moving into the interior, initially to KwaZulu-Natal, and then after Britain annexed Natal (1843), further into the interior to beyond the Vaal River. Disruptions of the *Mfecane* eased their takeover of African lands and the Boers (farmers) established several Republics. Ethnographically, recollections of major events such as the *Mfecane* stand out. These wars definitely affected the area under study, in as much as they affected much of the interior, even beyond the Zambezi. The ripple effects resulted in the disruptions of Sotho-Tswana groups in the Free State. In 1824 Mzilikazi, one of Shaka's exceptional general fled the Zulu king with about 20000 followers and on highway north briefly established two strong holds at Mosega and Kapain, from which he controlled and scattered the many Sotho-Tswana groups such as the Kwena, who in 1823 were settled on Kokosi hill (now Losberg) north of the Vredefort Dome (Naude 2009). Cattle raiding, conflict over land and changes in climatic and subsistence strategies characterised much of the cultural landscape of the time.

The first European settler occupation of area around the development footprint happened in the 1830s (Pelser 2009: 171). This occupation was influenced by both the need for farmland, as well as prospecting and mining for gold. The activities left unmistakable landmarks such as holes and trenches, mine dumps, mine tunnels and remains of various structures for both dwellings and farm/mine activities (Figure 3).



Plate 8 Photo 8 A historical image of 19th century gold mining activities near RoodeRand Goldfields in Venterskroon (Pelser 2009: 176).

Decorated historical porcelain and metals usually accompany these sites. Cemeteries, some of which have marked graves dating as early as 1910, also occur in the general area under study. One of the most important one is the Anglo-Boer War (AD 1899-1902) cemetery and concentration camp memorial near Koppies to the southwest of the dome (Pelser 2009: 178).

The following section presents historical towns in the project area and their growth and influence to the heritage character of the project area.

Sasolburg,

Sasolburg, town is located in the northern Free State Province close to the border between Gauteng and the Free State Province. The town was established in 1954 by Sasol Ltd. (the former South African Coal, Oil, and Gas Corporation Ltd.) to house employees at the world's first oil-from-coal plant producing commercial quantities of oil. The location was selected for its proximity to large coal deposits, the Vaal River, and the Witwatersrand markets. A variety of petrochemicals are also produced. Sasolburg attained official town status in 1967. The initial installation (Sasol 1) was a pilot plant to refine oil from coal, due to the lack of petroleum reserves. The coal reserves of the country were and still are extensive. The political developments of the late 1960s and early 1970s (specifically the trade embargoes against the apartheid government) made the operation of the pilot plant a priority to the

government. Plans were made for a production plant to be built in the Eastern Transvaal to produce approximately 25% of the national fuel requirements. Sasolburg was targeted by Umkhonto weSizwe (MK) the African National Congress's military wing - in 1980 in an attempt to sabotage the apartheid regime. Although the attack became very popular the damage to the plant was minimal.

Vereeniging

Vereeniging is located in the southern part of Gauteng Province, and its neighbours are Vanderbijlpark (to the west), Three Rivers (east), Meyerton (north) and Sasolburg (south). The city is currently one of the most important industrial manufacturing centres in South Africa, with its main products being iron, steel, pipes, bricks, tiles and processed lime. Several coal, fire clay, silica and quarry stone mines are operational in the Vaal area. There are several Eskom thermal power plants that supply electricity to the nearby gold mines in the vicinity of Vereeniging. Water supply to Gauteng has its history in the Vaal region.



Plate 9 Photo 9: View of the blockhouse in Meyerton built by the British during the Second Boer War.

Vereeniging was established in 1892 on the farm Leeuwkuil as a result of rapid coal mining development in the area. The farm Leeuwkuil was bought by Samuel Marks who established the De Zuid Afrikaanshe en Oranje Vrystaatsche Kolen and Mineralen Vereeniging (South African and Orange Free State Coal and Mineral Association). The Coal mines in Vereeniging supplied coal to Kimberley by ox drawn wagons. The town experienced rapid growth as a mining town and later as the steel manufacturing hub of South Africa.

The city witnessed the Anglo-Boer war and a concentration camp was established at Vereeniging in September 1900. Many blood battles were fought in the Vereeniging area. A well-preserved British blockhouse still testifies to the Anglo-Boer War of 1899- 1902 (see Plate 11). It is located at Witkop, 10 kilometres to the north of Meyerton on the main road to Johannesburg (R59). By October 1901 the concentration camp housed 185 men, 330 women, and 452 children. Today, the Maccauvlei Golf Course is on the site of the concentration camp. The Vereeniging concentration camp cemetery is located in the old municipal cemetery, off Beaconsfield Avenue near the abattoir. A garden of remembrance also exists on the Makauvlei golf course, near the clubhouse.

The town of Vereeniging played a most significant role in the history of South Africa especially the ending of the Anglo-Boer war. The Treaty of Vereeniging (also called the Peace of Vereeniging) was signed on the 31st of May 1902, and saw the end of a protracted and miserable conflict between the British Crown and the Boer Settlers for sovereignty of the resource-rich land of South Africa. The Treaty of Vereeniging which ended the Second Boer war (1899-1902) was negotiated and signed by the South African Republic, Orange Free State and the British Empire. The Peace of Vereeniging Monument was erected to commemorate the Peace of Vereeniging that ended the Anglo-Boer War in 1902.

During the Apartheid era, the city of Vereeniging experienced one of the worst massacres in the history of the struggle against apartheid. In 1960 a group of anti-pass law protesters were massacred at the Sharpeville Police Station which is now a Museum. The Sharpeville Massacre is known around the world as one of the most tragic and significant events in South Africa's Apartheid history. On March 21st 1960, a demonstration against South Africa's draconian pass laws, held outside the Sharpeville police station, became catastrophic. The apartheid police fired on the demonstrators, killing 69 people and injuring hundreds more. This event is commemorated in this memorial in Sharpeville, as well as in Human Rights Day which is an annual public holiday, marked by many memorial events around South Africa. The Sharpeville Massacre site and the Pelandaba Cemetery where the victims are buried are National Heritage Sites managed by SAHRA. The sites have been nominated to be included into the prestigious UNESCO World Heritage list. There are also monuments commemorating the fallen soldiers and victors of the Anglo Boer War, to the women and children who died in the English run concentration camps, and monuments to the victors and loser in various tribal wars. There are monuments and tributes to the incidents, heroes and martyrs in the struggle against Apartheid.

There are pre-historic archaeological discoveries and curiosities, from plant fossils to dinosaur bones to the fossilised remains of hominids and early humans which were discovered in the Vereeniging area. Since the late 19th century, quarrying operations in Vereeniging have revealed some fossiliferous sandstone outcrops in the area. The discoveries were made during mining operations at places such as Leeuwkuil and the Central Colliery Mine as

well as at other localities near to the Vaal River. Specimens are displayed at the Bernard Price Institute for Palaeontological Research (Leslie Collection), the Geological Museum in Johannesburg and in the Vereeniging Museum. The most common genera present are Noeggerathiopsis, Gangamopteris and Glassopteris. The quarrying operations also unearthed numerous Stone Age sites along earlier or ancient banks of the Vaal River and the Klip River. Early and Middle Stone Age sites were discovered at several localities, such as Klipplaatdrift, the Klip River Quarry site, the Duncanville Archaeological Reserve (also known as the Van Riet Louw Archaeological Reserve). The Redan Rock art site is very significant site testifying that the Vaal area has long been inhabited by prehistoric communities such as the KhoiSan. Some of the remains are housed at the Vaal Teknorama Museum in Vereeniging.



Plate 10 Photo 10,11,12 and 13: View of the Concentration Camp Graveyard and Memorial and The George William Stow Memorial – Bedworth Farm, Free State, Vaal.

The first railway line over the Vaal River linking the Orange Free State Republic (OFS) and the Zuid-Afrikaanse or Transvaal Republic was officially opened on 21 May 1892 by President Reitz of the OFS and President Kruger of the ZAR. Pillars of the bridge carrying the old railway line can still be seen in the Vaal River (www.joburg.org.za). A

feature was built to commemorate British soldiers who died during the Anglo-Boer War near the railway line that crosses the Vaal River. The small Voortrekker Monument celebrating the 100-year anniversary of the Ossewatrek was erected in 1938 in the middle of Voortrekker road in Vereeniging, between Mark laan and Merriman laan. Several coal mines were established on both sides of the Vaal River, such as the Cornelia and Springfield coal mines. A memorial for five miners who died in South Africa's first mining disaster in 1905 was erected at the Vereeniging Cemetery. The previous National Monuments Council unveiled a bronze plaque to commemorate the 100-year anniversary of the discovery of coal at Dickinson Park.

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.

SAHRIS Database and Impact assessment reports in the proposed project area

Several heritage sites are on record in the general project area. These sites consist of Stone Age, Late Iron Age, Anglo Boer War remains and Historic mining remains. Several Heritage Impact Assessment studies were conducted in the general vicinity of the study area. The studies include mining, powerline and housing development projects completed by Beater, 2017, Bruwer, J, Bruwer 2006, Dreyer 2005a &b, Fourie, 2017, Higgitt, 2015, Pistorius 2008, 2012, Van der Walt, 2008, 2009a, 2009b, 2011, 2013, Van Schalkwyk (2007,2013). The study mentions several archaeological and heritage sites in the project area. Key to the current study is Pistorius (2012) report which covered the entire project site. The started recorded several burial sites and historical structures and buildings worth noting (see Figure 1). The studies also note the existence of prehistoric sites, sites associated with Anglo Boer war as well as sites associated with the recent struggle against apartheid (Fourie 2017, Mlilo 2017)

5 RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY

The proposed development site is located within mostly ploughed agriculture fields near Sasolburg in Metsimaholo Local Municipality. The Environmental Impact Assessment process will aim to provide a final site assessment of the proposed development site based on biophysical, social, cultural, and technical considerations. The following section presents results of the archaeological and heritage survey conducted within the proposed development project site.

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 and digging for foundations, indirect impacts may occur during movement of construction vehicles. The excavation for foundations for fuel tanks and fence line posts 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 in the surface sand. 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 development site. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during construction (see Chance find procedure). The purpose of the AIA is to assess the sensitivity of the area in terms of archaeology and to avoid or reduce the potential impacts of the proposed development by means of mitigation measures (see appended Chance Find Procedure). The study concludes that the impacts will be negligible since the site has previously been cleared and ploughed. The following section presents results of the field survey. The following section presents results of the archaeological and heritage survey conducted within the proposed development project site.

Archaeological Remains and sites

The field survey did not identify any confirmable archaeological remains within the proposed development site. Based on the field study results and field observations, it is the considered opinion of the author 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 development. Literature review also revealed that no Stone Age sites are shown on a map contained in a historical atlas of this area. This

however should rather be seen as a lack of research in the area and not as an indication that such features do not occur.

Burial grounds and graves

Human remains and burials are commonly found close to archaeological 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. Human remains are usually identified when they are exposed through erosion. In some instances, packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work, then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial site they would need to be exhumed under a permit from either SAHRA (for pre-colonial burials as well as burials later than about AD 1500).

The field survey did not record any burial site within the proposed development site. It should however be noted that burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. In addition, graves are very critical proving footprint of communities seeking land restitution. Wherever they exist or not, they may not be tampered with or interfered with during any proposed development. It is also important to note that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low at the project site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected.

Public Monuments and Memorials

No public memorials and monuments were recorded within the proposed project site.

Buildings and Structures

There are no buildings and structures which are older than 60 years. As such the proposed development does not trigger Section 34 of the NHRA.

6 CUMMULATIVE IMPACTS

The European Union Guidelines define cumulative impacts as: “Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed development is considered the total impact associated with the proposed development when combined with other past, present, and reasonably foreseeable future developments projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed infrastructure project was undertaken during the preparation of this report. The total impact arising from the proposed project (under the control of the applicant), other activities (that may be under the control of others, including other developers, local communities, 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. Where projects can be considered in isolation this provides a good method of assessing a project’s impact. However, in this case there are several infrastructure developments including agricultural activities where baselines have already been affected, the proposed development will continue to add to the impacts in the region, 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 proposed development. There are existing infrastructure developments and agriculture activities within the proposed construction development site. 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 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 within and outside the proposed development sites given that archaeological remains occur on the surface. Cumulative impacts that could result from a combination of the proposed development 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 as well as historical sites are common occurrences within the greater study area. These sites are often not visible and as a result, can be easily affected or lost. In addition, increased human activity during construction phase allows increased access to heritage. Furthermore, many heritage resources in the greater study area are informal, unmarked and may not be visible, particularly during the wet season when grass cover is dense. As such, construction workers may not see these

resources, which results in increased risk of resource damage and/or loss. Vibrations and earth moving activities associated with drilling and excavation tower have the potential to crack/damage rock art covered surfaces, which are known to occur in the greater study area. In addition, vibration from traffic has the potential to impact buildings and features of architectural and cultural significance. A potential interaction between archaeology, architectural and cultural heritage and landscape and visual during both the construction and operational phase of the proposed project is identified. Construction work will result in a visual impact and impact on features of architectural and cultural significance. Construction works associated with the provision of material assets such as gravel, in particular underground works have the potential to interact with archaeology, architectural and cultural heritage.

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 construction project 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 refer to additional impacts, which even if acceptable if considered in isolation, would together with the existing impacts, exceed the threshold of acceptability and cause harm to the cultural landscape. 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 construction to go beyond the surveyed area would result in a significant negative cumulative impact on sites outside the surveyed area. A significant cumulative impact that needs attention is related to stamping by especially construction vehicles during clearance and excavation within the development sites. Movement of heavy construction vehicles must be monitored to ensure they do not drive beyond the approved sites. 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 vehicles/equipment are not monitored to avoid driving through undetected heritage resources.

7 ASSESSMENT OF SIGNIFICANCE

Assessment Criteria

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 alternatives under study for meeting a project need. The significance of the aspects/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:

Probability: This describes the likelihood of the impact actually occurring.

Improbable: The possibility of the impact occurring is very low, due to the circumstances, design or experience.

Probable: There is a probability that the impact will occur to the extent that provision must be made therefore.

Highly Probable: It is most likely that the impact will occur at some stage of the development.

Definite: The impact will take place regardless of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.

Duration: The lifetime of the impact

Short Term: The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.

Medium Term: The impact will last up to the end of the phases, where after it will be negated.

Long Term: The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.

Permanent: The impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: The physical and spatial size of the impact

Local: The impacted area extends only as far as the activity, e.g. footprint

Site: The impact could affect the whole, or a measurable portion of the above-mentioned properties.

Regional: The impact could affect the area including the neighboring residential areas.

Magnitude/ Severity: Does the impact destroy the environment, or alter its function

Low: The impact alters the affected environment in such a way that natural processes are not affected.

Medium: The affected environment is altered, but functions and processes continue in a modified way.

High: Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

Negligible: The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

Low: The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

Moderate: The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The following weights were assigned to each attribute:

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20 ≤40
	Moderate	>40 ≤60
	High	>60

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.

Impact Assessment Matrix

Proposed filling station and mini market						
Nature of Impact	Management Measures	Duration	Scale	Severity	Probability	Significance
Archaeological Remains	Without management	3	3	6	2	Moderate
	With management	3	2	2	2	Low
Graves and Burial Grounds	Without management	3	3	1	4	Moderate
	With management	3	3	1	2	Low
Historical buildings and structures	Without management	3	3	6	3	Moderate
	With management	3	3	2	2	Low
Mining Heritage	Without management	3	3	1	4	Low
	With management	3	2	1	2	Low
Monuments and memorials	Without management	3	3	1	1	Moderate
	With management	1	3	1	1	Low
Natural Heritage	Without management	3	3	2		

Based on the results of the Impact Assessment Matrix the proposed EIA application site is viable from a heritage perspective.

8 STATEMENT OF SIGNIFICANCE

Aesthetic Value

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

The proposed construction site will be situated within an environment and associated cultural landscape, which, although developed by existing settlements, remains representative of the original historical environment and cultural landscape of this part of Free State Province. The local communities consider the project area a cultural landscape linked to their ancestors and history. However, the proposed development will not alter this aesthetic value in any radical way since it will add to the constantly changing and developing settlements.

Historic Value

The Indigenous historic values of the Site of Interest and overall study area are contained in the claim of possible historic homesteads being located on the affected area. The history of generations of the Sotho-Tswana clans is tied to this geographical region. Such history goes back to the pre-colonial period, through the colonial era, the colonial wars and subsequent colonial rule up to modern day Free State Province.

Scientific value

Past settlements and associated roads and other auxiliary infrastructure developments and disturbance within the HIA Study Area associated with the proposed development site has resulted in limited intact landscape with the potential to retain intact large scale or highly significant open archaeological site deposits.

Social Value

The project sites fall within a larger and an extensive cultural landscape that is integrated with the wider inland. The overall area has social value for the local community, as is the case with any populated landscape. Literature review suggests that social value of the overall project area is also demonstrated through local history which associates the area with the coming of European missionaries, explorers and colonialists and the African struggle against settler colonialism in the second half of the 1800s and at the end of the 1800s, the colonial wars of resistance, the century long struggle for democracy that followed colonial subjugation. Several generations of communities originate from the project area and continue to call it home. As such, they have ancestral ties to the area. The land

also provides the canvas upon which daily socio-cultural activities are painted. All these factors put together confirms the social significance of the project area. However, this social significance is unlikely to be negatively impacted by the proposed infrastructure especially given the fact that the development will add value to the human settlements and activities already taking place. The boundary of the development site is covered by thick bushes and vegetation retains social value as sources of important herbs and traditional medicines. As such, they must be considered as significant social value sites.

9 DISCUSSION

Several Phase 1 Archaeological and Heritage Impact studies were conducted in the project area since 2002. The studies were conducted for various infrastructure developments such as powerlines and substations, water supply pipelines and residential developments. These studies noted that Metsimaholo area is a rich cultural landscape with heritage sites dotted in the entire area. Although now altered significantly by mainly agriculture activities, several significant archaeological sites were recorded in the area and there are several colonial and post-apartheid monuments in the area for example Pistorius (2008, 2012) and Van der Schalkwyk (2015). Therefore, the current study should be read in conjunction with previous Phase 1 Impact Studies conducted in the proposed project area. The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of two primary interrelated factors:

1. That proposed development site is located within a degraded area (agriculture), and have reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical, or burial sites, due to previous disturbances resulting from developments and other land uses in the project area.
2. Limited ground surface visibility due to thick grass cover that may have impeded the detection of other physical cultural heritage site remains or archaeological signatures immediately associated with the development sites. This factor is exacerbated by the fact that the study was limited to general survey without necessarily conducting any detailed inspection of specific locations that will be affected by the proposed development.

The absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist in the general project area. It should be noted that significance of the sites of Interest (construction sites) is not limited to presence or absence of physical archaeological sites.

Chance finds procedures

It has already been highlighted that sub-surface materials may still be lying hidden from surface surveys. Therefore, absence (during surface survey) is not evidence of absence all together. The following monitoring and reporting procedures must be followed in the event of a chance find, in order to ensure compliance with heritage laws and policies for best-practice. This procedure applies to the applicant's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. Accordingly, all construction teams must be properly inducted to ensure they are fully aware of the procedures regarding chance finds.

- ❖ If during the construction, operations or closure phases of this project, any person employed by the applicant, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the site manager.
- ❖ The site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing ISS.
- ❖ The client will then contact a professional archaeologist for an assessment of the finds who will in turn inform SAHRA.

10 RECOMMENDATIONS

The study did not find any permanent barriers to the proposed development. It is the considered opinion of the author that the proposed development may proceed from a heritage resources management perspective, provided that mitigation measures are implemented if and when required. The following recommendations are based on the results of the AIA/HIA research, cultural heritage background review, site inspection and assessment of significance.

- From a heritage point of view, the proposed development is viable because the proposed project site has been extensively altered by agriculture activities and other associated infrastructure developments.
- The proposed trading development may be approved to proceed as planned under observation that construction work does not extend beyond the surveyed site.
- Although located across the main road, the recorded burial site must be demarcated by a danger warning sign and must be clearly marked to avoid any accidental damage by especially heavy construction and haulage trucks.
- The applicant must ensure that the descendants of the recorded graves are sought, and notified about this proposed development which might have an impact (directly or indirectly) on their burial site.
- No stone robbing, or removal of any material is allowed. Any disturbance or alteration on this burial site would be illegal and punishable by law, under section 36 (3) of the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999).
- Should any unmarked burials be exposed during construction, potential custodians must be trekked, consulted and relevant rescue/ relocation permits must be obtained from SAHRA and or Department of Health 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.

- Should chance archaeological materials or human burial remains be exposed during subsurface construction work on any section of the proposed development laydown 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 NHRA regulations.
- 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 development. The Heritage authority may approve the proposed development to proceed as planned with special commendations to implement the recommendations here in made.
- If during the operation or closure phases of this project, any person employed by the applicant, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the site manager.
- The Site Manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing ISS.
- In the event that archaeological materials are unearthed, all excavation activities within a radius of at least 20m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist should be contacted immediately
- It is the responsibility of the applicant to protect the site from publicity (i.e., media) until a mutual agreement is reached.
- 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
- The applicant is reminded that unavailability of archaeological materials (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils does not mean they do not occur, archaeological material might be hidden underground, and as such the client is reminded to take precautions during subsurface excavations.
- The foot print impact of the proposed construction activities should be kept to minimal to limit the possibility of encountering chance finds within the proposed site.
- Overall, impacts to heritage resources are not considered to be significant for the project receiving environment. It is thus concluded that the project may be cleared to proceed as planned subject to the

Heritage Authority ensuring that detailed heritage monitoring procedures are included in the project EMP for the construction phase, include chance archaeological finds mitigation procedure in the project EMP (See Appendix 1).

- The chance finds process will be implemented when necessary especially when archaeological materials and burials are encountered during subsurface construction activities.
- The findings of this report, with approval of the SAHRA, may be classified as accessible to any interested and affected parties within the limits of the laws.

11 CONCLUDING REMARKS

ISS was appointed by HEC to carry out a HIA of the proposed shopping mall and filling station on Portion 4 of farm Amelia 518 (Sasolburg), as required by heritage legislation. The proposed development lies on disturbed ground that is within a highly industrialized zone. Desktop research intimated that the rich history and archaeology of the general area prior to several industrial and residential developments after the mid-20th century but field surveys on and around the proposed area did not yield any heritage material. The potential for chance finds, still remains and the developer and his contractors are requested to be diligent and observant during construction of the land 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 construction cannot proceed.

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Appendix 1: Heritage Management Plan Input into the Filling Station project EMP

Objective	<ul style="list-style-type: none"> Protection of archaeological sites and land considered to be of cultural value; Protection of known physical cultural property sites against vandalism, destruction and theft; and The preservation and appropriate management of new archaeological finds should these be discovered during construction. 							
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-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, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform PHRA.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the PHRA 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.						

Appendix 2: Heritage mitigation measures 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 work which may disturb previously unidentified chance finds.	<p>Possible damage to previously unidentified archaeological and burial sites during construction phase.</p> <ul style="list-style-type: none"> • 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 construction work • Loss of sense of place <p>Loss of intangible heritage value due to change in land use</p>	<p>In situations where unpredicted impacts occur construction activities must be stopped and the heritage authority should be notified immediately.</p> <p>Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate.</p> <ul style="list-style-type: none"> • Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing during construction, and access thereto by the construction team 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 work. 	<ul style="list-style-type: none"> • Contractor / • Project Manager • Archaeologist • Project EO 	Fine and or imprisonment under the PHRA-G Act & NHRA	<p>Monitoring measures should be issued as instruction within the project EMP.</p> <p>PM/EO/Archaeologists Monitor construction work on sites where such development projects commences within the farm.</p>

Appendix 3: Legal background 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.