
PHASE 1: ARCHAEOLOGICAL IMPACT ASSESSMENT
REPORT FOR THE PROPOSED DEVELOPMENT OF TWO FILLING STATIONS AND
ASSOCIATED INFRASTRUCTURE ALONG THE R24 ROAD IN MAGALIESBURG, GAUTENG
PROVINCE.

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Document Information

Item	Description
Proposed development and location	Proposed development of two filling stations and associated infrastructure in Mogale City Local Municipality Gauteng Province.
Title	Proposed development of two filling stations and associated infrastructure in Mogale City Local Municipality Gauteng Province: Archaeological and Heritage Impact Assessment Report
Purpose of the study	The purpose of this study is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed the development of two filling stations and associated infrastructure.
1:50 000 Topographic Map	2627 CD
Coordinates	25° 55' 59.22" S; 27° 28' 08.12" E
Municipalities	Mogale City
Predominant land use of surrounding area	Existing farm infrastructure, Vacant, agricultural, residential, road and transport
Size of project site	30 Ha
Developer	Nedmac Projects (Pty) Ltd.
Heritage Consultant	Integrated Specialist Services (Pty) Ltd
Date of Report and Status	20 October 2017 Final Report
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Reference Number	GAU 002/17-18/E0080

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

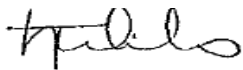
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Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

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

Disclaimer: The Author is 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 proposed filling station and associated infrastructure.

Signed by



20 October 2017

ACKNOWLEDGEMENTS

The authors acknowledge Mawenje Consulting (Pty) Ltd and Nedmac Projects (Pty) Ltd for their assistance with project information, and the associated project BID as well as responding to technical queries related to the project.

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EXECUTIVE SUMMARY

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Section 38 of the National Heritage Resources Act, Act 25 of 1999 (NHRA). Integrated Specialist Services (Pty) Ltd was commissioned by Mawenje Consulting (Pty) Ltd on behalf of Nedmac Projects (Pty) Ltd to conduct this Archaeological and Heritage Impact Assessment (AIA/HIA) Study for the proposed two filling stations and associated infrastructure. The proposed project is located along R24 in the Mogale City Local Municipality, Gauteng Province. This report comprises an impact study on potential archaeological and cultural heritage resources that may be associated with the proposed two filling stations and associated infrastructure project site. This study was conducted as part of the specialist input for the Basic Impact Assessment exercise. The proposed development consists of two filling stations and associated infrastructure. As such, the study covers the site for the proposed filling stations and associated infrastructure. These have been determined by the developer and project information has been passed to ISS study team by the project EAP. Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, burial grounds or isolated artefacts were likely to be present on the affected landscape. The field survey was conducted to test this hypothesis and verify this prediction within the proposed development site.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project.
- Most sections of the project area are accessible, and the field survey was effective enough to cover all sections of the project receiving environs. However, some portions of the proposed project site had limited access because of thick grass cover.
- The project area is predominantly agriculture and residential.
- Most of the proposed project site is severely degraded from previous agriculture activities and infrastructure developments such as powerlines, irrigation infrastructure, roads and access roads.
- Although the possibility of archaeological or historical sites associated with the general project area is high, however, from a contextual studies perspective, no medium to high significance archaeological, heritage landmark or monument was recorded during this study.

The report sets out the potential impacts of the proposed development on heritage matters and recommends appropriate safeguard and mitigation measures that are designed to minimize the impacts where appropriate. The Report makes the following recommendations:

- Should construction work commence for this project:

- The proposed project construction teams must be inducted on the significance of the possible archaeological resources that may be encountered during subsurface construction work before work on the area commences in order to ensure appropriate treatment and course of action is afforded to any chance finds.
- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- The findings of this report, with approval of the SAHRA/PHRA-G, may be classified as accessible to any interested and affected parties within the limits of the laws.

The conclusion of this study is that the impacts of the proposed development of the cultural environmental values are not likely to be significant if the Environmental Management Plan includes recommended safeguard and mitigation measures identified in this report.

ABBREVIATIONS

AIA	Archaeological Impact Assessment
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMP	Environmental Management Plan
GPS	Geographical Positioning System
HIA	Heritage Impact Assessment
LIA	Late Iron Age
NHRA	Nation Heritage Resources Act, Act 25 of 1999
PM	Project Manager
PHRA-G	Gauteng 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.

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

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared by Integrated Specialist Services (Pty) Ltd for the purpose of Basic Impact Assessment being conducted by Mawenje Consulting (Pty) Ltd. Nedmac Projects (Pty) Ltd. is proposing to develop two filling stations and associated infrastructure along R24 Road. This report details the field study, results of the study as well as discussion on the anticipated impacts of the proposed development as is required by Section 38 of the National Heritage Resources Act, Act 25. It focuses on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources in relation to the proposed development. ISS study team undertook the assessments, research and consultations required for the preparation of the report comprising archaeological and heritage impacts for the purpose of ensuring that the cultural environmental values are taken into consideration and reported into the Basic Assessment process.

The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of expected impacts from the proposed development. The assessment includes recommendations to manage the expected impact of the proposed development. The report includes recommendations to guide heritage authorities in making appropriate decision with regards to approval process for the proposed development. The report concludes with detailed recommendations on heritage management associated with the proposed development work. ISS (Pty) Ltd an independent consulting firm, conducted the assessment; research and consultations required for the preparation of the report in a manner consistent with its obligations set out in the NHRA.

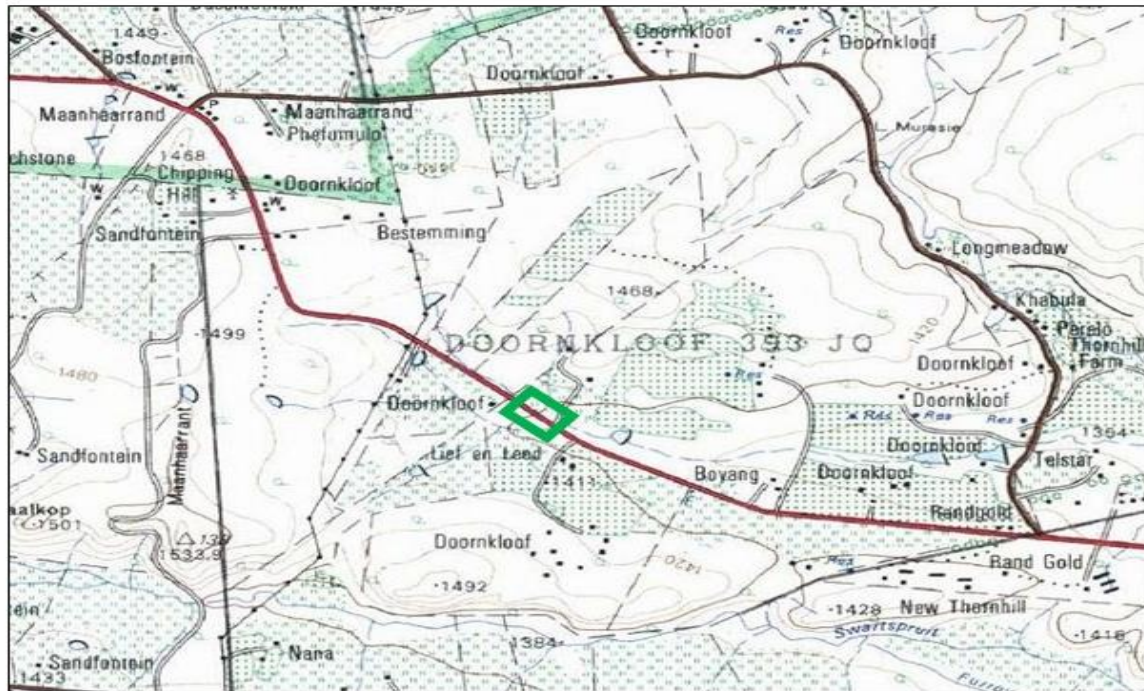
In line with SAHRA guidelines, this report, not necessarily in that order, provides:

- 1) Management summary
- 2) Methodology
- 3) Information regarding 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.

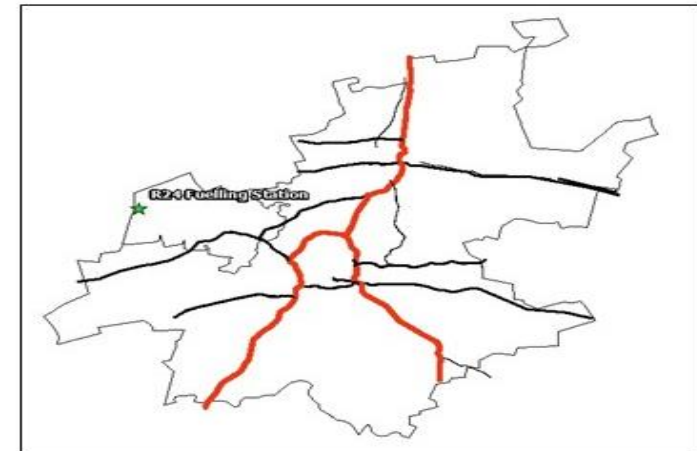
Location of the proposed project site

Magaliesberg is a predominantly agricultural area that is nestled on the southern slopes of the Magaliesberg Mountain range in the Mogale City Local Municipality, Gauteng Province. The area is zoned as a rural area and is situated in the West Rand of Gauteng Province. The land on which the activity will occur is 30 hectares in size. The project area is located on the farm under the jurisdiction of Mogale City Local Municipality within Gauteng Province **(See Figure 1)**. The project area is mainly agricultural, agriculture and industrial which dates back to the 19th Century. The project area is accessed from R24 west (Refer to Fig. 1 – Google Site Map). On the North bound facing R24, the Existing access conditions to the Convenient Store will be maintained i.e. -Off Ramp from the Southerly direction heading north to Rustenburg into Filling station- On Ramp onto R24 heading either direction. On the South bound side of R24, where there is an existing access road to Farm stand.

Locality Map of the Proposed R24 Filling Station in Magaliesburg, Gauteng Province



Scale 1 : 25 000



Legend





-  Proposed R24 Filling Station
-  Hydrographic Feature
-  Roads
-  Railway

Figure 1: Site and directions to access to Two filling stations and associated infrastructure (Mawenje 2017)

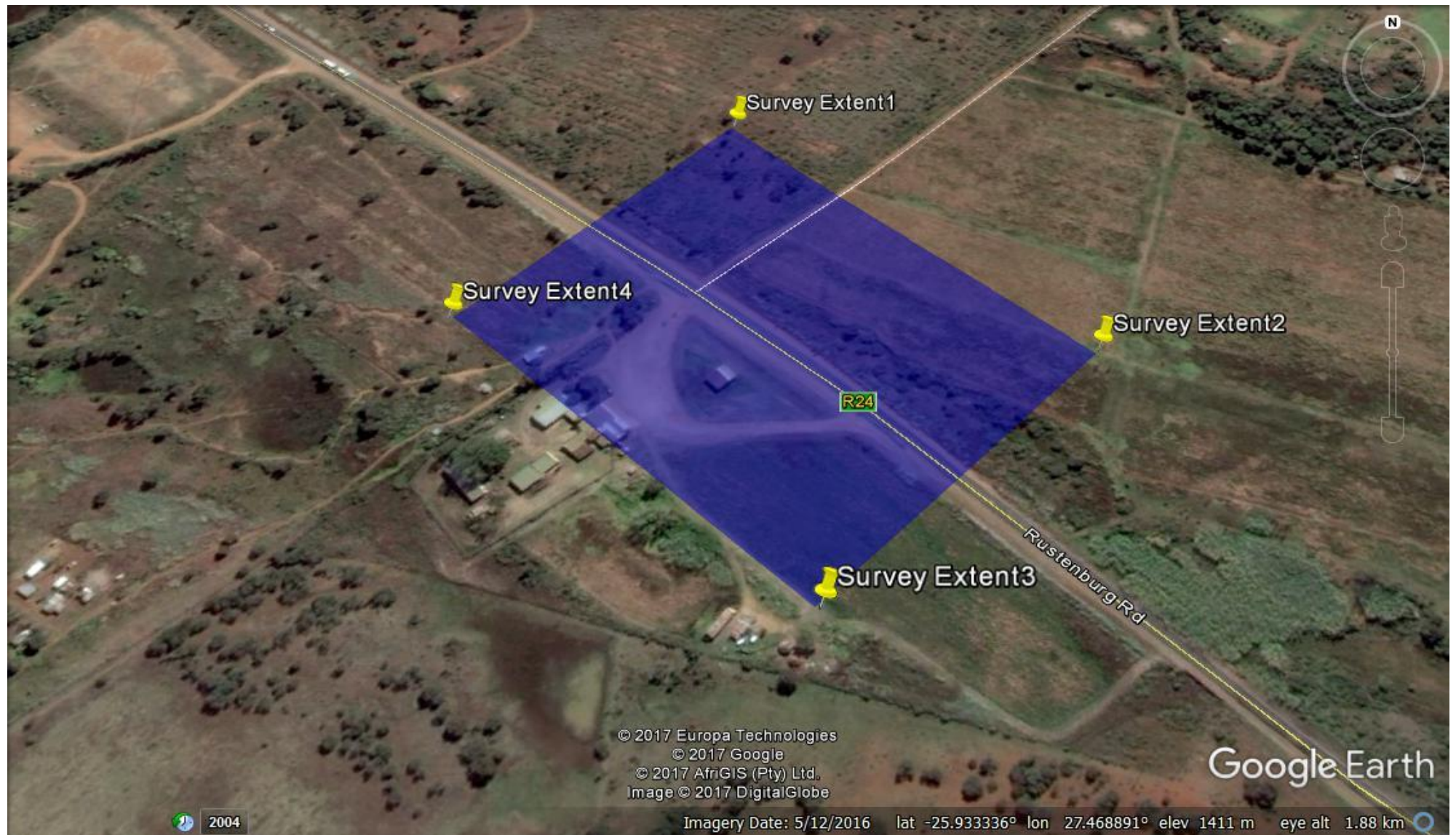


Figure 2: Site and directions to access to Two filling stations and associated infrastructure (Mawenje 2017)

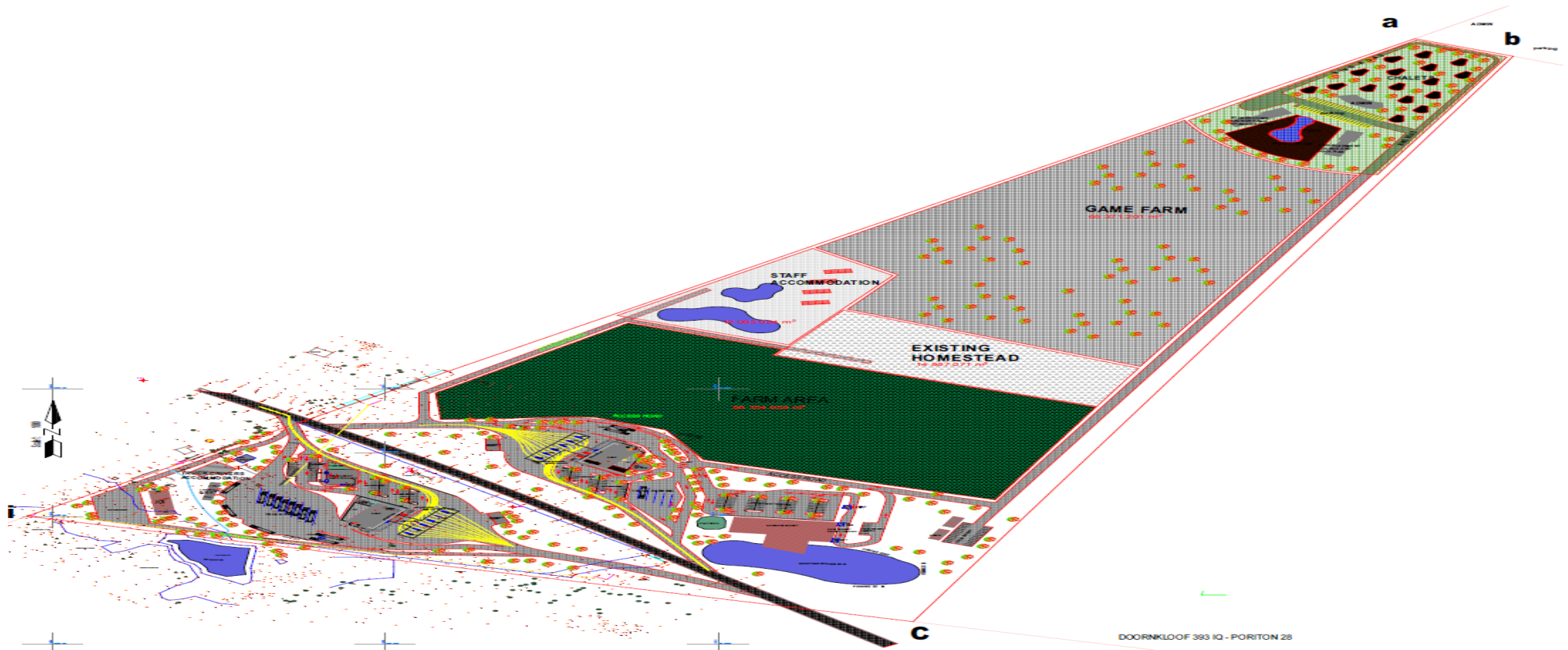


Figure 3: Site lay out plan for the proposed development (Mawenje 2017)

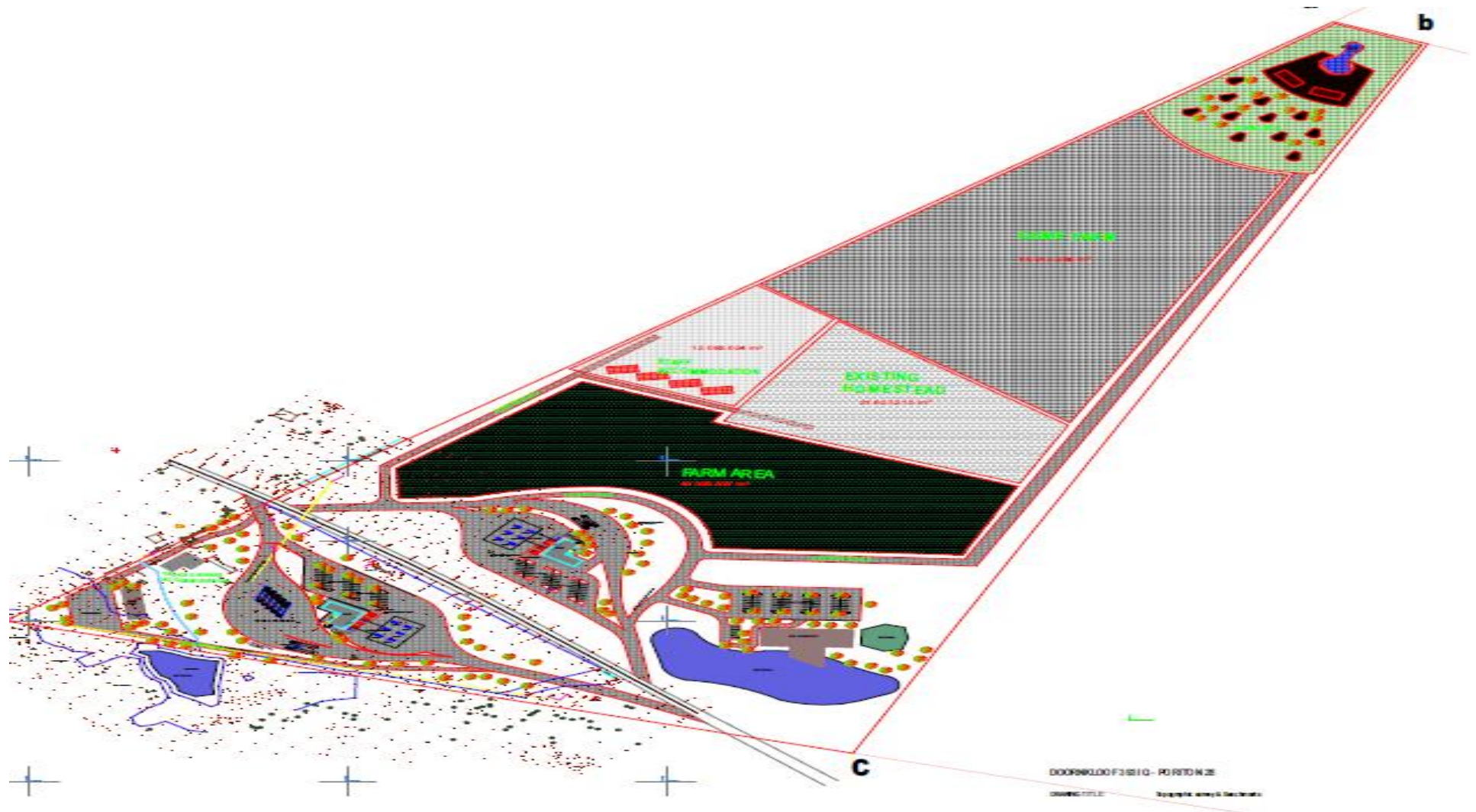


Figure 4: Lay out plan for proposed development (Mawenje 2017)

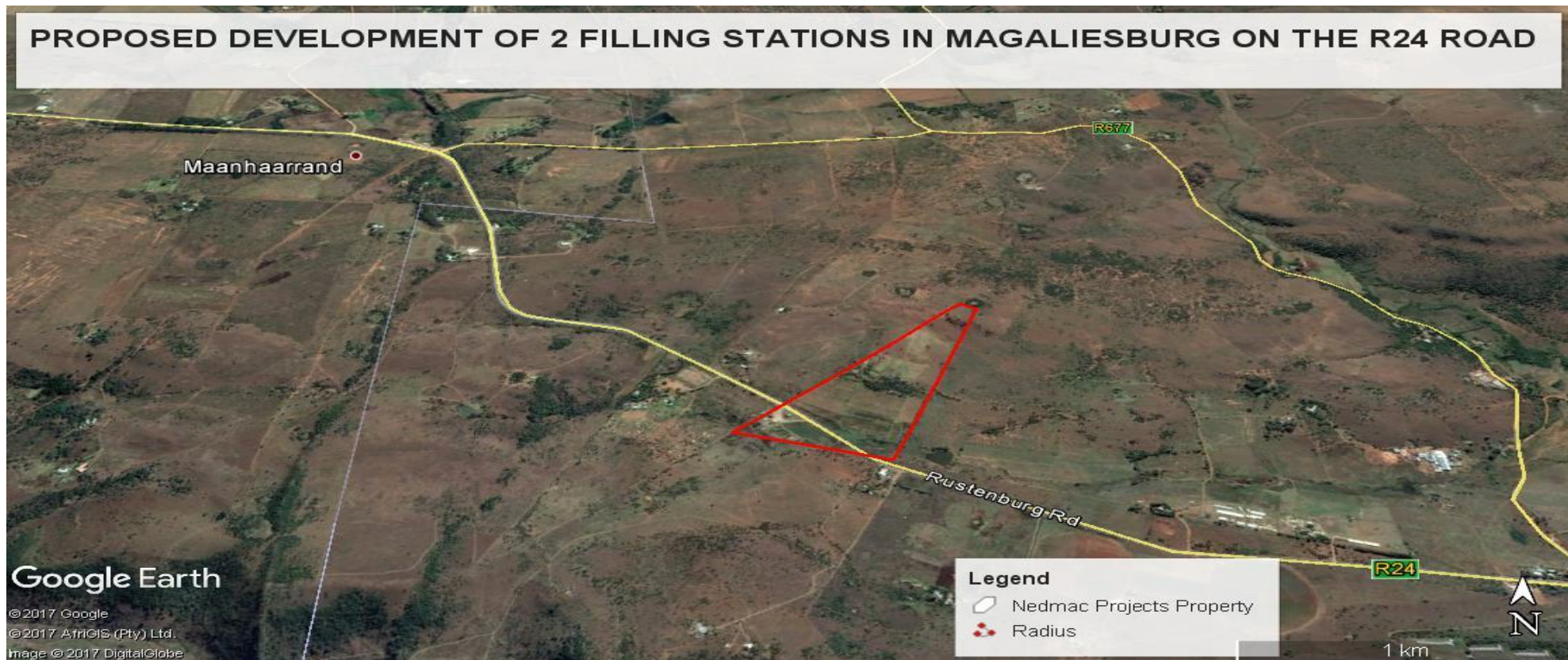


Figure 5: Site and directions to access to proposed development of two filling stations and associated infrastructure (Mawenje 2017)

Description of the proposed project

Nedmac (Pty) Ltd. is proposing the development of two (2) filling stations with associated infrastructure in Magaliesburg along the R24 Road, Magaliesburg, Gauteng Province. The site is located in Magaliesburg agricultural holdings portion 28 (Portion of portion 6) of the farm Doornkloof 393 JQ. The farm is about 30 hectares in size. It is on the R24 road leading towards Rustenburg (25°55'59.22"S; 027°28'08.12"E). The site is currently zoned for agricultural use, and a small portion of the proposed development site is currently developed. Access to the developed portion can be gained directly off the R24 Road. A further portion of the currently disturbed portion will become a filling station. The rest of the site will be a mixed-use development, that will include;

- Hospitality facilities
- A game farms
- Restaurants
- Convenience and Liquor stores

2. LEGAL REQUIREMENTS

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

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

- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
 - Exceeding 5000 sq m
 - Involving three or more existing erven or subdivisions
 - Involving three or more erven or divisions that have been consolidated within past five years

- Rezoning of site exceeding 10 000 sq m
- The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
 - Any other development category, public open space, squares, parks, recreation grounds

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

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may alter damage, destroy, relocate etc any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority. This section may not apply to present study since none were identified. Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered before or during construction. This means that any chance find must be reported to the heritage practitioner or SAHRA, who will assist in investigating the extent and significance of the finds and inform about further actions. Such actions may entail the removal of material after documenting the find site or mapping of larger sections before destruction. Section 36 (3) of the NHRA also stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. This section may apply in case of the discovery of chance burials, which is unlikely. The procedure for reporting chance finds also applies to the unlikely discovery of burials or graves by the developer or his contractors. Section 37 of the NHRA deals with public monuments and memorials but this may not apply to this study.

In addition, the new EIA Regulations (21 April 2006) promulgated in terms of NEMA (Act 107 of 1998) determine that any environmental reports will include cultural (heritage) issues. The new regulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts on the cultural (heritage) and social environment and for Specialist Studies in this regard. The end purpose of such a report is to alert the developer the environmental consultant, SAHRA and interested and affected parties about existing heritage resources that may be affected by the proposed development, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.

Evaluation of the proposed development as guided by the criteria in NHRA and NEMA

ACT	Stipulation for developments	Requirement details
NHRA Section 38	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	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 5 (21/04/2006) NEMA	HIA is required as part of an EIA	Yes

3. TERMS OF REFERENCE

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

- Archaeological and heritage potential of the proposed development site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the PHRA-G/SAHRA to make an informed decision with regards to authorisation of the proposed development.
- Identify all objects, sites, occurrences, and structures of an archaeological or historical nature (cultural heritage sites) located on the property.
- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value
- Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources.
Recommend suitable mitigation measures should there be any sites of significance that might be impacted upon by the proposed development.

Photographic presentation of the project area



Plate 1: Photo 1: View of proposed development site viewed from the north (Photograph © by Author 2017).



Plate 2: Photo 2: View of proposed project site (Photograph © by Author 2017).



Plate 3: Photo 3: View of previously cultivated section of the proposed project site (Photograph © by Author 2017).



Plate 4: Photo 4: View of section of proposed development site (Photograph © by Author 2017). Note that the entire site was previously cleared and utilized for agriculture (see Plate 5 &6)



Plate 5: Photo 5: View of proposed development project site and powerlines on the boundary of the site (Photograph © by Author 2017).



Plate 6: Photo 6: View of existing shop at the position earmarked for filling station development (Photograph © by Author 2017).



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Plate 15: Photo 154: View of cultivated area and irrigation infrastructure within proposed project site. (Photograph © by Author 2017).



Plate 16: Photo 16: View of orchard within the proposed development site (Photograph © by Author 2017).



Plate 17: Photo 18: View of farmworkers dwellings within the proposed development site. (Photograph © by Author 2017).



Plate 18: Photo 19: View of cultivated section of the proposed development site (Photograph © by Author 2017).



Plate 19: Photo 20: View of an active burial site located on the south eastern edge of the proposed development site. (Photograph © by Author 2017).



Plate 20: Photo 21: View of burial site within the proposed development site. (Photograph © by Author 2017).



Plate 21: Photo 22: A closer view of burial site within the proposed development site. (Photograph © by Author 2017).



Plate 22: Photo 23: View of borehole and irrigation infrastructure within the proposed development site. (Photograph © by Author 2017).



Plate 23: Photo 24: View of proposed development site (Photograph © by Author 2017).

4. METHODOLOGY

The proposed development requires clearance and authorisation from government compliance agencies including the heritage authority SAHRA. Key AIA/HIA objectives for this project are to:

- Fulfil the statutory requirements of the National Heritage Resources Act, Act 25 of 1999.
- Identify and describe, (in terms of their conservation and / or preservation importance) sites of cultural and archaeological importance that may be affected by the proposed project. This study seeks to identify sites and features of traditional historical, social, scientific, cultural, and aesthetic significance within the affected study area; the identification of gravesites.
- Assess the significance of the resources where they are identified.
- Evaluate the impact thereon with respect to the socio-economic opportunities and benefits that would be derived from the proposed development.
- Provide guidelines for protection and management of identified heritage sites and places (including associated intangible heritage resources management that may apply).
- Consult with the affected and other interested parties, where applicable, regarding the impact on the heritage resources in the project's receiving environment.
- Make recommendations on mitigation measures with the view to reduce specific adverse impacts and enhance specific positive impacts on the heritage resources.
- Take responsibility for communicating with the SAHRA and other authorities in order to obtain the relevant permits and authorization regarding heritage aspects.

In order to meet the objectives of the AIA/HIA Phase 1 study, the following tasks were conducted: 1) site file search, 2) limited literature review, 3) consultations with the affected communities, 4) completion of a field survey and assessment and 5) analysis of the acquired data and report production. The following tasks were undertaken:

- Preparation of a predictive model for archaeological heritage resources in the study area.
- A review and gap analysis of archaeological, historical, and cultural background information, including possible previous heritage consultant reports specific to the affected project area, the context of the study area and previous land use history as well as a site search;
- Field survey of the proposed development site within the study area, in order to test the predictive model regarding heritage sites in the area;
- Physical cultural property recording of any identified sites or cultural heritage places;
- Identification of heritage significance; and
- Preparation of AIA/HIA report with recommendation, planning constraints and opportunities associated with the proposed development.

Walking surveys were conducted in order to identify and document archaeological and cultural sites in the areas affected by the proposed development. Formal and informal settlements, commercial developments, vegetated river valleys; access and main road infrastructures, bulk water pipelines, existing transmission and distribution and other auxiliary infrastructures dominate the affected project area. The entire project area was accessible through a network of main roads and district roads used to access the settlements. Although limited sections of ground surface were covered with grass and thick bushes (see Plate 8 and 9), this did not hinder identification of possible archaeological sites in surveyed areas particularly those earmarked for the proposed development. Coordinates were obtained with a handheld Garmin GPS global positioning unit. Photographs were taken as part of the documentation process during field study.

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 remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities must be halted immediately, and a competent heritage practitioner, SAHRA or PHRA-G 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 developer 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 apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed development will be limited to specific right of sites as detailed in the development layout (Figure 1 & 2).
- The construction team will utilize existing access to the proposed development site and service sites will use the existing access roads and there will be no construction without any major deviations.
- Given the heavily degraded nature of the affected project site and the level of existing developments within the affected landscape, most sections of the project area have low potential to yield significant *in situ* archaeological or physical cultural properties.

- 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 surface observed indicators, 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.

Consultation

The EIA Public Participation invited comments from stakeholders interested parties on any archaeological heritage matters related to the proposed development.

5. CULTURE HISTORY BACKGROUND OF THE PROJECT AREA

The project is located in the Mogale City Local Municipality of Gauteng Province which is rich cultural heritage resources.

Prehistoric culture

Gauteng region has yielded evidence of human settlement extending into hundreds of thousands of years of prehistory that include the Stone Age, Iron Age, Historical period and contemporary communities. The palaeontological human-evolution record is rich in palaeoanthropological relics that were found in Sterkfontein and Maropeng areas that have been dubbed the Cradle of Mankind that is also a World Heritage Site. The Cradle of Mankind lies approximately 15km north of the project area. As a complex system of dolomitic caves, this area has produced evidence for occupation dating back to at least 2.3 mya, and yielding the largest collection of fossil remains pertaining to the evolution of modern man. It is here, at sites such as Sterkfontein and Swartkrans that stone tools dating to the ESA and MSA and hominid remains such as *Australopithecus*, *Paranthropus* and *Homo habilis* have been studied since the 1940's (Brodie 2008). There is evidence of the use of the larger area by Stone Age communities for example along the Kliprivier where ESA and MSA tools were recorded. LSA material is recorded along ridges to the south of the current study area (Huffman 2008). Petroglyphs occur at Redan as well as along the Vaal River (Berg 1999). The closest known Stone Age sites in the vicinity of Hekpoort are known as the Magaliesberg Research Area. It consists of nine sites including rock shelters in the Magaliesberg Mountains. These date back to the Middle and Late Stone Age (Bergh 1999: 4; Korsman & Meyer 1999: 94-95). Rock art and rock engraving sites have also been identified close to Hekpoort. These date back to the Late Stone Age (Bergh 1999: 5). Some scattered stone tools were identified in the area during an earlier survey for Plumari (Doornhoek Portion 1), while a fairly large number of rock engravings associated with the San was also located during the same said survey in November 2008 (See Pelser & van Vollenhoven, 2008: AE 868). No similar artefacts were recorded during the 2009 survey on Doornspruit.

Iron Age sites associated with the ancestors of the modern Sotho-Tswana and Ndebele speaking communities are wide spread in the region. In recent colonial history, the area played host to different competing local settler communities. The area was a scene of series of colonial wars. By the end of the 19th century, the region was placed under British rule and the local people displaced. Today most of the land is used for commercial, mining, agricultural and industrial activities. It is within this cultural landscape that the project area is located. Archaeologically, the Gauteng (Randfontein area) is associated with Late Iron Age Sotho-Tswana communities and has yielded four ceramic sequences of the Urehwe tradition: Ntsuanatsatsi (1450-1650), Olifantspoort (AD 1500 -1700), Uitkomst (AD 1700-1850) and Buispoort (1700-1840) [Huffman 2007: 443]. This area was historically occupied by predominantly Sotho-Tswana -speaking groups before Mzilikazi's Ndebele briefly dominated during the Mfecane. Around the 1830s, the region also witnessed the massive movements associated with the Mfecane ('wandering hordes'). The causes and consequences of the Mfecane are well documented elsewhere (e.g. Hamilton 1995; Cobbing 1988). The area was partitioned into commercial settler farms during the colonial period.

Melville Koppies is the most well documented site in the project area. The site was excavated by Professor Mason from the Department of Archaeology of the Witwatersrand University in the 1980's. Extensive Stone walled sites are also recorded at Klipriviers Berg Nature reserve belonging to the Late Iron Age period. A large body of research is available on this area. These sites (Taylor's Type N, Mason's Class 2 & 5) are now collectively referred to as Klipriviersberg (Huffman 2007). These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites date back to the 18th and 19th centuries and were built by people in the Fokeng cluster.

In this area, the Klipriviersberg walling probably ended around AD 1823, when Mzilikazi entered the area (Rasmussen 1978). This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi. Prior to the Gauteng region being incorporated into the colonial administration of the Transvaal, the region experienced several episodes of white settler migration and settler settlements as well as the associated colonial wars such as the Anglo-Boer War, which ended in 1902. Today the project area is predominantly mining and commercial farming.

Previous research indicates that one of the few Early Iron Age sites that have been properly researched, are situated at Broederstroom, a site to the east of the site (Bergh 1999: 6). The site is dated to 350 AD and apart from hut remains indications of iron smelting was also found (Van der Ryst & Meyer 1999: 98). Late Iron Age sites have been identified in the area around the town of Brits. In a band stretching roughly from Brits in the east to Zeerust in the west many Iron Age sites have been discovered previously (Bergh 1999: 7-8). This area includes Hekpoort. During the survey on Doornhoek by Archaetnos in 2008 a number of stone walled LIA sites were recorded, similar to the ones recorded during this survey. During earlier times and in the 19th century it seems as if this area was not

inhabited, due to better climatic conditions in the Magaliesburg Mountain (Bergh 1999: 10-11). During the Difaqane the Ndebele of Mzilikazi moved through this area, followed by a commando of Voortrekkers in 1837 (Bergh 1999: 11).

The area around the project area also witnessed some action during the Anglo-Boer War. Blockhouses were erected by the British at Kommandonek, Pampoennek, Olifantsnek, Silkaatsnek, Broederstroom, Kalkheuwel, Nooitgedacht and Hekpoort (Van Vollenhoven & Van den Bos 1997: 107-128). There also was a skirmish at Silkaatsnek in the Magaliesberg Mountain nearby on 11 July 1900 (Bergh 1999: 51). Other skirmishes in the vicinity of the project area include the Battles of Buffelspoort on 3 December 1900, Nooitgedacht on 13 December 1900 and Vlakfontein on 29 May 1901 (Bergh 1999: 54). A number of historical features were recorded during 2008 by Pelsler & van Vollenhoven on Portion 1 of Doornhoek (AE868).

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 because no historically known groups occupied the study area and most of the original settler descendants moved away from the area.

SAHRIS DATABASE AND IMPACT ASSESSMENT REPORTS IN THE PROJECT AREA

Several heritage sites are on record in the Magaliesburg area covered by the 2627DC 1: 50 000 Sheet. 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 powerline projects completed by Van Schalkwyk (2007,2015) the report mentions that structures older than 60 years occur in the area. Pelsler and Vollenhoven (2009a, 2009b) for residential developments, the study also mentions several archaeological and heritage sites in the project area. Coetzee (2009, 2010, 2012) and Kusel (2007) also conducted studies for residential developments in the Magaliesburg area and did record any site of significance. Most of the sites occur in the Swartkoppies Mountain range north of the Magaliesberg as it is sweet veldt and better grazing for cattle. The Magaliesberg range is sourer veldt with very few sites. Pelsler (2009) note existence of prehistoric sites, sites associated with Anglo Boer war as well as sites associated with the recent struggle against apartheid. Fourie (2006, 2011a & 2011b) study for pipeline developments also noted rich cultural history of Magaliesburg area.

6. RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY

The proposed filling stations and associated infrastructure is located on a heavily altered landscape due mainly to agriculture activities. The proposed development site has been established through consideration of biophysical, social, technical, and cultural aspects. The process will aim to provide a final site selection 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 along the proposed development site.

Archaeological and Heritage Site

The desktop study revealed that general project area is rich in especially Late Iron Age stone walled sites which occur on hill tops Coetzee (2009, 2010, 2012). The Magaliesburg is well-known for its Late Iron Age sites associated with the Tswana speaking people. These mainly occurred on hilltops and foothills. Küsel (2007) recorded more than 4000 Late sites along the Magalies and Swartkoppies Mountain range. However, the study did not identify any confirmable archaeological sites or material within the proposed development site. The affected landscape is heavily degraded from previous agricultural land use, existing shops and associated infrastructure facilities and infrastructure (see Plates 1-10, Figure 1). This limited the chances of encountering significant *in situ* archaeological sites to be preserved *in situ*. There are residential, commercial agricultural fields, grazing land, irrigation pipelines and power lines, access, roads and other associated infrastructures across the entire project area. As such the proposed development, will be an additional development on the project area (see Figure 1 also see Plates 1 to 24). It was assumed that there was always a very high chance of finding archaeological sites within the proposed development site. However, the chances of recovering significant archaeological materials were seriously compromised and limited due to agriculture infrastructural development, landscaping, and deep ploughing.

Based on the field study results and field observations, the author concluded that the receiving environment for the proposed development has low to medium potential to yield previously unidentified archaeological remains during subsurface excavations and construction work associated with the proposed development project.

Historical buildings and Structures

No listed specific historical sites are on the direct footprint of the proposed development. Existing farm dwellings shops and infrastructure at the proposed development site. The buildings are believed to be younger than 60 years and will not be demolished to pave way for the upgrading work.

Burial grounds and graves

The study recorded one active burial site belonging to the Motlabi Family. The site is located at GPS Coordinates 25°55'54.9"S; 027°28'24.1"E Fifteen graves were recorded at this site. Eight graves are marked by tombstones and inscribed headstones (See Photos 20, 21 &22), one grave is marked by cement plaster and headstone and six

graves are marked by oval shaped stone piles with headstones. The graves are arranged in rows and are facing west. The site is fenced and well maintained. Some graves have recently installed tombstones. The oldest grave is 57 years old, the site does not fall under SAHRA's mandate. The youngest grave is less than a year. The previous and current land owners are aware of the burial site. Some members of the Motlabi Family are known to reside in Magaliesburg and Rustenburg. The burial site will not be affected by the proposed developments. The layout plans for the site were designed to avoid the site. The site plans provide for adequate buffer and access to the burial site. This report notes 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. Wherever they exist or not, they may not be tampered with or interfered with during any development. It is important to note that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low within the proposed development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (**See Appendices 2 & 3 for more details**).

Historical Monuments and Memorials

The study did not record any historical monuments or memorials within the proposed development site.

Mitigation Measures

The recorded burial site must be preserved *in situ* and must be adequately fenced and marked. The affected family must be informed of the change of ownership of the farm and the proposed development. The developer must provide access to the site. The study team consulted the project proponents and they confirmed that they have already engaged with the family and committed to providing access to the grave site. However, they must be a written undertaking and consent by the affected families.

Cumulative Impacts

Although the project area is heavily degraded by agriculture, residential and associated infrastructure developments, the proposed development will add to the cumulative impacts on the affected landscape.

7. 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 power lines and substations, water supply pipelines and residential developments. These studies noted that Mogale City area is a rich cultural landscape. 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 Pelser (2009), Coetzee (2009, 2013), Fourie (2011), Fourie (2006, 2009) and Van der Schalkwyk (2015). Late Iron Age stone walled sites are known to occur in the project area although none were recorded on the direct footprint of the proposed development site. 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 project site is situated within a heavily degraded area, and has reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical, or burial sites, due to previous earth moving disturbances resulting from developments and other land uses in the project area.
2. Limited ground surface visibility on sections of the project area that were not cleared at the time of the study may have impeded the detection of other physical cultural heritage site remains or archaeological signatures immediately associated with the proposed development site. The absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites do not exist in the project area. It may be that, given the dense development in most sections of the development site, if such sites existed before, changing earth-moving activities may have destroyed their evidence on the surface. Significance of the Site of Interest is not limited to presence or absence of physical archaeological sites. The discoveries by previous HIA studies testify to the significance of the project area as a cultural landscape of note, which has discernible links to local oral history and folk stories, environmental and ethnobotanical aesthetics, popular memories etc. associated with significance emanating from intangible heritage of the region.

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 developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. Accordingly, all construction crews 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 developer, 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 senior on-site manager.
- The senior site/farm 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/PHRA-G.

8. CULTURAL HERITAGE SITE ASSESSMENT OF SIGNIFICANCE

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 is based on the views expressed by the claimant and his 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 resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

9. ASSESSMENT CRITERIA

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- Grade I: Heritage resources with qualities so exceptional that they are of special national significance;
- Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- Grade III: Other heritage resources worthy of conservation, on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable of mitigation measures would allow the development activities to continue.

The SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture, and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

Historic Value

Historic value encompasses the history of aesthetics, science, and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase, or activity. It may also have historic value as the site of an important event. For any given place, the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality, or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

Social Value

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national or other cultural sentiment to a majority or minority group. Social value also extends to natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

10. STATEMENT OF SIGNIFICANCE

Aesthetic Value

The aesthetic values of the study area are contained in the valley bushveld environment and landscape typical of this part of the Gauteng Province. The visual and physical relationship between the 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 development 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 Gauteng area. The local communities consider the project area a cultural landscape linked to their ancestors and history. However, the proposed developments 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 Sites 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 and Ndebele 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 Gauteng Province.

Scientific value

Past settlements and associated roads, mines and other auxiliary infrastructure developments and disturbance within the Study Area associated with the proposed development 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 site falls within a larger and an extensive Gauteng cultural landscape that is integrated with the wider inland south west Gauteng. 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 rise of Shaka's Zulu Kingdom in the early 1800s from the east coast, the subsequent Mfecane, 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. The remains of historic homesteads recorded in the project area testify to the fact of generational homes and settlements. 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 development especially

given the fact that the development will add value to the human settlements and activities already taking place. Sections of the proposed development site covered in thick bushes and vegetation retain social value as sources of important herbs and traditional medicines. As such, they must be considered as significant social value sites.

11. RECOMMENDATIONS

The study, did not find any permanent barriers to the proposed development. The recorded burial site has been adequately protected in the site development plan (See Figure 3 & 4). The following recommendations are based on the results of the AIA/HIA research, cultural heritage background review, site inspection and assessment of significance. All the potential impacts associated with the development site can be mitigated without serious design alterations. The project may be approved subject to the following recommendations:

- From a heritage point of view, the proposed project is viable because the proposed project site has been extensively altered by agriculture activities and other associated infrastructure developments.
- The proposed development may be approved to proceed as planned under observation that construction work does not extend beyond the surveyed site.
- The developer must always maintain a 20m buffer zone from the recorded burial site.
- No dumping of construction material is allowed within this buffer zone and no alteration or damage on the site may occur.
- The recorded burial site must be fenced and clearly marked.
- The developer must ensure that the descendant (Motlabi Family) of the 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, affected families must be trekked and consulted and relevant rescue/ relocation permits must be obtained from SAHRA before any grave relocation can take place. Furthermore, a professional archaeologist must be retained to oversee the relocation process in accordance with the National Heritage Resources Act 25 of 1999.
- 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 construction, operations or closure phases of this project, any person employed by the developer, 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 senior on-site manager.
- The senior 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 construction within a radius of at least 10m 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 contractor 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/PHRA-G.
- The developer 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 construction.
- The foot print impact of the proposed development should be kept to minimal to limit the possibility of encountering chance finds within servitude.
- The project area has considerable existing built-up areas and as such no impacts are anticipated on the cultural built environment given the existence of contemporary built-infrastructure or structures already in the project area.
- 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 PHRA-G/SAHRA, may be classified as accessible to any interested and affected parties within the limits of the laws.

12. CONCLUDING REMARKS

Integrated Specialist Services (Pty) Ltd was appointed by Mawenje Consultants to carry out AIA/HIA for the proposed development of two filling stations and associated infrastructure as required by heritage legislation. The proposed development is located along existing road and extensively altered farm. In spite of the rich history and archaeology of the general area prior to several industrial and residential developments after the mid-20th century, field surveys on and around the proposed area did not yield any significant archaeological remains. However, the potential for chance finds, still remains and the developer and contractors are advised to exercise caution during construction. 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. In addition, literature review and field research confirmed that the project area is located within a contemporary cultural landscape dotted with settlements and agriculture fields with a long local history. In terms of the archaeology and heritage with respect to the proposed development site there are no obvious 'Fatal Flaws' or 'No-Go' areas. No archaeological sites were recorded within the proposed development site. The field survey also established that the affected project area is degraded by existing infrastructure, landscaping, previous agriculture activities and associated infrastructure. This report concludes that the proposed development may be approved by SAHRA/PHRA-G to proceed as planned subject to recommendations herein made which include a heritage monitoring plan being incorporated into the construction EMP (**See Appendices 1,2 &3**). The measures are informed by the results of the study and principles of heritage management enshrined in the NHRA, Act 25 of 1999.

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14. APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED TWO FILLING STATIONS AND ASSOCIATED INFRASTRUCTURE TWO FILLING STATIONS AND ASSOCIATED INFRASTRUCTURE 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-G 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 remain 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-G.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the PHRA-G 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.
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15. APPENDIX 2: HERITAGE MITIGATION MEASURE TABLE

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Archaeological and Burial Sites	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction 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 authority permits for possible relocation of affected graves accidentally encountered during construction work. 	<ul style="list-style-type: none"> • Contractor / • Project Manager • Archaeologist • Project EO 	<p>Fine and or imprisonment under the PHRA-G Act & NHRA</p>	<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 commence within the farm.</p>

1. APPENDIX 3: LEGAL BACK GROUND AND PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

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

General principles for heritage resources management

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

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

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

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

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

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

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

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

(3) Laws, procedures and administrative practices must—

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

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

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

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

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

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

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

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

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

- (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
- (d) contribute to social and economic development;
- (e) safeguard the options of present and future generations; and
- (f) be fully researched, documented and recorded.

Burial grounds and graves

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

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

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

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

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

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

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

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

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

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

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

authority—

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

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

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

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

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

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

General policy

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

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

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

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

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

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

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and

interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.

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

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