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**A PHASE I HERITAGE IMPACT ASSESSMENT STUDY FOR THE  
PROPOSED DAVEL PROJECT NEAR BETHAL IN THE  
MPUMALANGA PROVINCE OF SOUTH AFRICA**

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## **ACRONYMS AND ABBREVIATIONS**

AIA Archaeological Impact Assessment

ASAPA Association of South African Professional Archaeologists

CRM Cultural Resource Management

EAP Environmental Assessment Practitioner

ECO Environmental Control Officer

EIA Environmental Impact Assessment

EMP Environmental Management Plan

EPS Environmental Performance Standards

EIA Early Iron Age

ESA Early Stone Age

GPS Global Positioning System

HIA Heritage Impact Assessment

IEM Integrated Environmental Management

I & Aps Interested and Affected Parties

LIA Late Iron Age

LSA Late Stone Age

MIA Middle Iron Age

MPRDA Mineral and Petroleum Resources Development Act, 28 of 2002

MSA Middle Stone Age

NEMA National Environmental Management Act, 107 of 1998

NEMBA National Environmental Management: Biodiversity Act, 10 of 2004

NEMAQA National Environmental Management: Air Quality Act, 39 of 2004

NEMWA National Environmental Management: Waste Act, 59 of 2008

NHRA National Heritage Resources Act, 25 of 1999

NWA National Water Act, 36 of 1998

OSHA Occupational Health and Safety Act, 85 of 1993

PHRA Provincial Heritage Resource Agency

RSA Republic of South Africa

SAHRA South African Heritage Resources Agency

SAHRIS

ToR Terms of Reference

## TERMINOLOGY

Terms that may be used in this report are briefly outlined below:

- **Conservation:** The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.
- **Cultural resource management:** A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.
- **Cultural resources:** A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.
- **Heritage resources:** The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

- In-Situ Conservation: The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.
- Iron Age: Refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16<sup>th</sup> century and the 19<sup>th</sup> century and can therefore include the Historical Period.
- Maintenance: Keeping something in good health or repair.
- Pre-historical: Refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled here from the 1840's onwards.
- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.
- Recent past: Refers to the 20<sup>th</sup> century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.
- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems. Various types of protected areas occur in South Africa.
- Reconstruction: Re-erecting a structure on its original site using original components.

- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.
- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.
- Stone Age: Refers to the prehistoric past, although Late Stone Age people lived in South Africa well into the Historical Period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).
- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.
- Translocation: Dismantling a structure and re-erecting it on a new site using original components.
- Project Area: refers to the area (footprint) where the developer wants to focus its development activities.
- Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types and ranges of heritage resources in any given Project Area (excluding paleontological remains as these studies are done by registered and accredited palaeontologists).
- Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involves permitting processes,

requires the input of different specialists and the co-operation and approval of the SAHRA.

## **EXECUTIVE SUMMARY**

This report comprises a heritage survey and assessment as required by Section 38 of the National Heritage Resources Act (No 25 of 1999) for the proposed Davel Project which involves the development of an underground coal mine between Bethal and Ermelo in the Mpumalanga Province. The aims with the heritage survey and assessment were the following, namely:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) do occur in the project area.
- To establish the significance of the heritage resources in the project area and the level of significance of any possible impact on any of these heritage resources.
- To propose mitigation measures for those types and ranges of heritage resources that may be affected by the proposed Davel Project.

The Phase I heritage survey for the Davel Project revealed the following types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999), namely:

- Historical remains comprising the Vos Landgoed and a historical house.
- A number of graveyards.

All the heritage resources were geo-referenced and mapped (Table 1; Figure 9). Their significance is indicated as well as the level of the significance of any possible impact on the graveyards (Tables 1, 2 & 3). No mitigation measures are necessary as no heritage resources will be affected by the Davel Project. Management measures are outlined for the heritage resources which remain unaffected in the project area.

### **The significance of the heritage resources**

#### **The historical remains**

These remains comprise of the main residence in the Vos Landgoed and HH01 which are older than sixty years and which are protected by the National Heritage Resources Act (No 25 of 1999) (Table 1).

The medium-high level of significance for the historical remains was determined by means of various criteria which qualify places and objects as part of the national estate if they have cultural significance or other special value as outlined in Section 3 of the NHRA (Act No 25 of 1999) (see Box 1) (Table 1). This medium-high level of significance also corresponds with the

rating of the historical remains as Grade IIIB Local Resources with medium-high significance (Table 3)

The significance of the historical remains can be rated as medium-high when considering criteria such as the following (Table 1):

- The historical remains can contribute to a better understanding of the lifeways of early inhabitants on the eastern Highveld in Mpumalanga.
- The historical remains are under threat due to an established agro-economic industry and an expanding coal mining complex on the eastern Highveld of Mpumalanga.
- The historical remains provide opportunities to be utilized in tourism, education and research particularly if further studied, renovated and applications to be utilized (e.g. in the tourism or leisure industry) can be implemented.
- The historical remains are relatively young as they date from the last six to seven decades.
- Some of the historical remains have been altered significantly in the more recent past and their historical core cannot be recognised any longer.
- The historical remains' architectural style is still common in the region as a considerable number of these structures and outbuildings still exist.

### **The graveyards**

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 3). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (NHRA) (Act No 25 of 1999) in instances where graves are older than sixty years. It is highly likely that all graveyards in the project area is older than sixty years. Other legislation with regard to graves younger than sixty years include the National Health Act, 2003 (Act No 61 of 2003), Ordinance 12 of 1980 (Exhumation Ordinance) and Ordinance No 7 of 1925 (Graves and dead bodies Ordinance). Municipal laws with regard to graves and graveyards may differ and professionals involved with the exhumation and relocation of graves and graveyards must adhere to these laws.

### **The significance of the impact on the heritage resources**

All heritage resources occur at safe distances from the footprint of the proposed Davel Project. The significance of the impact on the heritage resources therefore is low and will remain low if the management measures outlined in the report are implemented (Table 2).



### **The significance of the impact on the historical remains**

The significance of the impact on the historical remains therefore is low and will remain low if the management measures outlined in the report are implemented

### **The significance of the impact on the graveyards**

The significance of the impact on the graveyards therefore is low and will remain low if the management measures outlined in the report are implemented

### **Mitigating the heritage resources graveyards**

All the historical remains and graveyards occur at safe distances from the footprint of the proposed Davel Project and need no mitigation measures.

### **Managing the heritage resources**

#### **Managing the historical remains**

Although the main residence in the Vos Landgoed may have been altered significantly during the past the original historical core of this complex of structures may inform about the historical significance and meaning of these structures before they may be altered to suit the mine's needs or be demolished.

The Vos Landgoed and the historical house (HH01) have to be studied and documented by a historical architect before any of these remains may be affected in any way, e.g. to be altered or to be demolished as a result of the implementation of the Davel Project. The South African Heritage Resources Agency (SAHRA) will require that historical structures to be affected (and the complex as such) have be studied and documented by a conservation architect before SAHRA will make any recommendations regarding the future existence of the historical remains.

The significance of any impact on the historical remains therefore will be low after the mitigation measures have been implemented (Table 3).

#### **Managing the graveyards**

All graveyards should remain unaffected in the project area. Consequently, the following management measures are recommended:

- Graveyards and graves must be demarcated with fences or with walls and should be fitted with access gates.

- Regulated visitor hours should be implemented that is compatible with mine safety rules. This will not be necessary when graveyards and graves are located next to national roads.
- Corridors of at least 30m should be maintained between graveyards and grave fences' and any developmental components such as roads or other infrastructure that may be developed in the future.
- Graveyards and graves should be inspected on a regular basis not exceeding every three months. Inspections should be noted in an inspection register. The register should outline the state of the graveyards and graves during each inspection.
- Reports on damages to any of the graves or to the graveyards (fences, walls, gates) should be followed with the necessary mitigation work which must be registered in the inspection register.
- Mitigation done to graves older than sixty years can only be done after SAHRA has issued the necessary permit
- Graveyards and graves should be kept tidy from any invader weeds and any other refuse.

### **Summary**

There is no reason from a heritage point of view why the proposed Davel Project cannot proceed if the management measures recommended in this report and in the EMPr have been implemented.

### General: disclaimer

Although due consideration was given to the observing and documenting of all heritage resources in the Project Area, some resources may not have been detected due to various reasons (occurring beneath the surface, unmarked, inconspicuous or eroded nature, covered by vegetation, human failure to recognise, etc.).

If any heritage resources of significance are exposed during the Davel Project the SAHRA should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from the SAHRA to conduct the mitigation measures.

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# **1 INTRODUCTION**

## **1.1 Background and context**

Jaco – K Consulting was appointed by South32 SA Coal Holdings (Pty) Ltd to undertake a public participation process for the application of environmental authorization in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) as well as for a water use licence in terms of the National Water Act (Act 36 of 1998). The mining right area applied for is related to the prospecting right (MP30/5/1/1/2/254PR) held by South32 SA Coal Holdings (Pty) Ltd who plans to conduct underground coal mining on various farms within the Msukaligwa local municipality in the Mpumalanga Province. The Scoping and Environmental Impact Assessment process will be followed for the establishment of the proposed Davel Project.

## **1.2 Aims with this report**

This study comprises a heritage survey (Part 8) and a heritage impact assessment study (Part 9) for the Davel Project. The aims with the heritage survey and impact assessment for the Davel Project were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) do occur in the project area.
- To establish the significance of the heritage resources in the project area and the level of significance of any possible impact on any of these heritage resources.
- To propose mitigation measures for those types and ranges of heritage resources that may be affected by the proposed Davel Project.

## **1.3 Assumptions and limitations**

The findings, observations, conclusions and recommendations reached in this report are based on the author's best scientific and professional knowledge, available information and his ability to keep up with the physical and other comprehensive

challenges that the project commanded. The author has a good understanding of the types and ranges of heritage resources that occur on the Eastern Highveld as he was involved in several heritage impact assessment studies in the area during the last fifteen years.

The report's findings are based on accepted archaeological survey and assessment techniques and methodologies.

The GPS track log is not necessarily a true reflection of all the tracks routes that the surveyor followed during the survey as the track log was registered with a mounted GPS in a vehicle. Pedestrian surveys from the vehicle were not in all instances recorded whilst tracks were not registered when the GPS lost signal with the satellites.

Areas that were not covered on foot comprise agricultural fields which according to spokespersons which were consulted do not hold any graveyards.

The author preserves the right to modify aspects of the report including the recommendations if and when new information becomes available particularly if this information may have an influence on the reports final results and recommendations.

The heritage survey may have missed heritage resources as heritage sites may occur in in tall grass or thick clumps of vegetation whilst others may be located below the surface of the earth and may only be exposed once development commences.

It is also possible that heritage resources may simply have been missed as a result of human failure and the large extent of the surface area that was covered.

## **2 DETAILS OF THE SPECIALIST**

**Profession:** Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer and Heritage Consultant

**Qualifications:**

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

**Work experience:**

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

Independent Archaeologist and Heritage Consultant (2003-)

**Accreditation:** Member of the Association for Southern African Professional Archaeologists. (ASAPA)

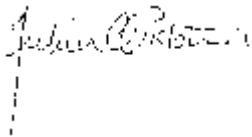
**Summary:** Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has excavated more than twenty LIA settlements in North-West and twelve IA settlements in the Lowveld and has mapped hundreds of stone walled sites in the North-West. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol, PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources, Pilanesberg Platinum Mine (PPM) etc. as well as with several environmental companies.



### 3 DECLARATION OF INDEPENDENCE

I, Julius CC Pistorius, declare that:

- I act as the independent environmental practitioner in this application
  - I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
  - I declare that there are no circumstances that may compromise my objectivity in performing such work;
  - I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;
  - I will comply with the Act, regulations and all other applicable legislation;
  - I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
  - I have no, and will not engage in, conflicting interests in the undertaking of the activity;
  - I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
  - I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
  - I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
  - I will keep a register of all interested and affected parties that participated in a public participation process; and
  - I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
  - all the particulars furnished by me in this form are true and correct;
  - will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
  - I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.
- Disclosure of Vested Interest**
- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010.



\_\_\_\_\_  
Signature of the environmental practitioner:  
Private Consultant

\_\_\_\_\_  
Name of company:  
1 November 2017

\_\_\_\_\_  
Date:

## **4 LEGAL FRAMEWORK**

South Africa's heritage resources ('national estate') are protected by international, national, provincial and local legislation which provides regulations, policies and guidelines for the protection, management, promotion and utilization of heritage resources. South Africa's 'national estate' includes a wide range of various types of heritage resources as outlined in Section 3 of the National Heritage Resources Act (NHRA, Act No 25 of 1999) (see Box 1).

At a national level heritage resources are dealt with by the National Heritage Council Act (Act No 11 of 1999) and the National Heritage Resources Act (NHRA, Act No 25 of 1999). According to the NHRA (Act No 25 of 1999) heritage resources are categorized using a three-tier system, namely Grade I (national), Grade II (provincial) and Grade III (local) heritage resources.

At the provincial level, heritage legislation is implemented by Provincial Heritage Resources Agencies (PHRA's) which apply the National Heritage Resources Act (Act 25 of 1999) together with provincial government guidelines and strategic frameworks. Metropolitan or Municipal (local) policy regarding the protection of cultural heritage resources is also linked to national and provincial acts and is implemented by the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Agencies (PHRA's).

### **4.1 Legislation relevant to heritage resources**

Legislation relevant to South Africa's national estate includes the following:

- National Environmental Management Act (NEMA) Act 107 of 1998
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- National Heritage Resources Act (NHRA) Act 25 of 1999
- Development Facilitation Act (DFA) Act 67 of 1995

**Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the National Heritage Resources Act, 1999 (No 25 of 1999).**

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

- (a) places, buildings structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds including-
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders;
  - (iii) graves of victims of conflict;(iv) graves of individuals designated by the Minister by notice in the Gazette;
  - (v) historical graves and cemeteries; and
  - (vi) other human remains which are not covered by in terms of the Human Tissues Act, 1983 (Act No 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including -
  - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  - (ii) objects to which oral traditions are attached or which are associated with living heritage;
  - (iii) ethnographic art and objects;
  - (iv) military objects;
  - (v) objects of decorative or fine art;
  - (vi) objects of scientific or technological interest; and
  - (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value ...'. These criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (a) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (b) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (c) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- (i) sites of significance relating to the history of slavery in South Africa

#### **4.1.1 NEMA**

The NEMA stipulates under Section 2(4)(a) that sustainable development requires the consideration of all relevant factors including (iii) the disturbance of landscapes and sites that constitute the nation's cultural heritage must be avoided, or where it cannot be altogether avoided, is minimised and remedied. Heritage assessments are implemented in terms of the NEMA Section 24 in order to give effect to the general objectives. Procedures considering heritage resource management in terms of the NEMA are summarised under Section 24(4) as amended in 2008. In addition to the NEMA, the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPA) may also be applicable. This act applies to protected areas and world heritage sites, declared as such in terms of the World Heritage Convention Act, 1999 (Act No. 49 of 1999) (WHCA).

#### **4.1.2 MPRDA**

The MPRDA stipulates under Section 5(4) no person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without (a) an approved environmental management programme or approved environmental management plan, as the case may be.

#### **4.1.3 NHRA**

According to Section 3 of the NHRA (Act No 25 of 1999) the 'national estate' comprises a wide range and various types of heritage resources (see Box 1).

##### **4.1.3.1 Heritage Impact Assessment studies**

According to Section 38 of the National Heritage Resources Act (Act No 25 of 1999) a Heritage Impact Assessment (HIA) process must be followed under the following circumstances:

- The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length

- The construction of a bridge or similar structure exceeding 50m in length
- Any development or activity that will change the character of a site and which exceeds 5 000m<sup>2</sup> or which involve three or more existing erven or subdivisions thereof
- Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- Any other category provided for in the regulations of SAHRA, a provincial or local heritage authority or any other legislation such as NEMA, MPRDA, etc.

#### **4.1.3.2 Section 34 (Buildings and structures)**

Section 34 of the NHRA provides for general protection of structures older than 60 years. According to Section 34(1) no person may alter (demolish) any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or any other facility made by people and which is fixed to land and which includes fixtures, fittings and equipment associated with such structures.

Alter means any action which affects the structure, appearance or physical properties of a place or object, whether by way of structural or any other works such as painting, plastering, decorating, etc..

Most importantly, Section 34(1) clearly states that no structure or part thereof may be altered or demolished without a permit issued by the relevant Provincial Heritage Resources Authority (PHRA). These permits will not be granted without a HIA being completed. A destruction permit will thus be required before any removal and/or demolition may take place, unless exempted by the PHRA according to Section 34(2) of the NHRA.

#### **4.1.3.3 Section 35 (Archaeological and palaeontological resources and meteorites)**

Section 35 of the NHRA provides for the general protection of archaeological and palaeontological resources, and meteorites. In the event that archaeological resources are discovered during the course of development, Section 38(3) specifically requires that the discovery must immediately be reported to the PHRA, or local authority or museum who must notify the PHRA. Furthermore, no person may without permits issued by the responsible heritage resources authority may:

- destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite
- destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite
- trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites
- alter or demolish any structure or part of a structure which is older than 60 years.

Heritage resources may only be disturbed or moved by an archaeologist after being issued with a permit received from the South African Heritage Resources Agency (SAHRA). In order to demolish heritage resources the developer has to acquire a destruction permit by from SAHRA.

#### **4.1.3.4 Section 36 (Burial grounds and graves)**

Section 36 of the NHRA allows for the general protection of burial grounds and graves. Should burial grounds or graves be found during the course of development, Section 36(6) stipulates that such activities must immediately cease and the discovery reported to the responsible heritage resources authority and the South

African Police Service (SAPS). Section 36 also stipulates that no person without a permit issued by the relevant heritage resources authority may:

- 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 or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Section 36 of the NHRA divides graves and burial grounds into the following categories:

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

Human remains less than 60 years old are subject to provisions of the National Health Act, 2003 (Act No 61 of 2003), Ordinance 12 of 1980 (Exhumation Ordinance) and Ordinance No 7 of 1925 (Graves and dead bodies Ordinance, repealed by Mpumalanga). Municipal bylaws with regard to graves and graveyards may differ. Professionals involved with the exhumation and relocation of graves and graveyards must establish whether such bylaws exist and must adhere to these laws.

Unidentified graves are handled as if they are older than 60 years until proven otherwise.

Permission for the exhumation and relocation of graves older than sixty years must also be gained from descendants of the deceased (where known), the National

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

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

#### **4.1.3.5 Section 37 (Public monuments and memorials)**

Section 37 makes provision for the protection of all public monuments and memorials in the same manner as places which are entered in a heritage register referred to in Section 30 of the NHRA.

#### **4.1.3.6 Section 38 (HRM)**

Section 38 (8): The provisions of this section do not apply to a development as described in Section 38 (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation. Section 38(8) ensures cooperative governance between all responsible authorities through ensuring that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of Subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

The Listed Activities in terms of the Government Notice Regulations (GNRs) stipulated under NEMA for which Environmental Authorisation (EA) will be applied for will trigger a HIA as contemplated in Section 38(1) above as follows:



#### 4.4.4 NEMA Appendix 6 requirements

NEMA Regulations (2014) - Appendix 6	Relevant section in report
Details of the specialist who prepared the report	Dr Julius CC Pistorius
The expertise of that person to compile a specialist report including a curriculum vitae	Part 2. Details of the specialist
A declaration that the person is independent in a form as may be specified by the competent authority	Part 3. Declaration of independence
An indication of the scope of, and the purpose for which, the report was prepared	Part 1. Introduction
The date and season of the site investigation and the relevance of the season to the outcome of the assessment	Part 7. Approach and Methodology Part 8.1. Field survey
A description of the methodology adopted in preparing the report or carrying out the specialised process	Part 7. Approach and Methodology
The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	Part 8. Heritage survey
An identification of any areas to be avoided, including buffers	Part 8 Heritage assessment
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 9
A description of any assumptions made and any uncertainties or gaps in knowledge;	Part 1.3. Assumptions and limitations
A description of the findings and potential implications of such findings on the impact of	Part 9.4 Mitigating the graveyards Part 9.5 Managing the graveyards

the proposed activity, including identified alternatives, on the environment	
Any mitigation measures for inclusion in the EMPr	Part 9.1. Possible impact on the heritage resources Part 9.4 Mitigating the graveyards Part 9.5 Managing the graveyards
Any conditions for inclusion in the environmental authorisation	Part 9.4 Mitigating the graveyards Part 9.5 Managing the graveyards
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Part 9.4 Mitigating the graveyards Part 9.5 Managing the graveyards
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised and	Part 10.Summary
If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Part 9.4 Mitigating the graveyards Part 9.5 Managing the graveyards
A description of any consultation process that was undertaken during the course of carrying out the study	Part 9.4 Consultation process undertaken and comments received from stakeholders
A summary and copies if any comments that were received during any consultation process	Part 9.4 Consultation process undertaken and comments received from stakeholders
Any other information requested by the competent authority.	None

## 5 THE DAVEL PROJECT

### 5.1 Location

The proposed Davel Project is an underground coal mine situated on the farms Hamelfontein 269IS and Uitzicht 266IS approximately 19 km east of Bethal and 25 km west of Ermelo. The project area covers parts of both farms to the north and to the south of the N14 which runs between Bethal (west) and Ermelo (east). The project area therefore is located in the Msukaligwa local municipality in the Gert Sibande District Municipality in the Mpumalanga Province (2629BC Davel; 1:50 000 topographical map; 2628 East Rand; 1: 250 000 map and Google imagery (Figures 1 & 2).

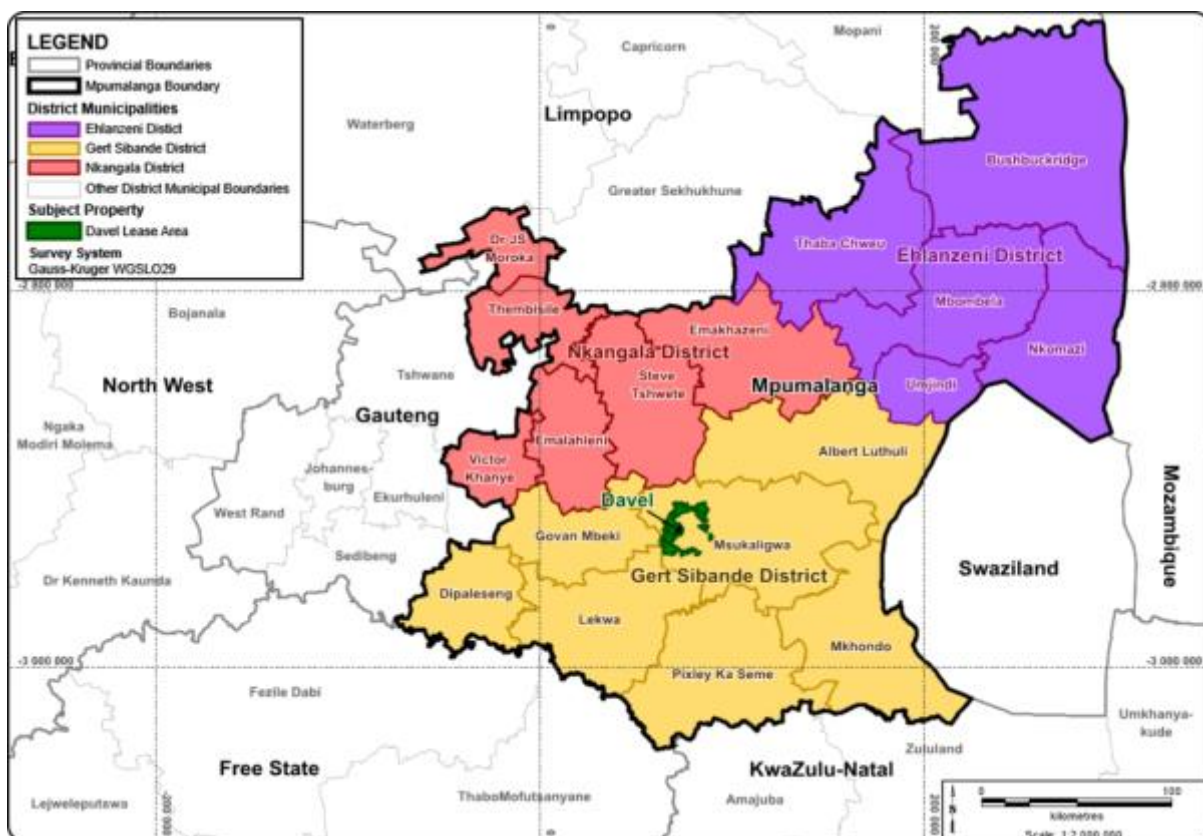
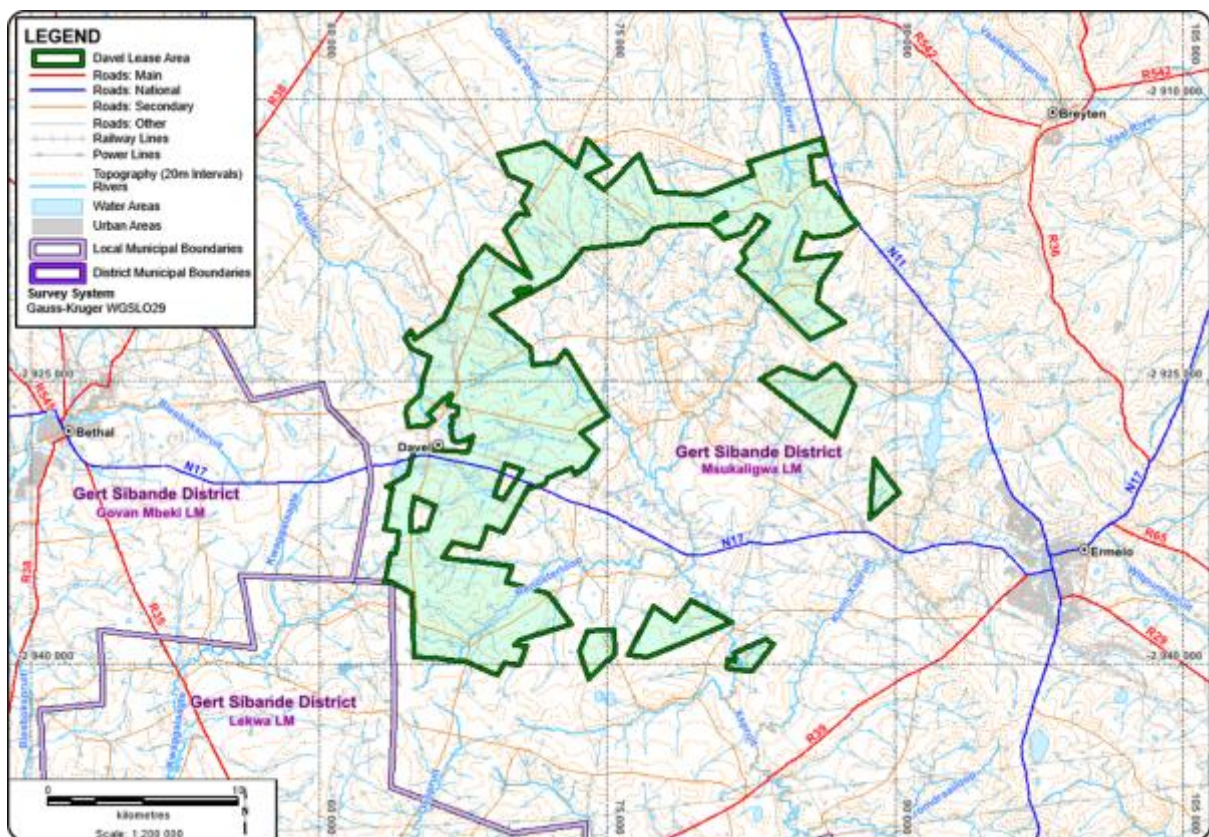


Figure 1- Regional location for the proposed Davel Project between Bethal and Ermelo in the Gert Sibande District Municipality in the Mpumalanga Province of South Africa (above).

## 5.2 The nature of the Davel Project

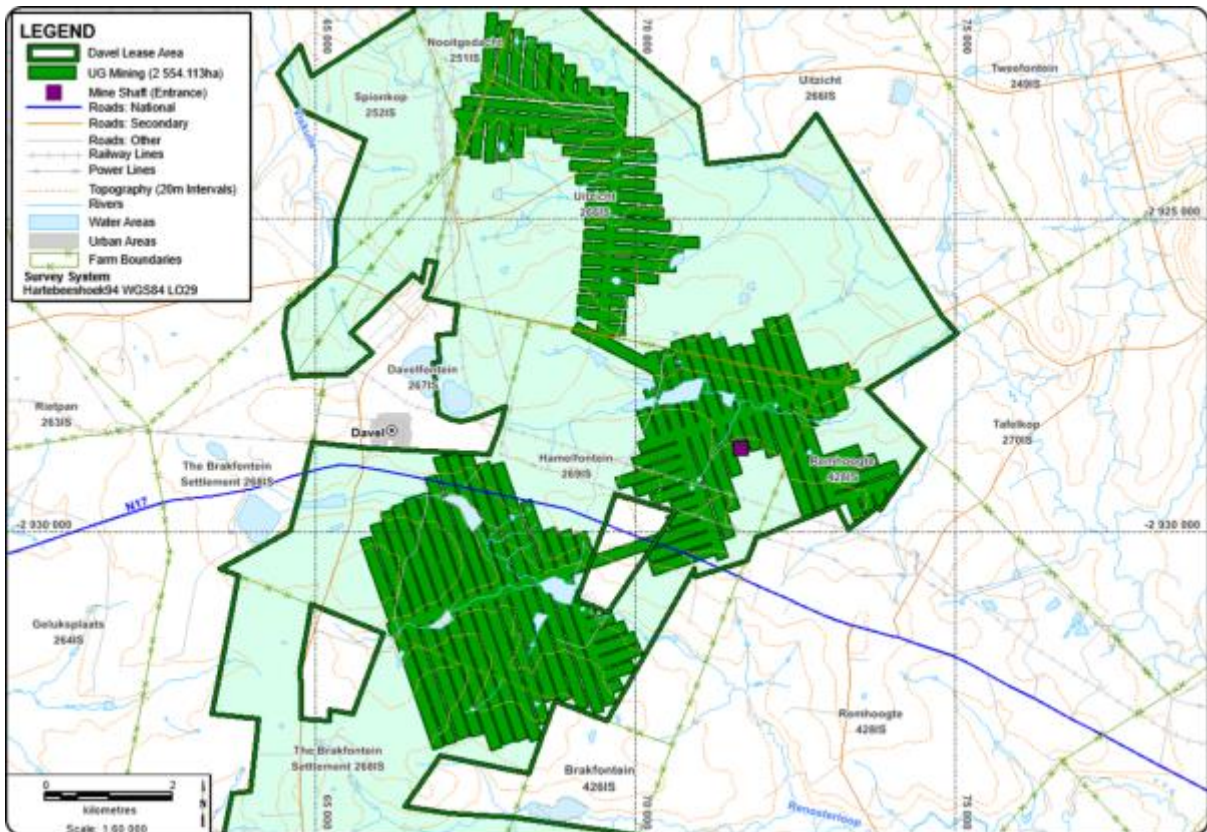
The proposed Davel Project involves underground mining activities on several farms and portions of farms between Bethal and Ermelo in the Mpumalanga Province (Figure 2). The proposed mining activities will stretch over a period of 25 years and a shaft will be located on Portion 2 of the Farm Hamelfontein 269. The production schedule indicates approximately 200 000 tonnes/month.



**Figure 2- The proposed Davel Project mine lease area in the Msukaligwa Local Municipality in the Mpumalanga Province (above).**

Current geological information indicates that a total of 61 Million tons of coal can be mined at Davel over a timeframe of 25 years within the current proposed preliminary mining layout (Figure 3). Coal that is mined will be transported via road to the old Ermelo mines. The underground reserve will be accessed via the shaft located on Portion 2 of the Farm Hamelfontein 269 and the coal will be transported to the old Ermelo Mines at Remhoogte *prior* to being supplied to various clients.





**Figure 3- The proposed underground mining activities associated with the Davel Project between Bethal and Ermelo (above).**

Proposed mining activities include the following: -

- Underground mining;
- Stockpiles;
- Construction of roads;
- Dirty water management structures;
- Workshops, wash-bay as well as storage for diesel;
- Mobile offices and change houses; and a
- Stone dust silo.

Listed activities in terms of the National Environmental Management Act Regulations published on 4 December 2014 as amended in April 2017 include the following: -

- Roads;
- Storage of fuel on site;

- Storage of coal;
- Underground mining activities;
- Off-stream storage of water in a facility with a combined capacity of 50 000 m<sup>3</sup> or more (potential listed activity but will be confirmed once the size of the dam is determined);
- Development of an area that has not been used previously; the area to be developed will be larger than 20 ha (potential listed activity but will be confirmed once the design of the shaft area is finalised);
- Clearing of more than 5 ha of indigenous vegetation (potential listed activity but will be confirmed once the final position of the shaft and the layout on surface is finalised).

During this process specific attention will be given to the requirements of the National Environmental Management: Waste Amendment Act and its regulations that were published in June 2014. However, the introduction of the one environmental management system in December 2014 will require the submission of such a licence to the Department of Mineral Resources and it will therefore be integrated with this process. Note that should other waste licence activities be identified during the process it will be added into the various reports that will be compiled as part of this process.

An application for an integrated water use licence for the proposed project will be submitted to the Department of Water and Sanitation.

The next step is to compile a scoping, EIA/EMP report and water use licence application that will be submitted to I&AP's for comments.

### **5.3 The heritage character of the Davel Project Area**

The heritage character of the proposed Davel Project is known from earlier heritage impact assessment studies which were done by the author and other heritage practitioners in the larger area which includes Bethal, Carolina and Ermelo. Some of these earlier heritage studies are outlined in Part 11 of the report, 'Bibliography relating to earlier heritage studies'. Whilst the context of the study area provides an

indication of the heritage character of the larger region (see Part 6, 'Contextualising the study area') the general character of the study area is discussed in Part 8.1 of the report, 'The heritage survey'.

## **6 CONTEXTUALISING THE STUDY AREA**

The following overview of pre-historical, historical and cultural evidence indicates the wide range of heritage resources which do occur across the Eastern Highveld in which the project area is located, namely:

### **6.1 Stone Age and rock art sites**

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (ESA) (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (the period from 22 000 years ago to 200 years ago).

Dongas and eroded areas at Maleoskop near Groblersdal is one of only a few places in Mpumalanga where ESA Olduwan and Acheulian artefacts have been recorded. Evidence for the MSA has been excavated at the Bushman Rock Shelter near Ohrigstad. This cave was repeatedly visited over a prolonged period. The oldest layers date back to 40 000 years BP (Before Present) and the youngest to 27 000BP (Esterhuysen & Smith 2007).

LSA occupation of the Mpumalanga Province also has been researched at Bushman Rock Shelter where it dates back 12 000BP to 9 000BP and at Höningnestkrans near Badfontein where a LSA site dates back to 4 870BP to 200BP (Esterhuysen & Smith 2007).

The LSA is also associated with rock paintings and engravings which were done by San hunter-gatherers, Khoi Khoi herders and EIA (Early Iron Age) farmers (Maggs 1983, 2008). Approximately 400 rock art sites are distributed throughout Mpumalanga, notably in the northern and eastern regions at places such as Emalahleni (Witbank) (4), Lydenburg (2), White River and the southern Kruger National Park (76), Nelspruit and the Nsikazi District (250). The Ermelo area holds eight rock paintings (Smith & Zubieta 2007).



The rock art of the Mpumalanga Province can be divided into San rock art which is the most wide spread, herder or Khoe Khoe (Khoi Khoi) paintings (thin scattering from the Limpopo Valley) through the Lydenburg district into the Nelspruit area) and localised late white farmer paintings. Farmer paintings can be divided into Sotho-Tswana finger paintings and Nguni engravings (Only 20 engravings occur at Boomplaats, north-west of Lydenburg). Farmer paintings are more localised than San or herder paintings and were mainly used by the painters for instructional purposes (Smith & Zubieta 2007).

During the LSA and Historical Period, San people called the Batwa lived in sandstones caves and rock shelters near Lake Chrissie in the Ermelo area. The Batwa are descendants of the San, the majority of which intermarried with Bantu-Negroid people such as the Nhlapo from Swazi-descend and Sotho-Tswana clans such as the Pai and Pulana. Significant intermarriages and cultural exchanges occurred between these groups. The Batwa were hunter-gatherers who lived from food which they collected from the veldt as well as from the pans and swamps in the area. During times of unrest, such as the *difaqane* in the early nineteenth century, the San would converge on Lake Chrissie for food and sanctuary. The caves, lakes, water pans and swamps provided relative security and camouflage. Here, some of the San lived on the surfaces of the water bodies by establishing platforms with reeds. With the arrival of the first colonists in the nineteenth century many of the local Batwa family groups were employed as farm labourers. Descendants of the Batwa people still live in the larger Project Area (Schapera 1927; Potgieter 1955; Schoonraad & Schoonraad 1975).

No sites dating from the Stone Age or any lithic scatters with tools, flakes or waste material have been recorded close to where the proposed road alignments are planned.

## **6.2 Iron Age remains**

The Iron Age is associated with the first agro-pastoralists or farming communities who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (EIA)

(covers the 1<sup>st</sup> millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2<sup>nd</sup> millennium AD).

Evidence of the first farming communities in the Mpumalanga Province is derived from a few EIA potsherds which occur in association with the LSA occupation of the Höningnest Shelter near Badfontein. The co-existence of EIA potsherds and LSA stone tools suggest some form of 'symbiotic relationship' between the Stone Age hunter-gatherers who lived in the cave and EIA farmers in the area (also note Batwa and Swazi/Sotho Tswana relationship) (Esterhuysen & Smith 2007).

The Welgelegen Shelter on the banks of the Vaal River near Ermelo also reflects some relationship between EIA farmers who lived in this shelter and hunter-gatherers who manufactured stone tools and who occupied a less favourable overhang nearby during AD1200 (Schoonraad & Beaumont 1971).

EIA sites were also investigated at Sterkspruit near Lydenburg (AD720) and in Nelspruit where the provincial governmental offices were constructed. The most infamous EIA site in South Africa is the Lydenburg head site which provided two occupation dates, namely during AD600 and from AD900 to AD1100. At this site the Lydenburg terracotta heads were brought to light. Doornkop, located south of Lydenburg, dates from AD740 and AD810 (Evers 1981; Whitelaw 1996).

The LIA is well represented in Mpumalanga and stretches from AD1500 well into the nineteenth century and the Historical Period. Several spheres of influence, mostly associated with stone walled sites, can be distinguished in the region. Some of the historically well-known spheres of influence include the following:

- Early arrivals in the Mpumalanga Province such as Bakone clans who lived between Lydenburg, Badfontein and Machadodorp and Eastern Sotho clans such as the Pai, Pulana and Kutswe who established themselves in the eastern parts of the province (Collett 1979, 1983; Delius 2007; Makhura 2007; Delius & Schoeman 2008).
- Swazi expansion into the Highveld and Lowveld of the Mpumalanga Province occurred during the reign of Sobhuza (AD1815 to 1836/39) and Mswati

(AD1845 to 1868) while Shangaan clans entered the province across the Lembombo Mountains in the east during the second half of the nineteenth century (Delius 2007; Makhura 2007.).

- The Bakgatla (Pedi) chiefdom in the Steelpoort Valley rose to prominence under Thulare during the early 1800's and was later ruled by Sekwati and Sekhukune from the village of Tsjate in the Leolo Mountains. The Pedi maintained an extended sphere of influence across the Limpopo and Mpumalanga Provinces during the nineteenth century (Mönnig 1978; Delius 1984).
- The Ndzundza-Ndebele established settlements at Kwasimkulu (between Middelburg and Belfast) and at the foot of the Bothasberge (Kwa Maza and Esikhunjini) in the 1700's and lived at Erholweni from AD1839 to AD1883 where the Ndzundza-Ndebele's sphere of influence known as KoNomthjarhelo stretched across the Steenkampsberge.
- The Bakopa lived at Maleoskop (1840 to 1864) where they were massacred by the Swazi while the Bantwane live in the greater Groblersdal and Marble Hall areas.
- Corbelled stone huts which are associated with ancestors of the Sotho on Tafelkop near Davel which date from the AD1700's into the nineteenth century (Hoernle 1930).
- Stone walled settlements spread out along the eastern edge of the Groot Dwarsriver Valley served as the early abode for smaller clans such as the Choma and Phetla communities which date from the nineteenth century.

Stone walled sites which occur closest to the project area are those approximately twenty kilometers to the north-west of the project area. Here the Ndzundza-Ndebele established a capital Kwasimkulu and other villages in a hilly area from AD1600 onwards.

### **6.3 The Historical Period**

Historical towns closest to the project area include Bethal and Ermelo.

Bethal was founded on 12 October 1880 on the farm Blesbokspruit and named after the two wives of the original owners of the farm, namely Elizabeth and Alida. The village received municipal status in 1921.

Long before Ermelo came into being the area was frequented by travellers moving between Lydenburg and Natal. The area was well watered and dotted with lakelets and attracted settlers from Lydenburg and elsewhere. The reverend Lion Cachet of Utrecht began to hold regular services on several of the new farms.

In AD1880 a village was proclaimed on the farm Nooitgedacht. The town was named for Ermelo in Gelderland, Holland and was managed by the Dutch Reformed Church until 1895 when the Transvaal government took over. In 1901, during the Anglo-Boer War, the town was completely destroyed by the British. The town was rebuilt from scratch after 1903. Today Ermelo is the educational, communications, industrial and commercial centre for an intensely farmed district. Coal is mined by several large mines and Ermelo lies on the railway line between the Highveldt coal fields and the bulk export harbour of Richards Bay on Kwa Zulu-Natal's north coast.

Heritage sites in Ermelo include: a memorial near the Dutch Reformed Church in honour of the men from the town and district who fought and died in the Anglo Boer War; rock paintings in caves and rock shelters and the Paul Kruger Bridge across the Vaal River which was built in 1897 by the celebrated architect, Sytze Wierda.

#### **6.4 A coal mining heritage**

Coal mining on the eastern Highveld is now older than one century and has become the most important coal mining region in South Africa. Whilst millions of tons of high-grade coal are annually exported overseas more than 80% of the country's electricity is generated on low-grade coal in Eskom's power stations such as Duvha, Matla and Arnot situated near coal mines on the eastern Highveld.

The earliest use of coal (charcoal) in South Africa was during the Iron Age (300-1880AD) when metal workers used charcoal, iron and copper ores and fluxes (quartzite stone and bone) to smelt iron and copper in clay furnaces.

Colonists are said to have discovered coal in the French Hoek Valley near Stellenbosch in the Cape Province in 1699. The first reported discovery of coal in the interior of South Africa was in the mid-1830s when coal was mined in Kwa-Zulu/Natal.

The first exploitation for coal was probably in Kwa-Zulu/Natal as documentary evidence refers to a wagon load of coal brought to Pietermaritzburg to be sold in 1842. In 1860 the coal trade started in Dundee when a certain Pieter Smith charged ten shillings for a load of coal dug by the buyer from a coal outcrop in a stream. In 1864 a coal mine was opened in Molteno. The explorer, Thomas Baines mentioned that farmers worked coal deposits in the neighbourhood of Bethal (Transvaal) in 1868. Until the discovery of diamonds in 1867 and gold on the Witwatersrand in 1886, coal mining only satisfied a very small domestic demand.

With the discovery of gold in the Southern Transvaal and the development of the gold mining industry around Johannesburg came the exploitation of the Boksburg-Spring coal fields, which is now largely worked out. By 1899, at least four collieries were operating in the Middelburg-Witbank district, also supplying the gold mining industry. At this time coal mining also had started in Vereeniging. The Natal Collieries importance was boosted by the need to find an alternative for imported Welsh anthracite used by the Natal Government Railways.

By 1920 the output of all operating collieries in South Africa attained an annual figure of 9,5million tonnes. Total in-situ reserves were estimated to be 23 billion tonnes in Witbank-Springs, Natal and Vereeniging. The total in situ reserves today are calculated to be 121 billion tonnes. The largest consumers of coal are Sasol, Mittal and Eskom.

No evidence for early coal mining activities was observed in or near the project area.

## **6.5 A vernacular stone architectural heritage**

A unique stone architectural heritage was established in the eastern Highveld from the second half of the 19<sup>th</sup> century well into the early 20<sup>th</sup> century. During this time period

stone was used to build farmsteads and dwellings, both in urban and in rural areas. Although a contemporary stone architecture also existed in the Karoo and in the Eastern Free State Province of South Africa a wider variety of stone types were used in the eastern Highveld. These included sandstone, ferricrete ('ouklip'), dolerite ('blouklip'), granite, shale and slate (Naude 1993).

The origins of a vernacular stone architecture in the eastern Highveld may be ascribed to various reasons of which the ecological characteristics of the region may be the most important. Whilst this region is generally devoid of any natural trees which could be used as timber in the construction of farmsteads, outbuildings, cattle enclosures and other structures, the scarcity of fire wood also prevented the manufacture of baked clay bricks. Consequently stone served as the most important building material in the eastern Highveld (Naude 1993, 2000). One of these historical structures was excavated and described after a heritage mitigation project was conducted for a coal mine (Pistorius 2005).

LIA Sotho, Pedi, Ndebele and Swazi communities contributed to the Eastern Highveld's stone walled architecture. The tradition set by these groups influenced settlers from Natal and the Cape Colony to utilise the same resources to construct dwellings and shelters. Farmers from Scottish, Irish, Dutch, German and Scandinavian descent settled and farmed in the eastern Highveld. They brought the knowledge of stone masonry from Europe. This compensated for the lack of fire wood on the Eastern Highveld which was necessary to bake clay bricks.

No sandstone structures were recorded in the project area although farmsteads with wagon sheds and outbuildings that were constructed with this building material occur in the wider Mafube prospecting area (Figure 1).

## **6.6 Most common types and ranges of heritage resources**

Heritage resources which are common on the Eastern Highveld near the study area are the following (see Part 11 'Bibliography relating to earlier heritage studies'):

- Historical remains associated with farmstead complexes consisting of houses, associated outbuildings, cattle enclosures and graveyards.

- Abandoned graveyards left by farm workers who moved from farms to urban areas.
- Stone walled settlements dating from the Late Iron Age where sandstone kopjes in association with dolerite dykes may occur.

## 7 APPROACH AND METHODOLOGY

This heritage survey and impact assessment study was conducted by means of the following:

### 7.1 Field survey

A field survey was conducted from 30 to 31 October and from 1 to 2 November 2017. Archaeological visibility was good as the summer rain season did not yet commence in this part of Mpumalanga.



**Figure 11- GPS track log which was registered with a mounted GPS instrument. Pedestrian surveys were conducted from the main pathway. Not all tracks were recorded as a result of signal loss (above).**

The field survey was conducted by means of following national, dirt and farm roads across the project area. Other accessible pathways such as ‘two spoor’ field tracks on farms were also utilized to gain access to parts of the project area that is not occupied by farming activities other than grazing.



Only main routes were recorded with a mounted GPS instrument. Pedestrian surveys were undertaken from some of these primary access routes not all of which were recorded on GPS. Some tracts were also not recorded as a result of signal loss with satellites.

All coordinates for heritage resources recorded by the author were done with a Garmin Etrex hand set Global Positioning System (instrument) with an accuracy of < 15m.

Ecological indicators such as alternations in vegetation patterns; open or bald spots in the veld; protrusions of boulders, low hills or patches with grass or extreme dense vegetation were searched as these could have harboured former dwellings of farm workers.

Google imagery served as a supplementary source (*prior* and after fieldwork) to establish the possible presence of heritage resources such as farm homesteads or extended stone walled villages.

The nature and character of the project area is further illuminated with descriptions and photographs in Part 8.1 'The field survey'.

## **7.2 Databases, literature survey and maps**

Databases kept and maintained at institutions such as the PHRA, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and SAHRA's national archive (SAHRIS) were consulted by the author and other heritage practitioners to determine whether any heritage resources of significance had been identified during earlier heritage surveys in or near the project area. Nevertheless heritage resources may have been missed as a result of various factors (Part 1.3, 'Assumptions and limitations').

### 7.3 Spokespersons consulted

Farm owners and farm labours were consulted regarding the possible presence of graveyards in the project area (see Part 13, 'Spokespersons consulted').

### 7.4 Consultation process undertaken and comments received from stakeholders

No specific consultation process was undertaken for the purposes of the heritage study as the stakeholder consultation for the project is being done by Jaco-K Consulting.

### 7.5 Significance ratings

The significance of possible impacts on the heritage resources was determined using a ranking scale based on the following:

- Occurrence
  - Probability of occurrence (how likely is it that the impact may/will occur?), and
  - Duration of occurrence (how long may/will it last?)
- Severity
  - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and
  - Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?).

Each of these factors has been assessed for each potential impact using the following ranking scales:

Probability: 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability	Duration: 5 – Permanent 4 – Long-term (ceases with the operational life) 3 - Medium-term (5-15 years) 2 - Short-term (0-5 years)
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1 – Improbable 0 – None	1 – Immediate
Scale: 5 – International 4 – National 3 – Regional 2 – Local 1 – Site only 0 – None	Magnitude: 10 - Very high/don't know 8 – High 6 – Moderate 4 – Low 2 – Minor

The heritage significance of each potential impact was assessed using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

The maximum value is 100 Significance Points (SP). Potential environmental impacts are rated as very high, high, moderate, low or very low significance on the following basis:

- More than 80 significance points indicates VERY HIGH heritage significance.
- Between 60 and 80 significance points indicates HIGH heritage significance.
- Between 40 and 60 significance points indicates MODERATE heritage significance.
- Between 20 and 40 significance points indicates LOW heritage significance.
- Less than 20 significance points indicates VERY LOW heritage significance.

## **8 HERITAGE SURVEY FOR THE DAVEL PROJECT**

### **8.1 The field survey**

The study area is bisected by the N17 in a larger northern part which covers the farm Uitzicht 266IS and a smaller southern part which falls on the farm Hamelfontein 269IS. The lower laying central part of the study area, north of the N17, is marked by a number of dams whilst patches of land covered with agricultural fields occur in the northern, central and southern parts of the study area.

The field survey covered a considerable part but not whole of the study area was surveyed, e.g. agricultural fields or tracks of land not previously occupied by farm owners or farm labours were not surveyed when informed by spokespersons that no graveyards are known to exist on these pieces of land. It is also known, from earlier studies and from the geology of the region, that large stretches of land on the Eastern Highveld do not hold any archaeological sites dating from the Stone or Late Iron Age. Stone walled sites that do occur on Tafelkop are confined to flat-topped sandstone mountains which are located outside the study area.

A few farmstead complexes, mostly associated with Blue Gum lots or avenues with Blue Gum trees, occur across the study area.

A large farmstead complex comprising farming infrastructure and residential remains occur towards the central part of Hamelfontein 269IS. The Jan Vos Landgoed incorporates a wide range of infrastructure some of which, such as the main residence may be older than sixty years. However, this structure has been changed to such an extent that it is unlikely that it holds any heritage significance any longer.



**Figure 5- The Jan Vos Landgoed comprising farming infrastructure and residential remains occur towards the central part of Hamelfontein 269IS. This farmstead complex incorporates a wide range of infrastructure consisting of residential remains, sheds, offices, kraals, etc. (above).**



**Figure 6- Large parts of the study area are covered with agricultural fields (above).**



**Figure 7- Vast open stretches of land occur across the project area which are utilized for grazing (above).**



**Figure 8- Several large dams are situated towards the central part of the study area (above).**

## **8.2 Types and ranges of heritage resources**

The Phase I heritage survey for the Davel Project revealed the following types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999), namely:

- Historical remains comprising the Vos Landgoed and a historical house.
- A number of graveyards.

All the heritage resources were geo-referenced and mapped (Table 1; Figure 9). Their significance is indicated as well as the level of the significance of any possible impact on the graveyards (Tables 1, 2 & 3). No mitigation measures are necessary as no heritage resources will be affected by the Davel Project. Management measures are outlined for the heritage resources which remain unaffected in the project area.

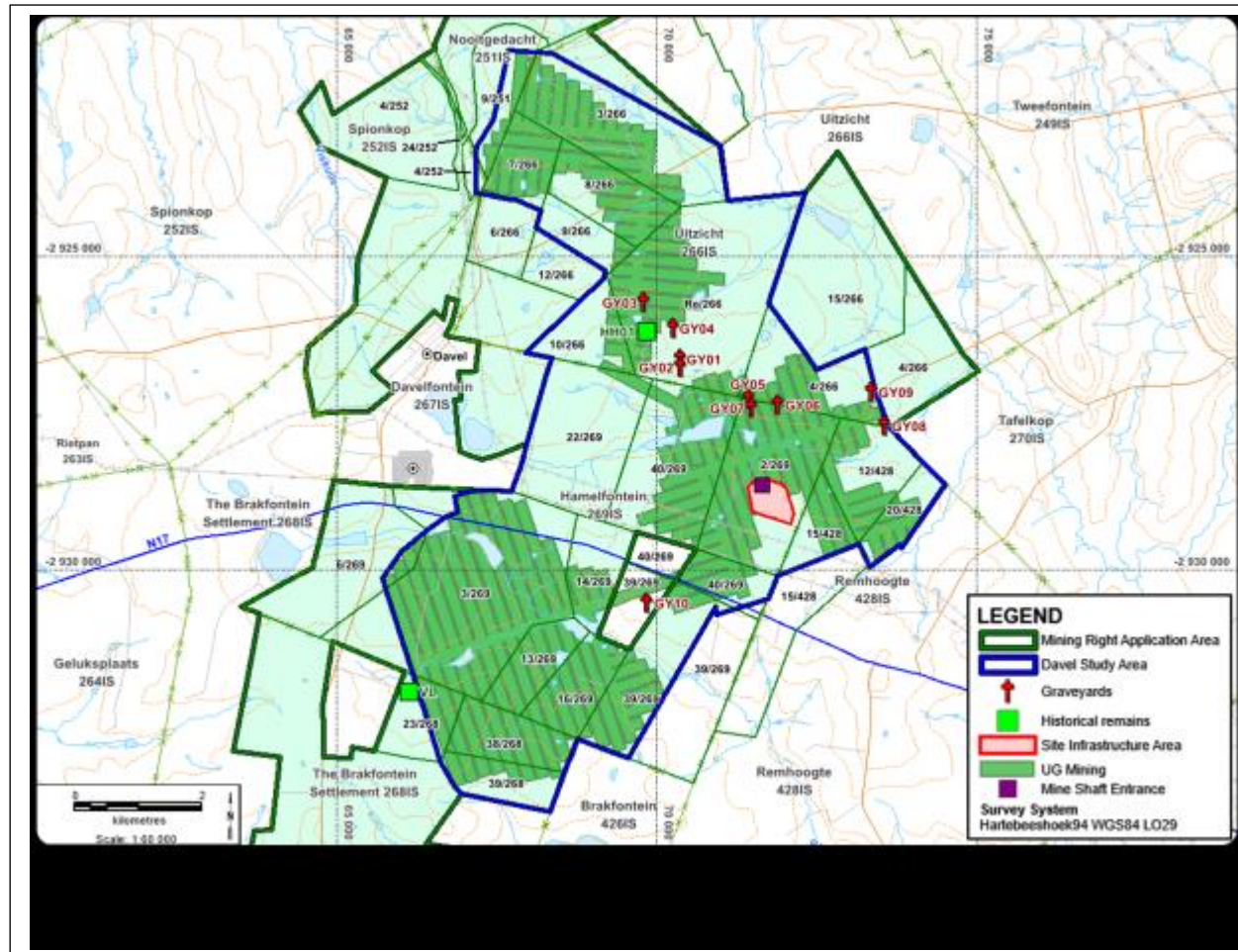


Figure 9- The proposed Davel Project between Bethal and Ermelo. Note the presence of heritage resources such as historical remains and graveyards in the study area (above).



## **8.2 Historical remains**

### **8.2.1 Vos Landgoed**

The Vos Landgoed in the central part of Hamelfontein 269IS incorporates a wide range of infrastructure such as cattle kraals; sheds constructed with clay bricks and fitted with pitched corrugated iron roofs; buildings with different functions and purposes; a new modern administrative office block, etc..

The main residence in this complex may be older than sixty years. However, the structure of the residence has been altered over the years and the original core is no longer recognisable. The structure also has been adapted and extended and it is unlikely that it holds any heritage significance any longer.

A residence older than sixty years which has not been altered and which is still in good order also occurs on Uitzicht 266IS.

### **8.2.2 Historical house**

A Victorian style residence (HH02) which is still in good condition occurs on Uitzicht 266IS. This structure is associated with at least one outbuilding which appears to be a rondavel which was constructed with stone.

The house was constructed with sandstone part of which was plastered. It is also characterised by a verandah ('stoep') along one side of the home. The roof comprises a pitched corrugated iron roof.

The back side of the residence is surrounded by a wall.



**Figure 10- A historical house with a Victorian building style which is in good order on Uitzicht 266IS (above).**



**Figure 11- An outbuilding and outer wall constructed with stone is part of HH01 (above).**

## 8.2.2 Graveyards

A number of graveyards were recorded in the study area, namely:

### 8.2.2.1 Graveyard 01

GY01 holds two graves which are visible on the surface. One of the graves is decorated with a granite headstone with the following inscription:

- 'Joster Mdluli. May your soul rest in peace'.

This graveyard may be older than sixty years.



**Figure 12- GY01 is located in open grass veld near dwellings for labourers and holds two visible graves (above).**

### 8.2.2.2 Graveyard 02

GY02 holds approximately seventeen graves and is also located in open veld near GY01. Most of the graves are fitted with small, neat granite headstones. Inscriptions on some of these headstones read as follow:

- 'Madonsela Mr Lasbon G. Born 28-12-1955 Died 03-06-2005. Your memory will never die'.
- 'Poppie Maria Madonsela B1926-10-21 D1990-10-25 Lalangoxolo Loving memoirs'.
- 'Winnie Maureen Soho. B1975-06-25 D2006-09-08. May your soul rest in peace'.

Many of the graves in GY02 are older than sixty years.



**Figure 13- GY02 is located in open grass veld near GY01 and hold approximately seventeen graves most of which are decorated (above).**

### **8.2.2.3 Graveyard 03**

GY03 is a large graveyard which holds at least fifty graves and is located in open veld. Many of the graves are fitted with granite headstones. Inscriptions on some of these headstones read as follow:

- 'Majola Phumzile Mevis B07-08-1968 D23-12-2002'.
- 'Christina Sdudla Langa B1952-08-28 D2004-04-12'.
- Staff Lina Langa B1966-09-09 D1998-11-24'



- 'Franco Louw'.

Most of the graves in GY03 are probably older than sixty years.



**Figure 14- GY03 is located in open grass veld near a blue gum lot and holds a large number of graves many of which are decorated (above).**



**Figure 15- GY04 is located in a blue gum lot and holds the remains of three members of the Krugel family (above).**

#### **8.2.2.4 Graveyard 04**

GY02 holds two tombstones with the remains of three individuals in a blue gum plantation. Both are decorated with granite slabs with the following inscriptions, namely:

- Krügel Willem Frederik B16-09-1939 D06-07-2009 Fillipense 1:23 Ek het verlanget om heen te gaan en met Christus te wees want dit is verreweg die beste' Fillipense 1:21 Want vir my is die lewe Christus en die sterwe wins'.
- Krügel Maria Magdalena Gebore Smit 04-05-1929; 26-11-2003 Marthinus Johannes Jacobus 20-09-31; 09-05-2010'.

All three graves are younger than sixty years.

#### **8.2.2.5 Graveyard 05**

This graveyard (GY05) is located next to the dirt road. It holds approximately twenty graves and perhaps more may exist as the graveyard is partly covered with tall grass. Most of the graves are covered with piles of stone.

A few is fitted with granite head stones with the following inscriptions, namely:

- 'Mngomezulu Mandla Petros. B28-03-1972 D07-05-2007'
- Mngomezulu Mampela 28-08-1974

It is highly likely that the majority of these graves are older than sixty years.

#### **8.2.2.6 Graveyard 06**

This graveyard (GY05) is located next to the dirt road and holds approximately ten graves all of which are covered with piles of stone.

It is highly likely that most of these graves are older than sixty years.



**Figure 16- GY05 is located in tall grass next to a dirt road in close proximity to GY06 (above).**



**Figure 17- GY06 is located along a dirt road in close proximity of GY05 (above).**

### **8.2.2.7 Graveyard 07**

This graveyard (GY07) is located against a slope and partly in a quarry in open veld. GY07 holds approximately ten graves. All of the graves are covered with piles of stone.

It is highly likely that most of these graves are older than sixty years.



**Figure 18- GY07 is located in open grass veld in a shallow quarry and holds ten visible graves all covered with piles of stone (above).**

### **8.2.2.8 Graveyard 08 (G08)**

This single grave in GY08 is located at the bottom of a valley between several erosion dongas. It is fitted with a cement head stone with indecipherable inscriptions.





**Figure 19- GY08 is a single grave fitted with a cement headstone located between erosion dongas (above).**



**Figure 20- GY09 comprises a large graveyard between maize fields. A single grave is covered with a granite slab (above).**

### 8.2.2.9 Graveyard 09

This graveyard (GY09) is located between maize fields. It holds approximately fifty but possibly more graves. Only one of the graves is covered with a granite slab with the following inscription, namely:

- 'Jeffrey Langa B1929-12-25 D1990-06-15 Lala ngoxolo'.

It is highly likely that most of these graves are older than sixty years.

### 8.2.2.10 Graveyard 10

This graveyard (GY10) comprises two graves in an agricultural field. It is located to the south of a blue gum lot. One of the graves is fitted with a cement headstone with no inscription whilst the second grave is fitted with a flat dolerite stone.

It is most likely that both graves are older than sixty years.



**Figure 21- GY10 comprises two graves in an agricultural field to the south of a blue gum lot (above).**

### 8.3 Table

<b>Historical remains</b>	<b>Coordinates</b>	<b>Significance</b>
Vos Landgoed	26° 29 44.44'S 29° 39 47.90'E	<b>Medium-high</b>
Historical house	26° 26 37.28'S 29° 42 00.69'E	<b>Medium-high</b>
<b>Graveyards</b>	<b>Coordinates</b>	<b>Significance</b>
GY01. Two graves one decorated	26° 26.860'S 29° 42.332'E	<b>HIGH</b>
GY02. Approximately 17 graves in open veld	26° 26.928'S 29° 42.333'E	<b>HIGH</b>
GY03. Large graveyard with approximately 80 or more graves.	26° 26.372'S 29° 41.985'E	<b>HIGH</b>
GY04. Three graves of the Krugel's in a blue gum bush	26° 26.597' 29° 42.259'	<b>HIGH</b>
GY05. Next to a dirt road with approximately 20 graves	26° 27.198' 29° 42.971'	<b>HIGH</b>
GY06. Next to a dirt road approximately 10 graves	26° 27.253' 29° 43.255'	<b>HIGH</b>
GY07. Located in a shallow quarry with approximately 10 graves.	26° 27.281'S 29° 43.004'E	<b>HIGH</b>
GY08 (G08). Single grave with cement head stone.	26° 27.427'S 29° 44.259'E	<b>HIGH</b>
GY09. Located next to national road. Approximately 10 graves	26° 27.137'S 29° 44.133'E	<b>HIGH</b>
GY10. Two graves to the south of a blue gum plantation	26° 28.969'S 29° 42.033'E	

**Table 1- Coordinates for historical remains and graveyards in the project area (above).**

## **9 HERITAGE ASSESSMENT FOR THE DAVEL PROJECT**

The various developmental components of the Davel Project as outlined in Part 5.3 of the report may have an influence on some of the heritage resources which have been identified. The severity of the impact on these remains therefore have to be determined in order to propose mitigation measures for those heritage resources that may be affected by project activities and to recommend management measures for those heritage resources which remain unaffected in the project area.

### **9.1 Possible impact on heritage resources**

Impacts on heritage resources can be direct, indirect or cumulative. Impacts need to be related to all activities including direct third party activities, namely:

- Direct impacts are caused by particular actions at the same time and place.
- Indirect impacts are caused by the actions later in time or further removed in distance from heritage resources but are still reasonably foreseeable;
- Cumulative impacts on heritage resources occur as the results of an incremental increase in actions when added to other past, present, and reasonably foreseeable future actions regardless of who or what undertakes such actions.

According to the current layout plan for the Davel Project none of the heritage resources (historical remains or graveyards) will be affected by the project (Figure 9). Nevertheless, the significance of the heritage resources is indicated.

### **9.2 The significance of the heritage resources**

#### **9.2.1 The historical remains**

These remains comprise of the main residence in the Vos Landgoed and HH01 which are older than sixty years and which are protected by the National Heritage Resources Act (No 25 of 1999) (Table 1).

The medium-high level of significance for the historical remains was determined by means of various criteria which qualify places and objects as part of the national estate if they have cultural significance or other special value as outlined in Section 3 of the NHRA (Act No 25 of 1999) (see Box 1) (Table 1). This medium-high level of significance also corresponds with the rating of the historical remains as Grade IIIB Local Resources with medium-high significance (Table 3)

The significance of the historical remains can be rated as medium-high when considering criteria such as the following (Table 1):

- The historical remains can contribute to a better understanding of the lifeways of early inhabitants on the eastern Highveld in Mpumalanga.
- The historical remains are under threat due to an established agro-economic industry and an expanding coal mining complex on the eastern Highveld of Mpumalanga.
- The historical remains provide opportunities to be utilized in tourism, education and research particularly if further studied, renovated and applications to be utilized (e.g. in the tourism or leisure industry) can be implemented.
- The historical remains are relatively young as they date from the last six to seven decades.
- Some of the historical remains have been altered significantly in the more recent past and their historical core cannot be recognised any longer.
- The historical remains' architectural style is still common in the region as a considerable number of these structures and outbuildings still exist.

**Grade 1 National Resource**

This sites are to be nominated as such (mention must be made of any relevant international ranking). A protected buffer zone must be proposed. These sites must be maintained in situ. A CMP must be recommended for the in situ conservation of these sites.

**Grade II Provincial Resource**

This site is considered to be of Field Rating/Grade II and must be nominated as such, a protected buffer zone must be considered, these sites must be maintained in situ and a CMP must be recommended for the in situ conservation of the site;

**Grade IIIA Local Resource**

These site must be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised, a protected buffer zone must be considered, these sites must be maintained in situ and a CMP must be recommended for the in situ conservation of the site;

**Grade IIIB Local Resource**

**These sites can be mitigated and (partly) retained as a heritage register site (High/Medium significance), Mitigation of these sites must be subject to a formal permit application process lodged with the relevant heritage resources authority;**

**Grade IIIC Local Resource**

These are sites are assigned a Low field rating which, once adequately described in the Phase I assessment, may be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process,

**Table 3- Field rating (grading) for historical remains in the project area****9.2.2 The graveyards**

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 3). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (NHRA) (Act No 25 of 1999) in instances where graves are older than sixty years. It is highly likely that all graveyards in the project area is older than sixty years. Other legislation with regard to graves younger than sixty years include the National Health Act, 2003 (Act No 61 of 2003), Ordinance 12 of 1980 (Exhumation Ordinance) and Ordinance No 7 of 1925 (Graves and dead bodies Ordinance). Municipal laws with regard to graves and graveyards may differ and professionals involved with the exhumation and relocation of graves and graveyards must adhere to these laws.

### 9.3 The significance of the impact on the heritage resources

All heritage resources occur at safe distances from the footprint of the proposed Davel Project. The significance of the impact on the heritage resources therefore is low and will remain low if the management measures outlined in the report are implemented (Table 2).

#### 9.3.1 The significance of the impact on the historical remains

The significance of the impact on the historical remains therefore is low and will remain low if the management measures outlined in the report are implemented (Table 2)

**Table 2- The significance of the impact on the historical remains (below).**

	Probability of impact	Magnitude of impact	Duration of impact	Scale	Significance points	Significance rating	Significance after management
Vos Landgoed HH01	1	2	1	1	4	Very low	Very low

#### 9.3.2 The significance of the impact on the graveyards

The significance of the impact on the graveyards therefore is low and will remain low if the management measures outlined in the report are implemented (Table 3)

**Table 3- The significance of potential impacts on the graveyards (below).**

	Probability of impact	Magnitude of impact	Duration of impact	Scale	Significance points	Significance rating	Significance after management
GY01 to GY10	1	2	1	1	4	Very low	Very low

## **9.4 Mitigating the heritage resources graveyards**

All the historical remains and graveyards occur at safe distances from the footprint of the proposed Davel Project and need no mitigation measures.

## **9.5 Managing the heritage resources**

### **9.5.1 Managing the historical remains**

Although the main residence in the Vos Landgoed may have been altered significantly during the past the original historical core of this complex of structures may inform about the historical significance and meaning of these structures before they may be altered to suit the mine's needs or be demolished.

The Vos Landgoed and the historical house (HH01) have to be studied and documented by a historical architect before any of these remains may be affected in any way, e.g. to be altered or to be demolished as a result of the implementation of the Davel Project. The South African Heritage Resources Agency (SAHRA) will require that historical structures to be affected (and the complex as such) have be studied and documented by a conservation architect before SAHRA will make any recommendations regarding the future existence of the historical remains.

The significance of any impact on the historical remains therefore will be low after the mitigation measures have been implemented (Table 3).

### **9.5.2 Managing the graveyards**

All graveyards should remain unaffected in the project area. Consequently, the following management measures are recommended:

- Graveyards and graves must be demarcated with fences or with walls and should be fitted with access gates.
- Regulated visitor hours should be implemented that is compatible with mine safety rules. This will not be necessary when graveyards and graves are located next to national roads.



- Corridors of at least 30m should be maintained between graveyards and grave fences' and any developmental components such as roads or other infrastructure that may be developed in the future.
- Graveyards and graves should be inspected on a regular basis not exceeding every three months. Inspections should be noted in an inspection register. The register should outline the state of the graveyards and graves during each inspection.
- Reports on damages to any of the graves or to the graveyards (fences, walls, gates) should be followed with the necessary mitigation work which must be registered in the inspection register.
- Mitigation done to graves older than sixty years can only be done after SAHRA has issued the necessary permit
- Graveyards and graves should be kept tidy from any invader weeds and any other refuse.

## **9.6 Summary**

There is no reason from a heritage point of view why the proposed Davel Project cannot proceed if the management measures recommended in this report and in the EMPr have been implemented.

## **10 CONCLUSION AND RECOMMENDATIONS**

The Phase I heritage survey for the Davel Project revealed the following types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999), namely:

- Historical remains comprising the Vos Landgoed and a historical house.
- A number of graveyards.

All the heritage resources were geo-referenced and mapped (Table 1; Figure 9). Their significance is indicated as well as the level of the significance of any possible impact on the graveyards (Tables 1, 2 & 3). No mitigation measures are necessary as no heritage resources will be affected by the Davel Project. Management measures are outlined for the heritage resources which remain unaffected in the project area.

### **The significance of the heritage resources**

#### **The historical remains**

These remains comprise of the main residence in the Vos Landgoed and HH01 which are older than sixty years and which are protected by the National Heritage Resources Act (No 25 of 1999) (Table 1).

The medium-high level of significance for the historical remains was determined by means of various criteria which qualify places and objects as part of the national estate if they have cultural significance or other special value as outlined in Section 3 of the NHRA (Act No 25 of 1999) (see Box 1) (Table 1). This medium-high level of significance also corresponds with the rating of the historical remains as Grade IIIB Local Resources with medium-high significance (Table 3)

The significance of the historical remains can be rated as medium-high when considering criteria such as the following (Table 1):

- The historical remains can contribute to a better understanding of the lifeways of early inhabitants on the eastern Highveld in Mpumalanga.

- The historical remains are under threat due to an established agro-economic industry and an expanding coal mining complex on the eastern Highveld of Mpumalanga.
- The historical remains provide opportunities to be utilized in tourism, education and research particularly if further studied, renovated and applications to be utilized (e.g. in the tourism or leisure industry) can be implemented.
- The historical remains are relatively young as they date from the last six to seven decades.
- Some of the historical remains have been altered significantly in the more recent past and their historical core cannot be recognised any longer.
- The historical remains' architectural style is still common in the region as a considerable number of these structures and outbuildings still exist.

### **The graveyards**

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 3). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (NHRA) (Act No 25 of 1999) in instances where graves are older than sixty years. It is highly likely that all graveyards in the project area is older than sixty years. Other legislation with regard to graves younger than sixty years include the National Health Act, 2003 (Act No 61 of 2003), Ordinance 12 of 1980 (Exhumation Ordinance) and Ordinance No 7 of 1925 (Graves and dead bodies Ordinance). Municipal laws with regard to graves and graveyards may differ and professionals involved with the exhumation and relocation of graves and graveyards must adhere to these laws.

### **The significance of the impact on the heritage resources**

All heritage resources occur at safe distances from the footprint of the proposed Davel Project. The significance of the impact on the heritage resources therefore is low and will remain low if the management measures outlined in the report are implemented (Table 2).

### **The significance of the impact on the historical remains**

The significance of the impact on the historical remains therefore is low and will remain low if the management measures outlined in the report are implemented

### **The significance of the impact on the graveyards**

The significance of the impact on the graveyards therefore is low and will remain low if the management measures outlined in the report are implemented

### **Mitigating the heritage resources graveyards**

All the historical remains and graveyards occur at safe distances from the footprint of the proposed Davel Project and need no mitigation measures.

### **Managing the heritage resources**

#### **Managing the historical remains**

Although the main residence in the Vos Landgoed may have been altered significantly during the past the original historical core of this complex of structures may inform about the historical significance and meaning of these structures before they may be altered to suit the mine's needs or be demolished.

The Vos Landgoed and the historical house (HH01) have to be studied and documented by a historical architect before any of these remains may be affected in any way, e.g. to be altered or to be demolished as a result of the implementation of the Davel Project. The South African Heritage Resources Agency (SAHRA) will require that historical structures to be affected (and the complex as such) have be studied and documented by a conservation architect before SAHRA will make any recommendations regarding the future existence of the historical remains.

The significance of any impact on the historical remains therefore will be low after the mitigation measures have been implemented (Table 3).

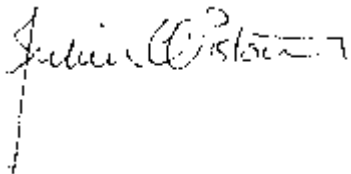
## **Managing the graveyards**

All graveyards should remain unaffected in the project area. Consequently, the following management measures are recommended:

- Graveyards and graves must be demarcated with fences or with walls and should be fitted with access gates.
- Regulated visitor hours should be implemented that is compatible with mine safety rules. This will not be necessary when graveyards and graves are located next to national roads.
- Corridors of at least 30m should be maintained between graveyards and grave fences' and any developmental components such as roads or other infrastructure that may be developed in the future.
- Graveyards and graves should be inspected on a regular basis not exceeding every three months. Inspections should be noted in an inspection register. The register should outline the state of the graveyards and graves during each inspection.
- Reports on damages to any of the graves or to the graveyards (fences, walls, gates) should be followed with the necessary mitigation work which must be registered in the inspection register.
- Mitigation done to graves older than sixty years can only be done after SAHRA has issued the necessary permit
- Graveyards and graves should be kept tidy from any invader weeds and any other refuse.

## **Summary**

There is no reason from a heritage point of view why the proposed Davel Project cannot proceed if the management measures recommended in this report and in the EMPr have been implemented.



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