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**A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE
PROPOSED LANDAU COLLIERY LIFE EXTENSION PROJECT NEAR
EMAHLALANI (WITBANK) ON THE EASTERN HIGHVELD IN THE
MPUMALANGA PROVINCE**

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September 2013

EXECUTIVE SUMMARY

This study contains the report for the Phase I HIA study for the proposed Landau Colliery Life Extension Project which was done in accordance with Section 38 of the National Heritage Resources Act (No 25 of 1999). The aims with the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur in the Project Area and, if so, what the nature, the extent and the significance of these remains are.
- To outline the significance of these remains and to evaluate what appropriate mitigation measures could be taken if any of these types and ranges of heritage resources may be affected by the proposed Landau Colliery Life Extension Project.

The Phase I HIA study for the proposed Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Historical houses and structures dating from the twentieth century.
- Graveyards.

No pre-historical remains were recorded. This study also did not provide for a paleontological study.

These heritage resources were mapped and geo-referenced (Figure 11, Tables 1-3).

The significance of the heritage resources

It is highly likely that all the graveyards (except GY03) and none of the historical remains will be affected by the Landau Colliery Life Extension Project. The significance of the graveyards therefore is indicated. Mitigation measures are also outlined for the graveyards which will be affected by the Landau Colliery Life Extension Project.

The significance of 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 (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated,

namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

It seems as if all the graveyards in the Project Area hold graves which are older than sixty years.

Possible impact on the graveyards

It is highly likely that all the graveyards (except GY03) will be affected by the Landau Colliery Life Extension Project (Figure 4):

The significance of the impact on the graveyards

The significance of possible impacts on the graveyards was determined using a ranking scale based on various criteria.

The significance of any possible impact on the graveyards is very high (Table 4).

Mitigating the heritage resources

Mitigating the potential impacts on the graveyards

The graveyards must be mitigated by means of exhumation and relocation. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

A Conservation Management Plan for the remaining unaffected graveyards must be included in the mine's EMP to ensure their continued existence during the construction, operation and decommissioning phase of the Landau Colliery Life Extension Project.

Mitigating the potential impacts on the historical remains

The historical houses and structures will not be affected (demolished, renovated, altered) by the Landau Colliery Life Extension Project and therefore need no mitigation measures.

General

It is possible that this Phase I HIA study may have missed heritage resources in the Project Area as heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

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

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1 INTRODUCTION

Landau Colliery is located near Emalahleni (Witbank) on the Eastern Highveld in the Mpumalanga Province. Landau Colliery is a business unit of Anglo American Thermal Coal (A Division of Anglo Operations (Pty) Ltd (AOL) and consists of two sections, namely the Kromdraai Opencast Section and the Navigation Coal Processing Section. Landau Colliery intends to extend the colliery's life of mine by expanding the existing opencast operations in the Navigation Section to include the proposed Schoongezicht West Block and the proposed Navigation East Block.

Three layout options were considered during the scoping phase of the proposed Landau Colliery Life Extension Project, with a fourth option being selected as the final mine and infrastructure layout. The two proposed new mining blocks will be located within the existing mine boundary area. Existing mining and related infrastructure will be utilised as well as new mining related infrastructure. Mining in the Navigation East Block is proposed to commence in 2018 and in 2015 at the Schoongezicht West Block.

2 TERMS OF REFERENCE

Three layout options were considered during the Scoping Phase for the proposed Landau Colliery Life Extension Project (discussed in detail in Part 5 of the Scoping Report). During the EIA Phase of the Landau Colliery Life Extension Project, a fourth option (Option 04) was considered and subsequently selected as the final mine and infrastructure layout plan. During the Construction Phase of the Landau Colliery Life Extension Project additional mining and related activities will be initiated whilst most of the existing mining infrastructure at Landau Colliery will also be utilised during the Operational Phase of the Landau Colliery Life Extension Project.

It is possible that the Landau Colliery Life Extension Project may have an influence on any of the types and ranges of heritage resources (which are listed in Section 3 of the National Heritage Resources Act [Act No 25 of 1999]0 (Box 1) which may occur in the Landau Project Area. Clean Stream Environmental Consultants (CSEC) who is responsible for compiling the Environmental Impact Assessment (EIA) and Environmental Management Program (EMP) report for Landau Colliery commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) as required by Section 38 of the National Heritage Resources Act (Act No 25 of 1999) for the proposed Landau Colliery Life Extension Project.

The aims with the Phase I HIA study were the following, namely:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (Box 1) do occur in the Landau Project Area and, if so, to determine the nature, the extent and the significance of these remains.
- To determine whether such remains will be affected by the Landau Project and, if so, to determine appropriate mitigation (management) measures for those heritage resources which may be affected by the Landau Project.

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

3 METHODOLOGY

The Phase I HIA study was conducted by means of the following:

3.1 Desktop study

Literature relating to the pre-historical and the historical unfolding of the Eastern Highveld was reviewed. This review focused primarily on the pre-history as well as the Historical Period on the Eastern Highveld. It also provided a broad outline of the coal mining history of the region as well as its indigenous architecture. The literature research contextualises the pre-historical and historical background of the Eastern Highveld which again contributes to a better understanding of the identity and meaning of heritage sites which occur in and near the Project Area.

The desktop study also involved consulting heritage data banks maintained at institutions such as the Mpumalanga Provincial Heritage Resources Agency in Barberton, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and the national heritage resources register at the South African Heritage Resources Agency (SAHRIS) in Cape Town.

A number of heritage studies were done for Landau Colliery and other developers in close proximity of the mine which outline the nature and heritage character of the area and which also provide some predictive evidence regarding the types and ranges of heritage resources to be expected in any new area to be surveyed, namely: (see 'Select Bibliography', Part 12)

- EMPR. 2006 (a). Addendum Landau Colliery Project Specific EMPR Addendum for the Emalahleni Water Reclamation Project. Unpublished report by Golder Associates.
- EMPR. 2006 (b). Addendum Greenside Colliery Project Specific EMPR Addendum for the Emalahleni Water Reclamation Project. Unpublished report by Golder Associates.
- Pelsler, A.J. 2010. A report on the archaeological investigation of graves on the farm Nooitgedacht 300 JS, impacted on by the Landau colliery mining

operations, near Witbank (Emalahleni), Mpumalanga Province. Unpublished Report Archaetnos AE1079. For Anglo-Coal (Landau Colliery).

- Pelsler, A.J. & A.C. van Vollenhoven. 2010. A report on a heritage impact assessment for the expansion of opencast coal mining operations, Landau colliery, on the farm Nooitgedacht 300 JS near Witbank, Mpumalanga. Unpublished Report Archaetnos AE1028. For Anglo-Coal (Landau Colliery).
- Pistorius, J.C.C. 2006. A scoping report for a Phase I Heritage Impact Assessment study for the proposed new Emalahleni Water Reclamation Project near Witbank in the Mpumalanga Province of South Africa. Unpublished report for Anglo Coal and Ingwe Colliers.
- Pistorius, J.C.C. 2006. A Phase I Heritage Impact Assessment (HIA) study for the proposed new Emalahleni Water Reclamation Project near Witbank in the Mpumalanga Province of South Africa. Unpublished report for Anglo Coal and Ingwe Colliers.
- Pistorius, J.C.C. 2010. A Phase I Heritage Impact Assessment (HIA) Study for the proposed Landau Expansion Project NearEmalahleni (Witbank) in the Mpumalanga Province of South Africa. Unpublished report prepared for Clean Stream Environmental Services.
- Pistorius, J.C.C. 2011. A Phase I Heritage Impact Assessment (HIA) Study for the proposed new Schoongezicht Coal Mine near Emalahleni (Witbank) in the Mpumalanga Province of South Africa. Unpublished report prepared for Clean Stream Environmental Services.

In addition, the Project Area was also studied by means of maps on which it appears (2529CC Witbank, 1: 50 000 topographical map; 2528 Pretoria, 1: 250 000 map and Google imagery).

3.2 Fieldwork and research

The larger Project Area was surveyed with a vehicle considering the size and extent of the area. The aim with the survey was to geo-reference, describe and photograph heritage resources whenever they existed. Not all Blue Gum plantations, maize fields or disturbed parts of the Project Area were traversed or surveyed on foot.



Figure A- Figure outlining main track path way recorded with a mounted GPS instrument when surveying the Landau Colliery (above).

A GPS track log registered from a mounted GPS instrument was recorded which outline the main track for the survey. More detailed pedestrian surveys were conducted from this main track. It must be kept in mind that the Project Area was surveyed on at least one occasion in the past (Pistorius 2010) whilst the Schoongezicht area to the north of the N4 was also surveyed by the author (Pistorius 2011). Photographs illuminate the characteristic features of the Project Area (see Part 6.1 'Fieldwork survey', Figures 8 –10).

3.3 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.

- Conservation (*in-situ*): The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.
- Cultural (heritage) 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.
- Cultural (heritage) 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.
- Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage (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.
- Stone Age: Refers to the prehistoric past, although Late Stone Age peoples 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 300 years ago).
- 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 16th century and the 19th century and can therefore include the Historical Period.

- Historical period: Refers to the first appearance or use of 'modern' Western writing in a particular area or region of the world.
- 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.
- Recent past: Refers to the 20th 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.
- Maintenance: Keeping something in good health or repair.
- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.
- 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.
- 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.
- 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 (refer to plan).
- 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.

- 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 SAHRA.

3.4 Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the Project Area as heritage sites may occur in clumps of vegetation or tall grass while others may lie below the surface of the earth and may only be exposed once development commences.

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

4 THE PROJECT AREA

4.1 Location

Landau Colliery is situated in the Emalahleni (Witbank) Magisterial District and is served by the Emalahleni Local Municipality which falls in the Nkangala District Municipality. The colliery comprises of two divisions respectively located to the north (Kromdraai) and to the south (Navigation) of the N4. The Navigation Section also includes a narrow piece of land to the north of the N4 which incorporates parts of Kopman, KwaGuqua and Emalahleni. The Landau Colliery Life Extension Project only has a bearing on the Schoongezicht and Navigation sections which are located to the south of the N4 (2529CC Witbank, 1: 50 000 topographical map; 2528 Pretoria, 1: 250 000 map) (Figure 1).

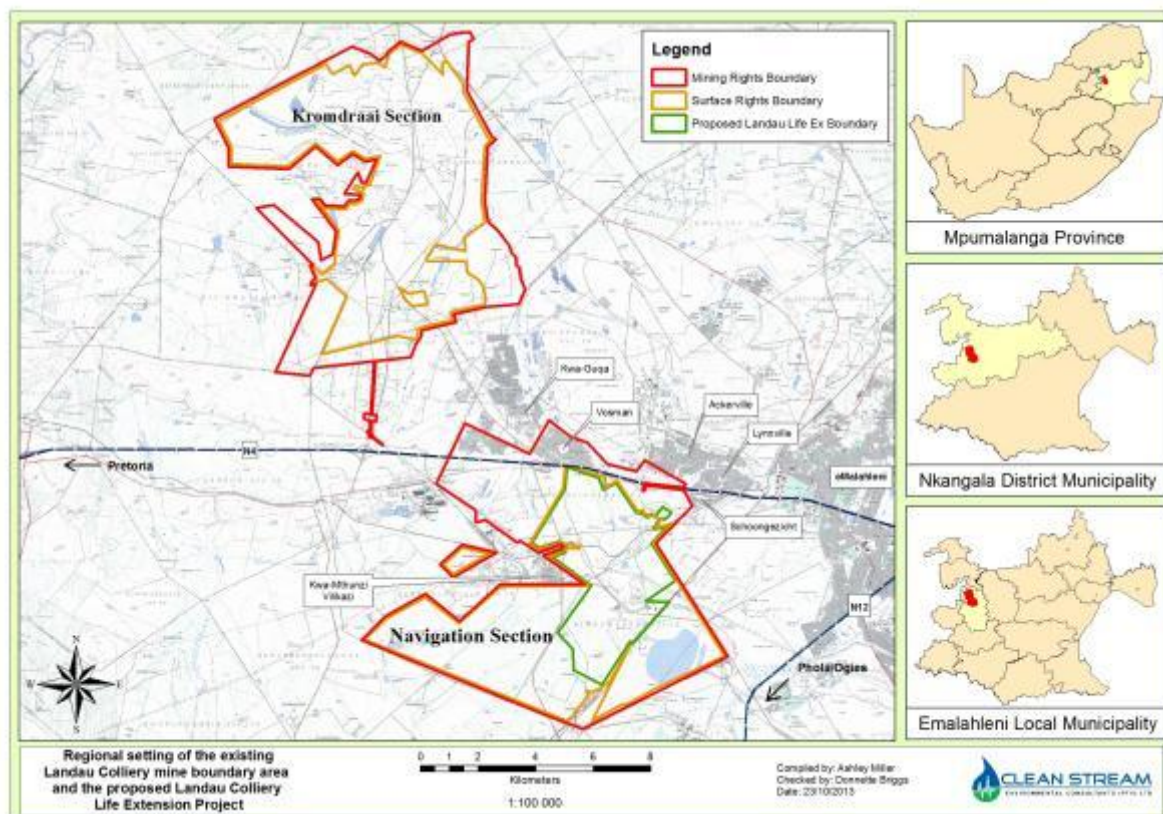


Figure 1- The Landau Colliery Life Extension Project near Emalahleni in the Mpumalanga Province. The Life Extension Project will be implemented in the Navigation Section (also referred to as the Project Area) which is located to the south of the N4 (above).

4.2 The nature of the Project Area

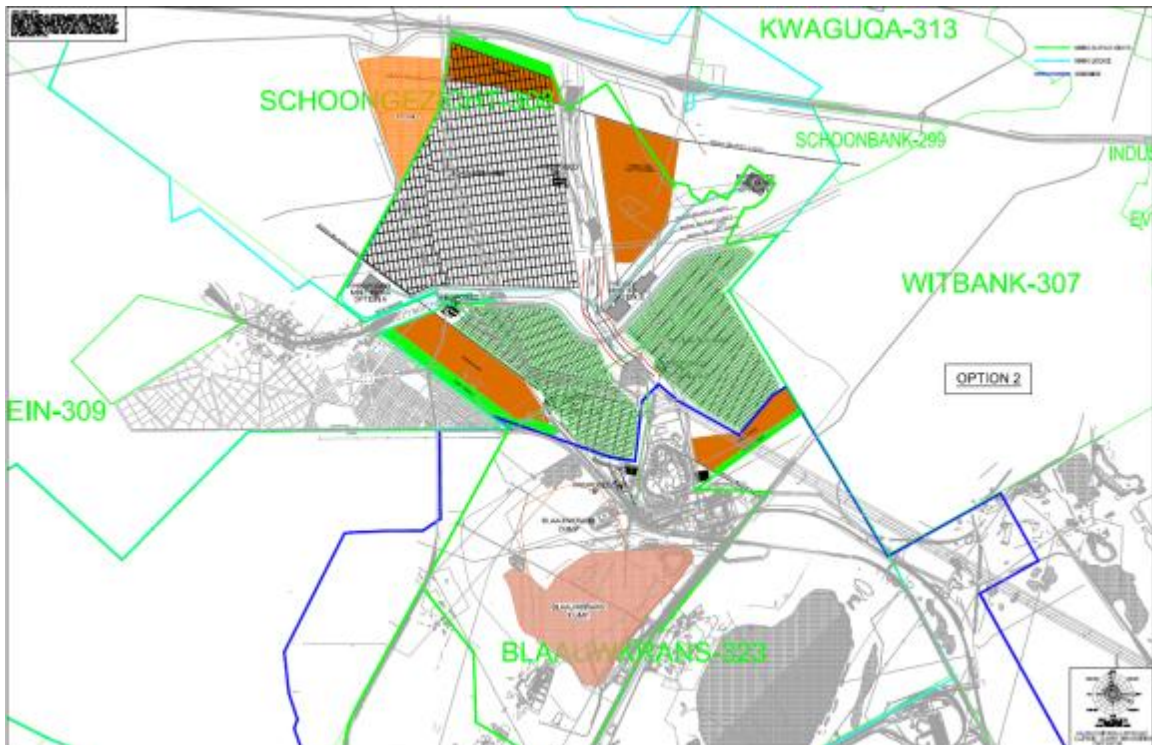
The Project Area is situated on grass veld in the Eastern Highveld which is an undulating stretch of land which has been transformed by coal mining activities over several decades. The grass veld has been replaced by Blue Gum and wattle plantations in the east, maize fields in the south-east and open cast coal mining activities towards the centre, the north and to the east. Large parts of the landscape in between has been scarred by developmental activities whilst haul roads, railway lines, electrical power lines and the Navigation Coal Processing Plant in the south-east has altered the natural state of the area to that of a typical coal mine on the Eastern Highveld.

Relatively undisturbed grass veld occur towards the north-west where the Schoongezicht open cast mining activities will take place whilst what seems like pristine grass veld occurs towards the north-eastern borders of the Project Area. Here, the grass veld is broken by clumps of wattle bush and an extensive Blue Gum plantation (Figures 8-10).

4.3 The nature of the Landau Extension Project

The Landau Colliery Life Extension Project includes the expansion of existing opencast operations in the Navigation Coal Processing Section (including the Schoongezicht Opencast Minipit) and the inclusion of the proposed Schoongezicht West Block and the proposed Navigation East Block.

Three layout options were considered for the proposed expansion project during the Scoping Phase. These options are not discussed here as they are discussed at length in Part 5 of the Scoping Report. However, two of the proposed options are outlined in Figures 2 and 3. A fourth option (Option 04) was selected as the final mine and infrastructure layout plan during the EIA Phase. Option 04 served as the preferred option for the Landau Colliery Life Extension Project. The specialist studies also indicated that this option is more feasible than the earlier three options (Option 01, Option 02 and Option 03) and therefore the impact assessment were focussed on Option 04 (Figure 4).



Figures 2 & 3- Two of three options that were considered during the scoping phase for the proposed Landau Colliery Life Extension Project but were replaced by the preferred Option 04 (above and below).



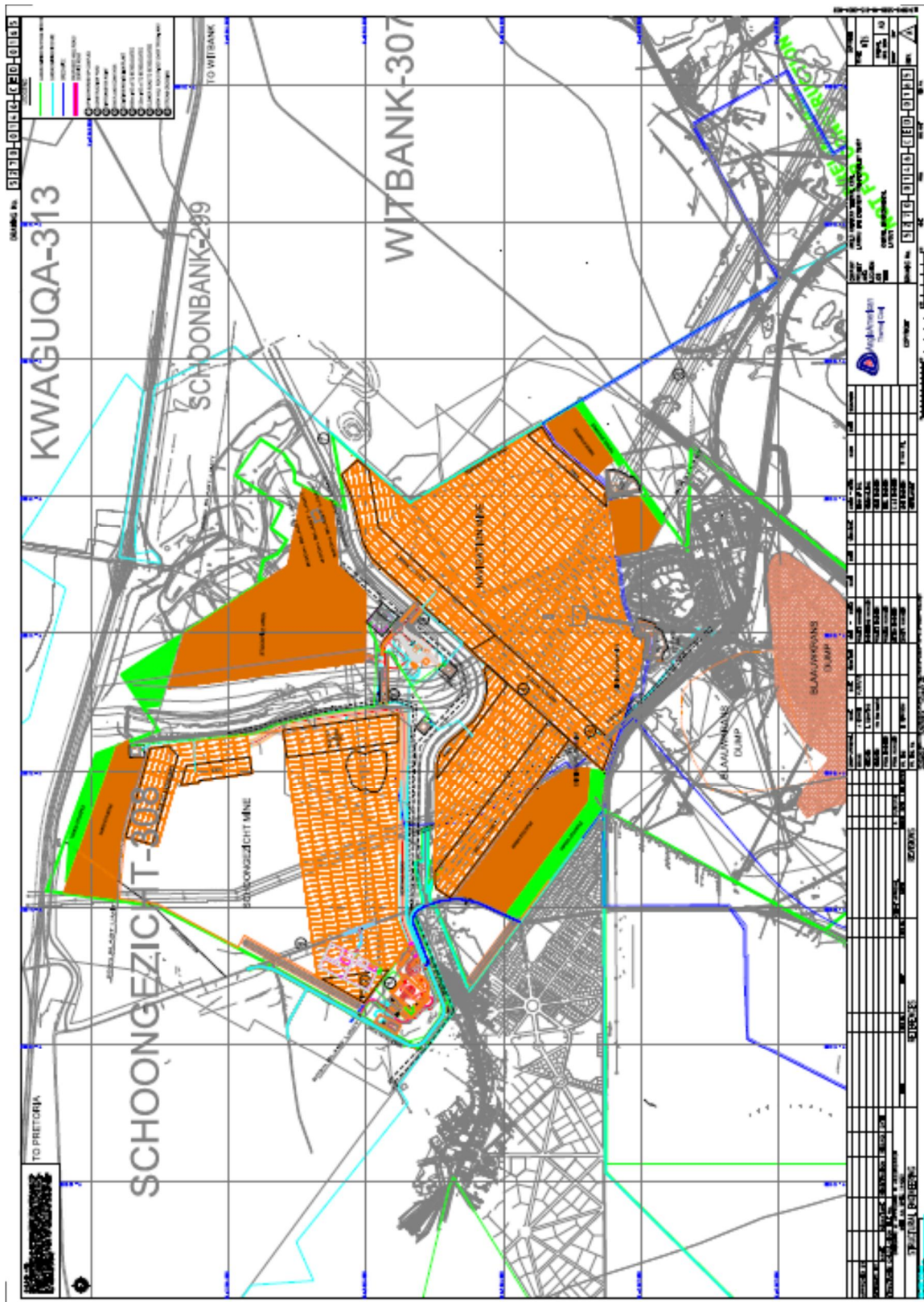


Figure 4- Option 04 is the preferred option for the proposed Landau Colliery Life Extension Project (above).

5 CONTEXTUALISING THE PROJECT AREA

The following brief overview of pre-historical, historical, cultural and economic evidence will help to contextualise the Project Area.

Heritage resources which are quite common in the larger Project Area include:

- 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.

The following overview of pre-historical, historical and cultural evidence indicates the wide range of heritage resources which do occur across the larger Project Area and the Mpumalanga Province.

5.1 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 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 and Khoi Khoi herders. Rock paintings were also done by Early Iron Age (EIA) farmers (Maggs, 1983 and 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 KhoeKhoe 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 sandstone 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 (Schapera, 1927; Potgieter, 1955; Schoonraad & Schoonraad, 1975).

5.2 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 1st millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2nd millennium AD).

Evidence for 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 Late Iron Age 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 and 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 the foot of the Bothasberge (KwaMaza 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.

5.3 The Historical Period

Historical towns closest to the Project Area include Emalahleni (Witbank) and Middelburg.

Witbank came into being as the railway line between Pretoria and Lourenço Marques which was built in 1894 passed close to where Emalahleni (Witbank) is located today. The first Europeans who came to the area observed the abundance of coal, which was evident on the surface or in the beds of streams. A stage post for wagons close to a large outcrop of whitish stones (a 'white ridge') gave the town its name. Witbank was established in 1903 on a farm known as Swartbos which belonged to Jacob Taljaard.

Middelburg is one of the oldest towns that were established by the Voortrekkers in the previous Transvaal. The town was established on the farms of Klipfontein and Keerom on the banks of the Klein Olifants River in 1859. It is generally accepted that Middelburg's name is derived from the fact that the Transvaal Republic established the town midway between Pretoria and Lydenburg.

The choice for Middelburg's location was not well accepted by the inhabitants and it was moved to the farm Sterkfontein. Here, a town was established and named Nasaret (Nazareth). However, the name did not appeal to the local community and its original name was reinstated. Middelburg temporarily served as the seat of the Transvaal Republic after the siege of Pretoria during the Second Anglo Boer War.

Today Middelburg and Emalahleni (Witbank) are important centres where coal is mined and transported to Richards Bay from where it is exported all over the world. The 20th century also saw the introduction of large-scale irrigation and dry land farming on the Eastern Highveld. Today the economic activities of the area include diamond and coal mining, light and heavy industries as well as steel and vanadium operations.

5.4 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 coalmines 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-1830 when coal was mined in KwaZulu/Natal.

The first exploitation for coal was probably in KwaZulu/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-Springs 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 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 colliers in South Africa attained an annual figure of 9,5 million 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.

5.5 A vernacular stone architectural heritage

A unique stone architectural heritage was established in the Eastern Highveld from the second half of the 19th century well into the early 20th 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.

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 and 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 utilize 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.

6 THE PHASE I HERITAGE SURVEY

6.1 The fieldwork survey

The fieldwork survey was undertaken with a vehicle whilst more detail pedestrian surveys were conducted from this main track (Figure A). These surveys focussed on parts of the grass veld where it seemed as if disturbances may have occurred in the past, e.g. bald spots in the grass veld; stands of grass which are taller than the surrounding grass veld; evidence for building rubble, and ecological indicators such as invader weeds.

Some roads in the Blue Gum plantations were traversed with a vehicle whilst others were walked on foot. However, these areas were not thoroughly surveyed due to the lack of archaeological visibility in the plantations, the fact that plantations are usually devoid of any remains (although graves may occur) and the danger of vagrants (especially near suburban areas) who may live and hide in these secluded areas.



Figure 5- Aerial view of the Project Area with the Schoongezicht Open Mini Pit in the foreground. New open cast mining activities will be established in the foreground close to the Middel Dam (above)



Figures 6, 7 & 8- Characteristics of the Project Area comprises disturbed and undisturbed grass veld with wattle and Blue gum trees (above), maize fields (centre) and mining infrastructure and features such as the Old Navigation Dump viewed from the north-west (bottom).

6.2 Types and ranges of heritage resources

The Phase I HIA study for the proposed Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Historical houses and structures dating from the twentieth century.
- Graveyards.

These heritage resources were mapped and geo-referenced (Figure 11, Tables 1-3).

The significance of the heritage resources is indicated whilst mitigation measures are outlined for those heritage resources which may be affected by the Landau Colliery Life Expansion Project (Figures 4-6).

The types and ranges of heritage resources that were discovered in the Project Area are now briefly discussed and illuminated with photographs.

6.2.1 Historical remains

Historical remains consisting of two historical houses and two structures that were constructed with sandstone qualify as historical remains whilst five graveyards and a single grave were recorded in the Project Area.

6.2.1.1 Historical houses

At least two historical houses were recorded on the northern perimeter of the Project Area, namely:

6.2.1.1.1 Historical House 01

HH01 is located on the southern shoulder of the R104, in close proximity of HH02. This dwelling has the appearance of a typical 19th century farm house which may have existed in close proximity of the road running between Witbank and Belfast during the 19th century and the 20th century. It was constructed with clay bricks and cement and is plastered. It has a prominent 'stoep' or veranda. HH02 is fitted with a pitched corrugated iron roof.



Figure 9- HH01 is located on the southern shoulder of the R104. It comprises a colonial styled dwelling which may date from the early twentieth century- or even earlier - although it has been renovated in the more recent past. This dwelling is currently still occupied (above).

6.2.1.1.2 Historical House 02

HH02 is located on the southern shoulder of the R104. It was constructed with face bricks and cement and is fitted with an iron corrugated roof. It dates from the 1930/1940's.

This house is in a good condition and is currently still being occupied.

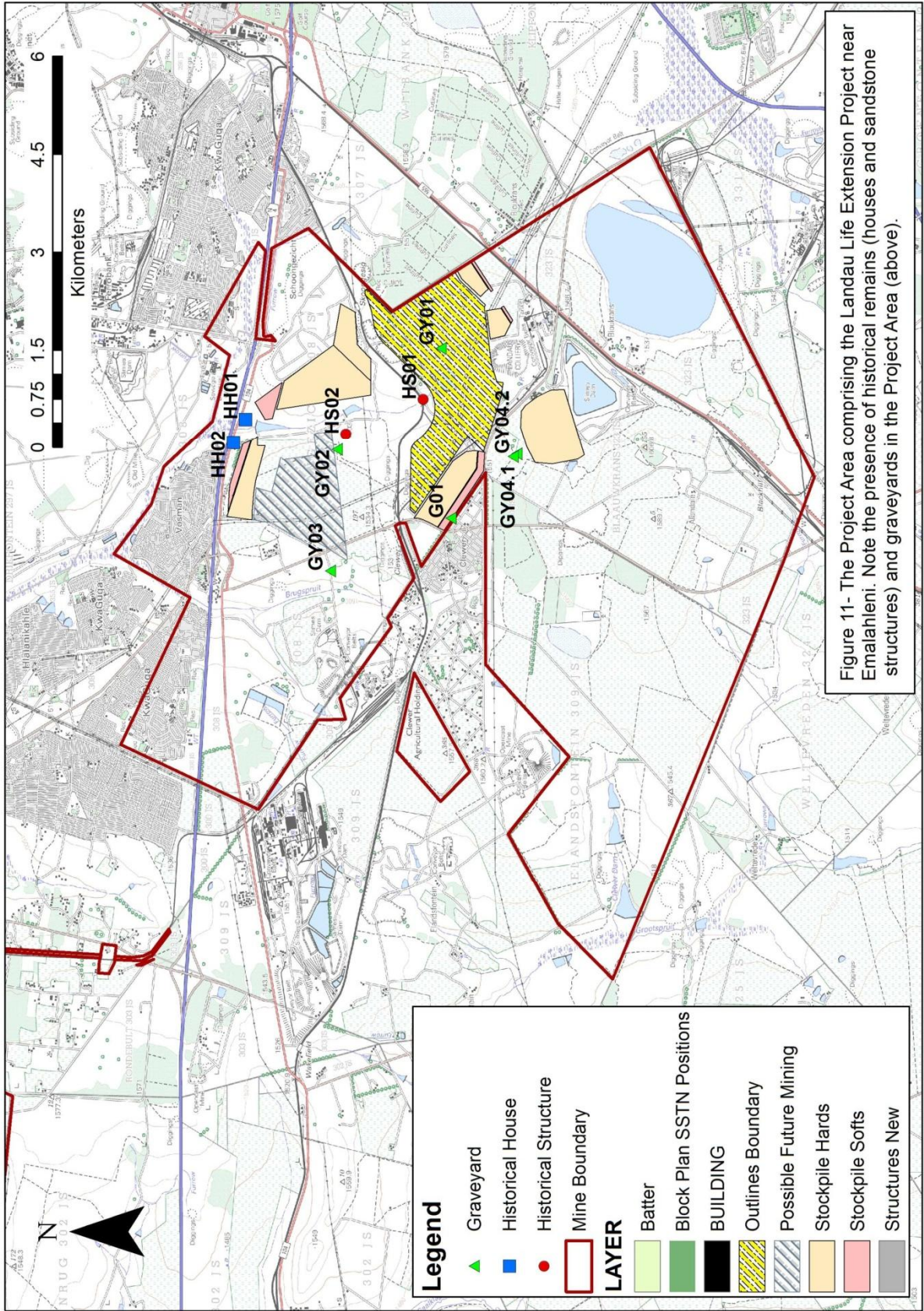


Figure 10- HH02 on the southern shoulder of the R104 dates from the 1930/40's and is still in a good condition (above).

6.2.1.2 Historical structures

Two sandstone structures occur in the Project Area. Both probably date from a period when sandstone was in common use during civil engineering projects during the first half of the 20th century. The two structures are:

- A sandstone bridge (HS01) on which a railway line rests.
- The dam wall of the Middel Dam (HS02).



6.2.1.2.1 The sandstone bridge

A bridge on which a railway line rests was constructed with sandstone (HS01). This bridge probably dates from the early twentieth century and therefore has historical significance.



Figure 12- A bridge constructed with sandstone (HS01) carries a railway line in the Project Area. This structure probably dates from the early 20th century (above).

6.2.1.2.2 A sandstone dam wall

The Middel Dam's wall was constructed with sandstone (HS02). This structure probably dates from the first half of the twentieth century.



Figure 13- The Middel Dam's wall was constructed with sandstone and probably dates from the early 20th century (above).

6.2.2 Graveyards

At least five graveyards and a single grave were recorded in the Project Area.

6.2.2.1 Graveyard 01

This graveyard is located in the midst of a maize field in the eastern-central part of the Project Area.

GY01 holds approximately sixteen graves some of which are fitted with cement headstones. Several of the graves are covered with layers of bricks.

It is highly likely that GY01 is older than sixty years.



Figure 14- GY01 holds sixteen graves and is located in the midst of a maize field. Although some graves are fitted with cement headstones no inscriptions occur (above).

6.2.2.2 Graveyard 02

GY02 is located on high ground near Eskom's 400kV power lines and the tar road that runs to the village of Clewer. This graveyard contains approximately thirty graves most of which are covered with piles of ferricrete stone whilst some are fitted with cement headstones. One grave is fitted with a granite headstone with the following inscription:

- 'Bettie Masoka 26-12-1939 22-8-1970 Rest in Peace'

It is highly likely that GY02 is older than sixty years.



Figure 15- GY02 holds approximately thirty graves. It is located in grass veldt on high ground near Eskom's 400kV power lines. A single grave is fitted with a granite headstone with inscriptions (above).

6.2.2.3 Graveyard 03

This graveyard is located near the entrance of the road that runs to Ferrometals.

GY03 holds more than sixty graves, some of which are older than sixty years.

Most of the graves are covered with piles of stone whilst some are fitted with cement headstones. Inscriptions on some of the headstones read as follow:

- 'In loving memory our grandfather and great grandfather Blom Jafftha 19th century and 20th century'
- 'In loving memory of our grandmother and great grandmother Martha Blom 19th century and twentieth century'
- 'Martins Mokoena'

6.2.2.4 Graveyard 04.1

Graveyards 04.1 and GY04.2 are located next to each other and is merely separated by a temporary two track road. GY04.1 is located in a wattle bush. It holds approximately sixty graves most of which are covered with piles of clay or cement bricks and with pieces of concrete.

A limited number of the graves are fitted with headstones. Inscriptions on some of these headstones read as follow:

- 'Grave MholoMasemolo 28 09 1955 Robalokakgotso Ps 23'
- Andries Bapela Age 78 year Died 20-02-1961 Robalaka Khotso Gora mmelebana Dilerio Johannes 14'



Figure 16- GY04.1 is located in a wattle bush and holds approximately sixty graves. Most of the graves are covered with clay and cement bricks and with pieces of concrete (above).

6.2.2.5 Graveyard 04.2

Graveyards 04.1 and GY04.2 are located next to each other and is merely separated by a temporary two track road. GY04.2 is located in open grass veld next to a wattle bush. GY04.2 holds approximately thirty graves some of which are edged with cement and clay bricks.

A few graves are fitted with cement headstones. Inscriptions on two of these headstones read as follow:

- 'Moothwa J Mahlangu 1931 † 30-05-84'
- 'Leah Mtsweni 1888 07-06-1980 Rest in Peace'



Figure 17- GY04.2 is located in open grass veld and holds approximately thirty graves. A few graves are covered with cement headstones (above).

6.2.2.6 Grave 01

This single grave is located on the northern border of Clewer. The position of G01 is marked by a single inconspicuous upright standing cement stone with the following inscription:

- 'In loving memory of Thomas Henrey who died Dec 12 1907 at Brugspruit Aged ...'



Figure 18- G01 comprises a single cement headstone next to the Clewer township which holds the remains of Thomas Henrey (above).

G01 is older than sixty years.

6.2.3 Tables

Tables that outline the coordinates and significance rating for heritage resources that occur in the Project Area are the following:

Historical houses	Coordinates	Significance
HH01. Next to the R104. Constructed with face bricks and cement.	25° 52 32.32"s 29° 08 40.11"e	Med
HH02. Next to the R104. Colonial styled dwelling.	25° 52 37.00"s 29° 09 01.65"e	Med

Table 1- Coordinates and significance rating for historical houses in the Project Area.

Historical structures	Coordinates	Significance
Railway line bridge (sandstone)	25° 54 10.60"s 29° 09 23.67"e	Med
Middelkraal dam wall (sandstone)	25° 53 32.13"s 29° 09 16.97"e	Med

Table 2- Coordinates and significance rating for historical structures in the Project Area.

Graveyards	Coordinates	Significance
GY01. Located in maize field north of Navigation Coal Plant. Approximately 16 graves	25° 54.326's 29° 09.828'e	HIGH
GY02. Located on high ground in grass veld south of Schoongezicht Mini Pit	25° 53.468's 29° 08.988'e	HIGH
GY03. Located near entrance to Ferrometals	25° 50.439' 29° 07.651'	HIGH
GY04.1. Located south of tar road. Approximately 60 graves	25° 54.922' 29° 08.928'	HIGH
GY04.2. Located south of tar road. Approximately 30 graves	25° 54.955' 29° 08.951'	HIGH
G01. Single grave along the northern border of Clewer.	25° 54.410' 29° 08.419'	HIGH

Table 3- Coordinates and significance rating for graveyards and a grave in the Project Area.

7 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND THE MITIGATION OF THE HERITAGE RESOURCES

7.1 The significance of the heritage resources

It is highly likely that all the graveyards (except GY03) and none of the historical remains will be affected by the Landau Colliery Life Expansion Project. The significance of the graveyards therefore is indicated. Mitigation measures are also outlined for the graveyards which will be affected by the Landau Life Expansion Project.

7.1.1 The significance of 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 (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

It seems as if all the graveyards in the Project Area hold graves which are older than sixty years.

7.2 Possible impact on the graveyards

It is highly likely that all the graveyards (except GY03) will be affected by the Landau Life Expansion Project (Figure 4):

7.3 The significance of the impact on the graveyards

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

- 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 1 – Improbable 0 – None	Duration: 5 – Permanent 4 - Long-term (ceases with the operational life) 3 - Medium-term (5-15 years) 2 - Short-term (0-5 years) 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 environmental 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 environmental significance.
- Between 60 and 80 significance points indicates HIGH environmental significance.
- Between 40 and 60 significance points indicates MODERATE environmental significance.
- Between 20 and 40 significance points indicates LOW environmental significance.
- Less than 20 significance points indicates VERY LOW environmental significance.

The significance of any possible impact on the graveyards is very high (Table 4).

Grave-yards	Status	Magnitude	Scale	Duration	Probability	Significance points	Significance rating
GY01	-	10	1	5	5	80	Very High
GY02	-	10	1	5	5	80	Very High
GY04.1	-	10	1	5	5	80	Very High
GY04.2	-	10	1	5	5	80	Very High
G01	-	10	1	5	5	80	Very High

Table 4: Significance of potential impacts on graveyards in the Project Area (above).

7.4 Mitigating the potential impacts on heritage resources

7.4.1 Mitigating the potential impacts on graveyards

The potential impacts to graveyards must be mitigated by means of exhumation and relocation. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older

than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

A Conservation Management Plan for the remaining unaffected graveyards must be included in the mine's EMP to ensure their continued existence during the construction, operation and decommissioning phase of the Landau Colliery Life Extension Project.

7.4.2 Mitigating the potential impacts on historical remains

The historical houses and structures will not be affected (demolished, renovated, altered) by the Landau Colliery Life Extension Project and therefore need no mitigation measures.

8 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study for the proposed Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Historical houses and structures dating from the twentieth century.
- Graveyards.

These heritage resources were mapped and geo-referenced (Figure 11, Tables 1-3).

The significance of the heritage resources

It is highly likely that all the graveyards (except GY03) and none of the historical remains will be affected by the Landau Life Expansion Project. The significance of the graveyards therefore is indicated. Mitigation measures are also outlined for the graveyards which will be affected by the Landau Life Expansion Project.

The significance of 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 (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

It seems as if all the graveyards in the Project Area hold graves which are older than sixty years.

Possible impact on the graveyards

It is highly likely that all the graveyards (except GY03) will be affected by the Landau Life Expansion Project (Figure 4):

The significance of the impact on the graveyards

The significance of possible impacts on the graveyards was determined using a ranking scale based on various criteria.

The significance of any possible impact on the graveyards is very high (Table 4).

Mitigating the potential impacts on heritage resources

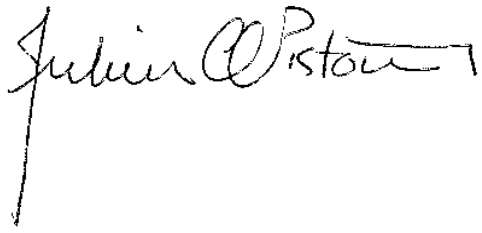
Mitigating the potential impacts on graveyards

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A Conservation Management Plan for the remaining unaffected graveyards must be included in the mine's EMP to ensure their continued existence during the construction, operation and decommissioning phase of the Landau Colliery Life Extension Project.

Mitigating the historical remains

The historical houses and structures will not be affected (demolished, renovated, altered) by the Landau Colliery Life Extension Project and therefore need no mitigation measures.

A handwritten signature in black ink, reading "Julius CC Pistorius". The signature is written in a cursive style with a long vertical line extending downwards from the start of the name.

DR JULIUS CC PISTORIUS
Archaeologist & Heritage Consultant
Member ASAPA

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APPENDIX A: 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 etc. as well as with several environmental companies.

APPENDIX B: DECLARATION OF INDEPENDENCE

<p>I, Julius CC Pistorius, declare that:</p> <ul style="list-style-type: none"> • 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. <p>Disclosure of Vested Interest</p> <p>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.</p>
<p style="text-align: center;"></p> <p>_____ Signature of the environmental practitioner: Private Consultant</p> <p>_____ Name of company: 10 October 2013</p> <p>_____ Date:</p>
<p>_____ Signature of the Commissioner of Oaths:</p> <p>_____ Date:</p> <p>_____ Designation:</p>