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**A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE
PROPOSED CONSTRUCTION OF A CLEAN WATER PIPELINE FROM
THE MIDDELBURG WATER RECLAMATION PLANT TO THE
MIDDELBURG COLLIERY IN THE MPUMALANGA PROVINCE**

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EXECUTIVE SUMMARY

This study contains the report for the Phase I Heritage Impact Assessment (HIA) study for the proposed construction of a new water pipeline between the Middelburg Water Reclamation Plant (MWRP) and the Middelburg Colliery near Middelburg on the Eastern Highveld in the Mpumalanga Province. The Phase I HIA study 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 and the extent of these remains are.
- To outline the significance of these remains and to evaluate what appropriate mitigation measures should be taken if any of these types and ranges of heritage resources may be affected by the proposed construction of the new water pipeline.

No pre-historical remains were recorded. A paleontological study was conducted when an EIA was done for the Middelburg Water Reclamation Project (De Jongh 2011; Geigher 2011).

The Phase I HIA study for the proposed Project Area revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) along the proposed pipeline corridor.

There is consequently no reason from a heritage point of view why the proposed clean water pipeline cannot be constructed.

General (disclaimer)

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 is exposed during the construction of the proposed clean water pipeline 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 notify 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

BHP Billiton Energy Coal South Africa Limited (BECSA) proposes to construct a clean water pipeline from the Middelburg Water Reclamation Plant (MWRP) to the Middelburg Colliery Reservoir near Middelburg in the Mpumalanga Province. Previous heritage surveys which have been conducted on the Eastern Highveld have indicated that the most common types and ranges of heritage resources in this part of Mpumalanga Province include historical farmstead complexes associated with formal and informal graveyards. Stone walled settlements dating from the Late Iron Age and Historical Period also occur, but are limited to areas where low, dolerite kopjes and randjes exist.

However, various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur across the Mpumalanga Province (see Box 1, next page).

The identification, evaluation and assessment of heritage resources in South Africa are also regulated by the following legislation:

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

2 TERMS OF REFERENCE

The proposed construction and operation of a clean water pipeline from the MWRP to the Middelburg Colliery Reservoir near Middelburg 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 Project Area. Therefore, any activities relating to the construction, operation and eventual decommissioning of the clean water pipeline may have an influence on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, Jones & Wagener (Pty) Ltd, the environmental consultant who is responsible for compiling the Baseline Assessment report in terms of the National Environmental Management Act (Act 107 of 1998) for the new development, commissioned the author to undertake a Phase I HIA study for the proposed clean water supply pipeline.

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) (see Box 1) do occur in the Project Area and, if so, what the nature and the extent of these remains are.
- To outline the significance of these remains and to evaluate what appropriate mitigation measures should be taken if any of these types and ranges of heritage resources may be affected by the proposed construction of the new clean water pipeline.

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 in close proximity of Middelburg 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 10).

- De Jong, R.C. 2011. *Heritage Impact Assessment Revision 2 in connection with Amendments to the Middelburg Water Reclamation Project*. Steve Tshwete Local Municipality Mpumalanga Province. Unpublished report prepared for Jones and Wagner.
- Geiger, S. 2011. *Phase I Heritage Impact Assessment Report for the Middelburg Water Reclamation Project*. Steve Tshwete Local Municipality Mpumalanga Province. Unpublished report prepared for Jones and Wagner.

- Pistorius, J.C.C. 2002. *A Heritage Impact Assessment (HIA) study for a new power line on the farm Rietvallei 397JS between Middelburg and Arnot in the Mpumalanga Province of South Africa*. Unpublished report done for Eskom, Menlyn.
- Pistorius, J.C.C. 2003. *A Heritage Impact Assessment study for the proposed 22kV Duvha Colliery power line deviation near Middelburg in the Mpumalanga Province of South Africa*. Unpublished report done for Eskom, Menlyn.
- Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment study for the proposed new Zonnebloem Coal Mine between Middelburg and Belfast in the Mpumalanga Province of South Africa*. Unpublished report prepared for Clean Stream Environmental Services.
- Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment study for the proposed new Mafube Coal Mine between Middelburg and Belfast in the Mpumalanga Province of South Africa*. Unpublished report prepared for Anglo Coal and Eyesizwe.
- Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment study for a proposed new 22kV power line on Hartzogshoop 410 near Middelburg in the Mpumalanga Province of South Africa*. Unpublished report done for Eskom, Menlyn.

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

3.2 Fieldwork and research

The proposed pipeline route was surveyed with a vehicle whilst pedestrian surveys were undertaken where stands with Blue Gum or other exotic trees occur. The aim with the survey was to geo-reference, describe and photograph any heritage resources whenever they existed along the clean water pipeline corridor.

Photographs also illuminate the characteristic features of the Project Area (see Part 6.1 'Fieldwork survey', Figures 3 –9).



Figure 01- The main track path which was followed along the clean water pipe line which runs from the Middelburg Water Reclamation Plant (MWRP) to the Middelburg Colliery reservoir (above).

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 involve permitting processes, require 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 is exposed during the construction of the proposed clean water pipeline 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 notify 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

The proposed clean water pipeline will be approximately five kilometre long and will be located on the farm Hartebeesfontein 339 JS (remaining extent of portion 8 and 10 and portion 9) south of Middelburg and to the east of the R575 within the Steve Tshwete Local Municipality in the Mpumalanga Province (2529CD Middelburg, 1: 50 000 topographical map; 2528 Pretoria, 1: 250 000 map) (Figure 1).

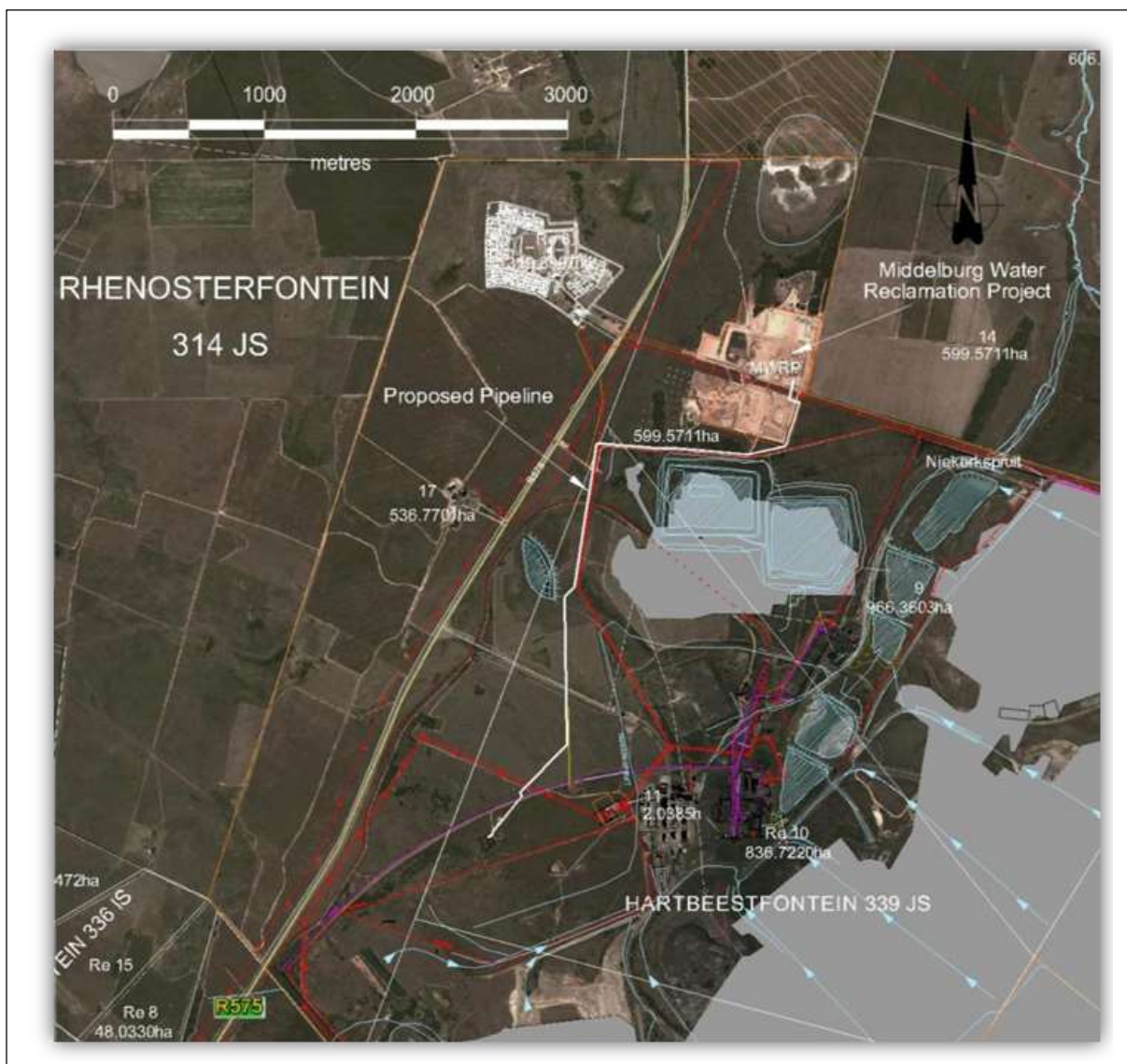


Figure 2- Regional setting for the proposed clean water pipeline (outlined in white) to the south of Middelburg in the Mpumalanga Province (above).

4.2 The nature of the Project Area

The Project Area is situated in the Eastern Highveld near Middelburg and is characterised as a stretch of land which has partly been transformed by coal mining, agricultural and other developmental activities over several decades. Consequently, the proposed clean water pipeline cuts across pieces of grass veld which are either untransformed or which were transformed and replaced by coal mining and agricultural activities, a railway line which is located along a stretch of the proposed pipeline, roads and a conveyer belt.

The Project Area cannot be described as a pristine piece of land any longer except where a short stretch of the proposed pipeline will run across a small private nature reserve where no development except the construction of a dam has occurred (Figures 4-9).

4.3 The nature of the proposed development project

BECSA is currently constructing a water reclamation plant by means of the Middelburg Water Reclamation Project (MWRP). The plant will treat excess mine water at the Middelburg Colliery to a suitable standard for release into the Spookspruit catchment. However, approximately 4 Mega litres (Mℓ) of clean water will be pumped to the Middelburg Colliery for daily use. The construction and operation of the clean water pipeline from the MWRP to the Middelburg Colliery Reservoir will be utilized for conveying the water from the reclamation plant to the colliery. The proposed new clean water pipeline will be approximately 5 kilometres (km) long with a nominal diameter of 315mm. A corridor, 100m in width, was followed along the proposed pipeline corridor.

A number of pipeline routes were evaluated depending on a number of factors such as the location of other infrastructure, sensitive areas such as wetlands, etc. This Phase I HIA study only focused on the water pipeline route as outlined in white in Figure 2.

5 CONTEXTUALISING THE PROJECT AREA

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, Khoi Khoi herders and EIA 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 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 veld 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 relatively 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).

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, 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 (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.

5.3 The Historical Period

Historical towns closest to the Project Area include 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 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 temporary served as the seat of the Transvaal Republic after the siege of Pretoria during the Second Anglo Boer War.

Today Middelburg and 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 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 has 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 9,5million 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, Iscor 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, 2000). One of these historical structures were 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 descend 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 01). 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; the presence of exotic trees; evidence for building rubble, and ecological indicators such as invader weeds.

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



Figure 3- The clean water pipeline commences within the MWTP which is currently under construction. This part of the project area has totally been altered by developmental activities (above).



Figures 4, 5 & 6- The second stretch of the clean water pipeline runs along a trench and an evaporation dam where clumps of wattle trees grow (above). The third stretch runs across Middelburg Colliery's private game reserve (centre and below).



Figures 7, 8 & 9- The penultimate stretch of the clean water pipeline runs across abandoned agricultural fields (top and centre) whilst the last stretch crosses a conveyor belt before ending at a reservoir (below).

6.2 Types and ranges of heritage resources

The Phase I HIA study for the proposed Project Area revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) along the proposed pipeline corridor.

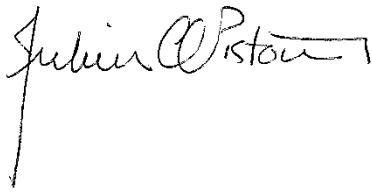
6.3 Conclusion

There is consequently no reason from a heritage point of view why the proposed clean water pipeline cannot be constructed.

7 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study for the proposed Project Area revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) along the proposed pipeline corridor.

There is consequently no reason from a heritage point of view why the proposed clean water pipeline cannot be constructed.

A handwritten signature in black ink, appearing to read 'Julius CC Pistorius', with a long vertical line extending downwards from the end of the signature.

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.

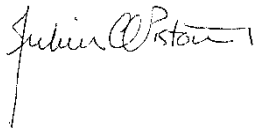
APPENDIX B: DECLARATION OF INDEPENDENCE

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;
- I 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:
16 September 2013

Date:

Signature of the Commissioner of Oaths:

Date:

Designation:

