Archaeological Impact Assessment

REVISED ALIGNMENT FOR THE PROPOSED NEW WATER PIPELINE RUNNING FROM KENDAL POWER STATION TO THE TRANSNET KENDAL PUMP STATION, EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

Prepared For

BKS (Pty) Ltd

By

HERITAGE
Contracts and Archaeological Consulting

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I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which the client was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.

SIGNATURE: _____

EXECUTIVE SUMMARY

Site name and location: The pipeline is located close to the Kendal Power station in the Emalahleni Local Municipality, part of the Enkangala District Municipality, Mpumalanga. The new pipeline is approximately 7.5 km in length and the route includes three watercourse crossings

Purpose of the study: Phase 1 Archaeological Impact Assessment (AIA) to determine the presence of cultural heritage sites and the impact of the proposed project on these resources.

1:50 000 Topographic Map: 2628 BB

Environmental Consultant: BKS (Pty) Ltd

Developer: Transnet Pipelines

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).

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Date of Report: 11 October 2012

Findings of the Assessment:

HCAC was contracted by BKS to conduct an AIA for the proposed construction of a new water pipeline (revised alignment) close to Kendal and Ogies in Mpumalanga province. This pipeline connects the Kendal Power Station and Transnet Pipelines' Kendal Pump Station and replaces an existing asbestos cement pipeline with an HDPE (plastic) pipeline. The proposed pipeline will follow an existing petroleum servitude and is approximately 7 km in length. The proposed servitude traverses a historic railway line that is still in use. The railway line was constructed between 1900 and 1910. Although the impact on the railway line is seen as low negative, the site is protected by heritage legislation and some management actions as described in Section 7 of this report is recommended to comply with legislation. Two stone cairns were also noted located just outside of the servitude. Although the purpose of these cairns is unknown it is recommended that they are demarcated with danger tape during the construction phase of the project.

General

Due to high vegetation cover, archaeological visibility is low. The possible occurrence of unmarked or informal graves and subsurface finds can thus not be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

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

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

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

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 BACKGROUND INFORMATION

Kind of study	Basic Assessment
Type of development	Water Pipeline
Rezoning/subdivision of land	N.A
Developer:	Transnet Pipelines
Consultant:	BKS (Pty) Ltd
Farm owner:	Transnet Servitude

The Archaeological Impact Assessment report forms part of the BA for the proposed project.

The aim of the study is to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, a review of the heritage scoping report that includes collection from various sources and consultations; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey one historical site and stone cairns of unknown purpose were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA for review.

1.1 Terms of Reference

Field study

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with Heritage legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources;
- Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) refers to NEMA and section .39(3)(b)(iii) to MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of

the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists who have proven ability to conduct archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by SAHRA.

ASAPA is based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation.

If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The pipeline is located close to the Kendal Power station in the Emalahleni Local Municipality where it starts off within an existing pipeline in a westerly direction. On the boundary of the farm Schoongezicht the new pipeline is proposed going in a northerly direction (on the farm Heuvelfontein 215 IR) up to the R545. From here it runs parallel to the R545 in a northerly direction where it crosses over the railway line between Kendal station and Ogies station up to the Kendal pump station (Figure 1).

The topography of the area is relatively flat and large areas are used for agricultural purposes. The study area falls within the Grassland Biome with the bioregion described by Mucina *et al* (2006) as the Mesic Highveld Grassland Bioregion with the vegetation described as eastern Highveld Grassland. Land use in the general area is characterized by agriculture, dominated by crops and cattle farming. The study area is characterised by deep sandy to loamy soils.

1.3.2. Location Map

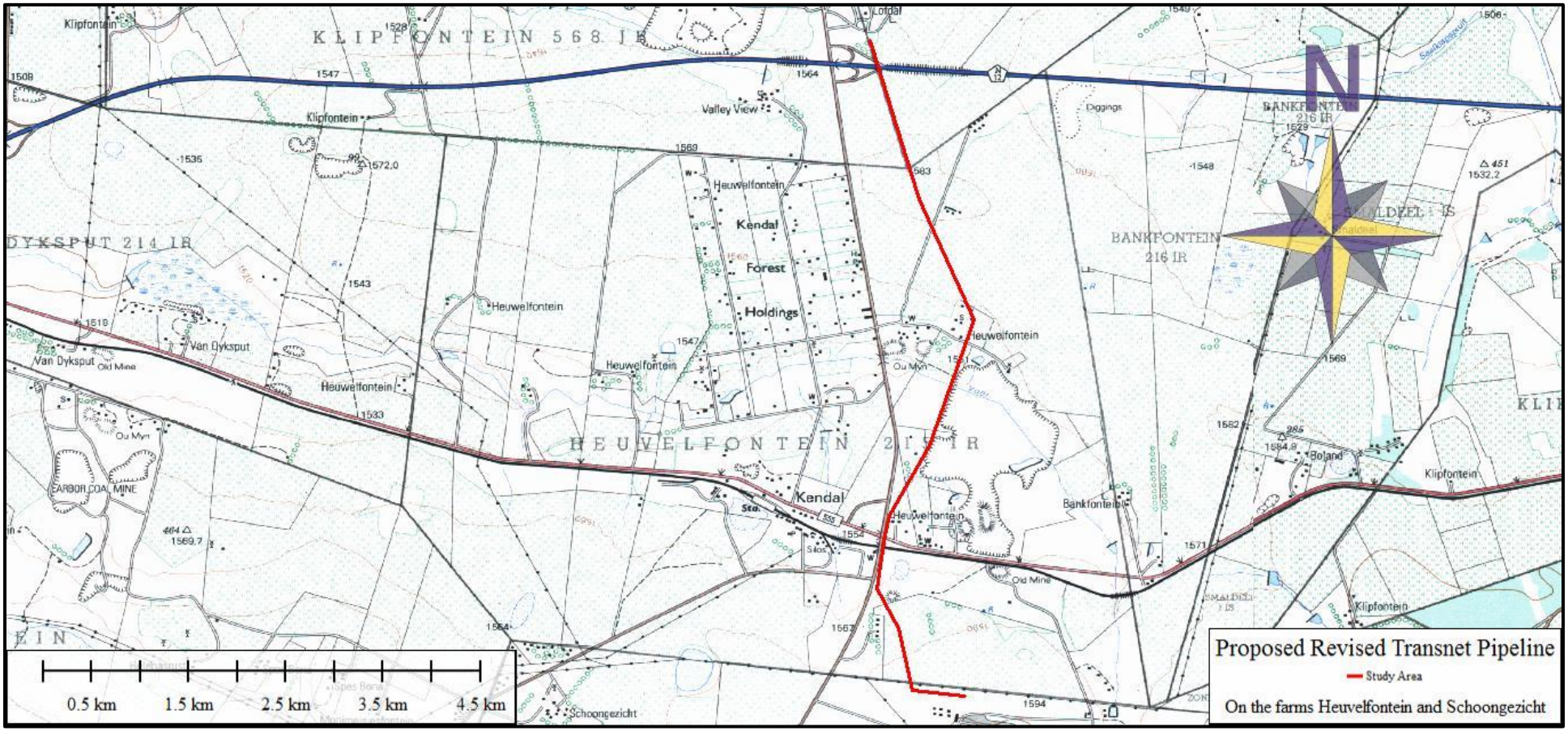

Figure 1: Location map of the study area.

1.3.3. Google Maps

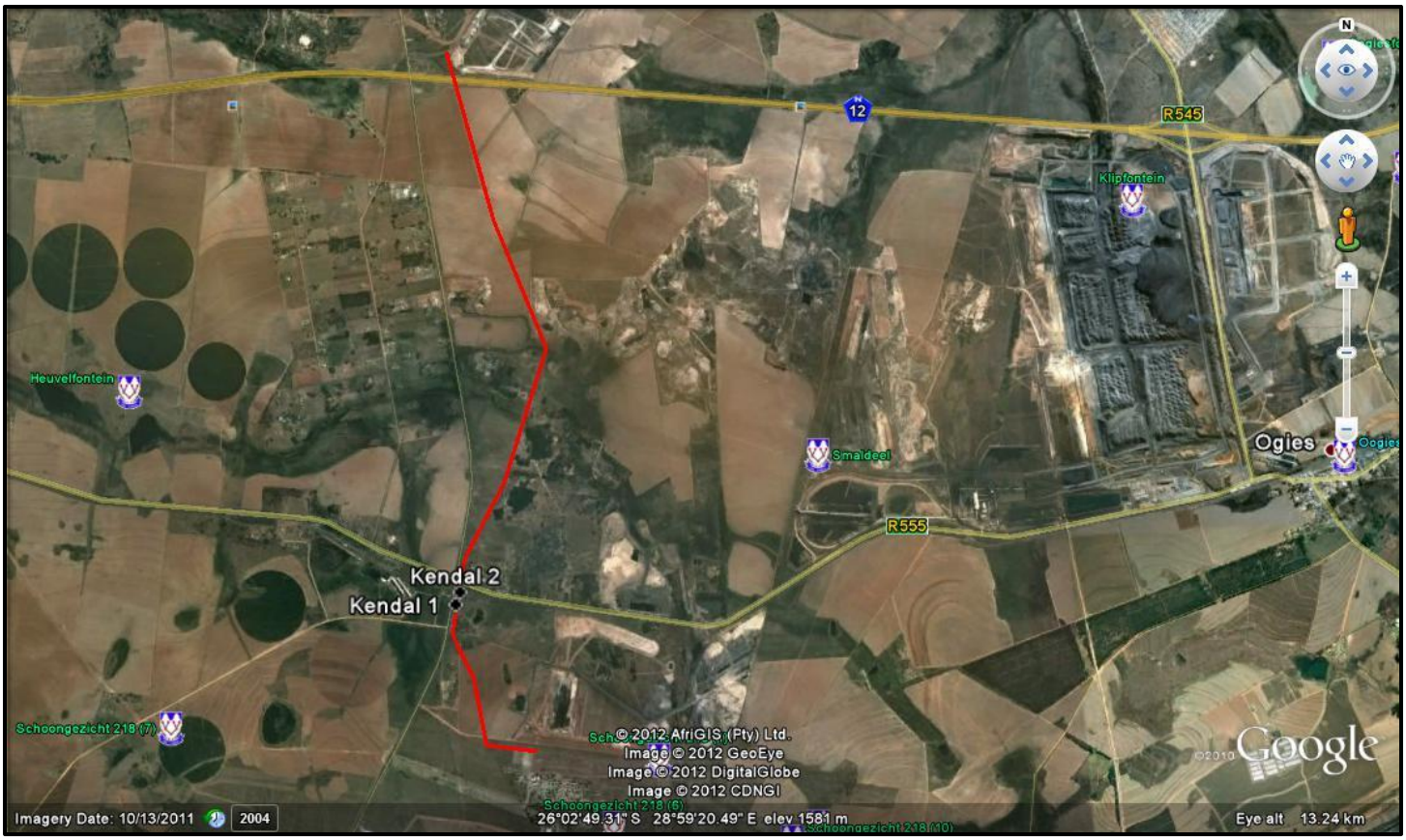

Figure 2: Google Image showing the study area in red. Also indicated are known graves (by white and blue icons) and the two sites identified in the survey. Note the extensive agricultural disturbance of the area.

2. APPROACH AND METHODOLOGY

The aim of the study is to cover archaeological databases and historical sources to compile a background history of the study area followed by field verification; this was accomplished by means of the following phases.

2.1 Phase 1 - Desktop Study

The first phase comprised a desktop study, gathering data to compile a background history of the area in question. The results thereof are represented in section 4.

2.1.1 Literature Search

Utilising data for information gathering stored in the archaeological database at Wits (2009 version), previous CRM reports done in the area and a search in the National archives. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

2.1.2 Information Collection

The SAHRA report mapping project (Version 1.0) was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

2.1.3 Consultation

No public consultation was done.

2.1.4 Google Earth and Mapping Survey

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located.

2.1.5 Genealogical Society of South Africa

The database of the Genealogical Society was consulted to collect data on any known graves in the area.

2.2 Phase 2 - Physical Surveying

Due to the nature of cultural remains, the majority of which occurs below surface, a field survey of the proposed alignment of approximately 7km was conducted. The study area was surveyed by means of vehicle and extensive surveys on foot by a professional archaeologist on 12 October 2012.

If any sites are discovered inside the proposed development area their location will be plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs will also be taken.

2.3. Restrictions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Low ground visibility of parts of the study

area is due to extensive agricultural activities and high grass cover, and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Only the proposed pipeline route was surveyed as indicated in the location map, and not the entire farm that the line traverses. Where the pipeline runs through ploughed fields, the Heuwelfontein farmhouse and Khanyisa colliery access was limited and the general area was subjected to a heritage scan in this area. It is however possible to predict with a certain amount of certainty what the chances are of finding archaeological remains in these areas. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

3. NATURE OF THE DEVELOPMENT

The existing 200mm Asbestos Cement (AC) pipeline transfers potable water from the Kendal Power Station to the Transnet Pipelines pump station at Kendal. This existing AC pipe is ageing and is no longer able to withstand the full water pressure required. The AC pipeline therefore needs to be replaced with a 200mm HDPE (‘plastic’) pipeline. The new pipeline is approximately 7km in length and the route includes three watercourse crossings. The pipeline is located close to Kendal in the Emalahleni Local Municipality, part of the Enkangala District Municipality, Mpumalanga

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Databases Consulted

Wits Archaeological Data Bases

No previously recorded sites are on record close to the study area at the Wits database.

SAHRA Report Mapping Project

The SAHRA Report Mapping project (version 1) has four CRM projects on record close to the study area (van Schalkwyk 2002 & 2006, vd Walt 2007, Roodt 2008, Murimbika 2008). These studies recorded mostly graves and historical buildings.

Genealogical Society and Google Earth Monuments

Neither the Genealogical Society nor the monuments database at Google Earth (Google Earth also include some archaeological sites and historical battlefields) have any recorded sites in the study area.

4.2 Archaeological and Historical Information Available on the Study Area

4.2.1. The Study Area and the South African War

After the British occupation of Pretoria on the 5th of June 1900, the British victories at Diamond Hill and Dalmanutha and the retreat of the republican forces under General Louis Botha toward the eastern boundary of the Zuid-Afrikaansche Republiek (Z.A.R.), the Boer commandoes started to reform themselves into smaller and more mobile groups. This led to the guerrilla phase of the South African War which mostly consisted of hit and- run tactics. With one or two exceptions, this method of warfare by the republican forces lasted for the remaining two years of the war until the signing of the peace treaty at Melrose House on the 31st of May 1902. During this period of guerrilla warfare a number of small skirmishes took place in the general vicinity of the study area, but no indication could be found for any of these to have taken place within the study area itself. One of the most important battles from the South African War to have taken place in the general vicinity of the study area, was the Battle of Bakenlaagte, approximately 15 kilometres to the south-east of the present study area. The origins of this battle can be found in the tendency of the British forces in this part of Southern Africa to move columns between the British camps at Syferfontein (Bethal) in the south and Brugspruit (Clewer) in the north. This movement of columns led General Louis Botha to plan a strategy whereby such a column could be successfully attacked. During the end of October 1900 he determined that another column was about to leave Bethal for Brugspruit and subsequently ordered all available commandos in the general vicinity to gather at a pre-destined place, from where a massed force of some 2000 horsemen could attack the column.

The column that General Louis Botha got wind of was a reasonably large force consisting of the 3rd Mounted Infantry (501 men), 25th Mounted Infantry (462 men), 2nd Scottish Horse (434 men), 84th Battery of the Royal Field Artillery (comprised of four guns and 84 men), CC and R sections of Vickers-Maxims (36), 1st Field Troop Royal Engineers (14 men) and the 2nd Battalion The Buffs (650 men). The column was commanded by Lieutenant-Colonel G. E. Benson. At 5 AM on the morning of the 30th October 1901 Benson's column left the camp at Syferfontein near Bethal and started moving in a north-western direction. Their aim was to camp on the farm Bakenlaagte between Brugspruit and Bethal. However, the numerous drifts and watercourses which the units had to negotiate caused the entire column to be spread out over a large area in a reasonably short period of time. Therefore, although Benson and his advance guard reached Bakenlaagte at 9 AM, the remainder of the column was still far behind. During the afternoon the rear guard became even more isolated from the remainder of the column when one of their wagons got embedded in the mud of a river crossing. This rear guard group consisted of two companies of the 3rd Mounted Infantry, one company of The Buffs and a Vickers-Maxim gun. At this point the republican forces that had followed the column all the way from Bethal started to press closer to the rear guard. This led the rear guard's commanding officer Brevet Major F.G. Anley to order that the wagon be abandoned and the men to push hard for Bakenlaagte. Meanwhile, Benson had

ordered two of the artillery guns onto a ridge between Bakenlaagte camp and the rear guard units, to provide support for the latter. However, when he heard of the rear guard's retreat back to camp he ordered two squadrons of the 2nd Scottish Horse to accompany him toward the rear guard to rescue the abandoned wagon. At this opportune moment General Louis Botha ordered his men to attack. Twelve hundred armed horsemen appeared on the scene and decimated the retreating units of the rear guard. The advance of the Boer horsemen was so severe that Benson ordered the two artillery pieces onto a ridge closer to Bakenlaagte. The Boer attack also stopped Benson's advance and he and the men of the 2nd Scottish Horse who was accompanying him were forced to make for the same ridge. At this point the force on this ridge consisted of two guns of the 84th Royal Field Artillery, 25 men of the 25th Mounted Infantry, a company of the 3rd Mounted Infantry, 20 men of the 2nd Scottish Horse and 70 men of The Buffs. The republican forces now charged towards the British position on the ridge. In the words of Grant (1910:310):"On came the federal regiments, their outriders swarming over the heels of the hindmost men of the Scottish Horse. As they galloped their numbers swelled. Two thousand horsemen raced down upon Benson and the men with him around the guns. So grand and terrible a spectacle had not been seen nor had the earth so shaken on a battlefield in South Africa. Alone on the gigantic bosom of the veld the little knot with Benson calmly faced the approaching catastrophe." As the Boer horsemen approached the occupied ridge they dismounted and crawled toward the summit. Within a short while a fierce fighting broke out and before long the Boer forces occupied the ridge. The losses on British side were catastrophic. Of the 280 officers and men who had occupied the ridge, 66 had been killed and 165 wounded. The losses on Boer side were not recorded. Although their successful assault on the ridge left the camp at Bakenlaagte largely undefended, the Boer forces did not attack it and subsequently withdrew from the battlefield (Birkholtz 2007).

4.2.2. Early Farm Ownership History

Schoongezicht (old farm number 33) was first inspected on the 21st of October 1864 by C.A.van Niekerk. The first registered owner of the farm was S. de Beer. On the 13th of April 1864 the farm was transferred from S. de Beer to Jacobus Petrus Botha. Two years later, on the 16th of March 1866, the farm was transferred from J.P. Botha to Thomas Moodie. On the 4th of February 1869 the farm was transferred from Jan Hendrik Coetzee (on behalf of T. Moodie) to Jan Hendrik Robbertse. Four years later, on the 6th of January 1873, Schoongezicht was divided into two portions, with the first half transferred from Jan Hendrik Visage (on behalf of J.H. Robbertse) to Johannes Hendrik Visage. The second half was transferred on the same day (the 6th of January 1873) to Abraham Carel Greyling (Birkholtz, 2007).

5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a Heritage Landscape. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the Kendall Pipeline, the extent of its impact necessitates a survey of the entire area. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposit;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined or is known);
- The preservation condition of the site;
- Potential to answer present research questions.

According to the Heritage Act the following criteria should also be taken into account. The National Heritage Resources Act (Act No 25 of 1999, Sec 3) 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;

(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;

(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

(d) 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) 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

Based on this criterion sites are given a Low, Medium and High heritage significance that fits into the field rating system as described in section 5.1.

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 7 of this report.

FIELD RATING	***GRADE***	***SIGNIFICANCE***	***RECOMMENDED MITIGATION***
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

The impact of the development on heritage resources are rated on the system employed by BKS

SIGNIFICANCE	DESCRIPTION	SPECIALIST RATING	AVERAGE RATING
No Impact	There is no impact.	0	0 – 0.4
Low	The impacts are less important, but some mitigation is required to reduce the negative impacts.	1	0.5 – 1.4
Medium	The impacts are important and require attention; mitigation is required to reduce the negative impacts.	2	1.5 – 2.4
High	The impacts are of high importance and mitigation is essential to reduce the negative impacts.	3	2.5 >

6. BASELINE STUDY-DESCRIPTION OF SITES

It is important to note that the entire farm was not surveyed but only the proposed alignment of the pipeline as indicated in Figure 1. The general study area is used for agricultural purposes and active mining and would have destroyed any surface indications of heritage sites. During the survey two sites were identified, one of historical significance.

Figure 3. Ploughed fields that characterise the study area.

Figure 4. Ploughed fields in the south of the study area close to the Kendal power station.

Figure 5: Modern dwelling next to the existing servitude indicated by white markers.

Figure 6: Middle portion of the proposed alignment impacted on by mining activities.

Figure 7: Old mining activities next to the servitude.

Figure 8: General conditions in the servitude.

6.1. Site Descriptions

6.1.1 Historical railway line

Site Number	Site 1	**1:50 000 map nr**	2628 BB
Site Data	**Description:**		
Type of site	Open site		
Site categories	Historic: S26 03 42.3 E28 57 54.9		
Context	Site 1 consists of a railroad track that was constructed between 1900 and 1910 (Bergh 1998: 79). The track originates in Witbank Broodsnyersplaas passing through Ogies going in a south westerly direction towards Johannesburg. The track is currently in use and the proposed pipeline will have to cross the railway track.		
Cultural affinities, approximate age and significant features of the site;	The railway track is older than 60 years and protected by heritage legislation.		
Description of artefacts	n.a		
Estimation or measurement of the extent	n.a		
Depth and stratification of the site	n.a		

Photographs

Figure 9: Railway line viewed from the west.

Figure 10: Southern view of railway line.

Figure 11: Southern view of Site 1 with Kendal Power station in the background.

Field Rating (Recommended grading or field significance) of the site:	Generally Protected B
Statement of Significance (Heritage Value)	Low to Medium Significance.

Impact evaluation of the proposed project on heritage resources

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects. The impact foreseen on the heritage site is seen as low. It will impact only a small cross section of a long line that will remain intact.		
	Without mitigation	**With mitigation**
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Partial loss	No loss
Can impacts be mitigated?	Yes	
Mitigation: One site was identified during the survey, the impact on the site can be mitigated and some management actions will be necessary as recommended in section 7. Furthermore if any archaeological or cultural material is uncovered during construction or operation a qualified archaeologist must be contacted to verify and record the find. Mitigation will then include documentation and sampling of the material.		
Cumulative impacts: Archaeological and cultural sites are non-renewable and impact on any archaeological context or material will be permanent and destructive.		
Residual Impacts: Negative impact on historical/archaeological record of the area, prohibited by Heritage Legislation. .		
Impact rating: Low impact (specialist rating 1)		

6.1.2 Unknown Stone Cairn

Site Number	Kendal 2	**1:50 000 map nr**	2628 BB
Site Data	**Description:**		
Type of site	Open site		
Site categories	Stone Cairn: S26 03 46.6 E28 57 54.0		
Context	The site consists of two elongated stone cairns. These cairns are located 13 meter to the west from the proposed alignment. The function or purpose of these cairns is unknown and although unlikely they might mark graves. Management measures during construction will ensure that the cairns are not disturbed.		
Cultural affinities, approximate age and significant features of the site;	Unknown		
Description of artefacts	Oval stone packed cairns.		
Estimation or measurement of the extent	Each cairn measures approximately 1.2 x 80 cm		
Depth and stratification of the site	n.a		

Photographs	
 Figure 12: Oval stone cairn.	 Figure 13: Second stone cairn.
Field Rating (Recommended grading or field significance) of the site:	Unknown – will be determined by whether the cairns are graves.
Statement of Significance (Heritage Value)	Low significance but high significance if it is graves.

Impact evaluation of the proposed project on heritage resources

Nature: The site is located 13 meters to the west of the proposed pipe alignment. If the stone cairns are demarcated during construction no damage is foreseen to the sites.		
	Without mitigation	**With mitigation**
Reversibility	Not reversible	No loss
Irreplaceable loss of resources?	Complete or Partial loss	No loss
Can impacts be mitigated?	Yes	
Mitigation: The two stone cairns should be demarcated with danger tape during the construction phase to make sure the sites are not impacted on accidentally.		
Cumulative impacts: Archaeological and cultural sites are non-renewable and impact on cultural sites will be permanent and destructive.		
Residual Impacts: Not applicable. .		
Impact rating: Low impact (specialist rating 1)		

7. RECOMMENDATIONS

One site of historical significance was identified during the survey that will be directly impacted on by the proposed project. A second site was identified consisting of stone cairns. It is uncertain at this point whether these cairns represent graves, although it is unlikely.

Here brief consideration is given to measures that would be required during implementation of the proposed pipe line. No Archaeological mitigation is necessary prior to the start of construction but management measures would need to be taken into account to avoid damage to the local heritage.

OBJECTIVE: prevent unnecessary disturbance and/or destruction of historical features or structures that has not been mitigated for the development.

Project component/s	All phases of construction and operation		
Potential impact	Damage, disturbance recorded sites.		
Activity risk/source	Impact of construction vehicles and activities on the historical railway track and associated features as well as the stone cairns.		
Mitigation: target/objective	To retain historical features and its associated structures as well as the stone cairns in undisturbed condition.		
Mitigation: Action/control		**Responsibility**	**Timeframe**
Construct the pipeline below the existing railway line using a method that does not disturb the railway line and its associated infrastructure. All features associated with the railway line must be left undisturbed. The stone cairns must be demarcated with danger tape during construction.		ECO	Construction and operation phases.
Performance indicator	Historical features and structure remains undamaged.		
Monitoring	No development or other activity outside of the development footprint.		

No other sites of archaeological significance were identified during the survey. However, if during construction, any archaeological finds are made (e.g. stone tools, skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds.

8. CONCLUSIONS

There are no fatal flaws in terms of the archaeological component to the project how ever management measures would need to be taken into account to avoid damage to the local heritage

9. PROJECT TEAM

Jaco van der Walt, Project Manager

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

Currently, I serve as Council Member for the CRM Section of ASAPA, and have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique and Tanzania; having conducted more than 300 AIAs since 2000.

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