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**A REPORT ON A HERITAGE ASSESSMENT FOR THE PROPOSED
ARNOT-GUMENI 400 KV POWERLINE PROJECT,
IN THE MIDDELBURG/BELFAST AREA,
MPUMALANGA PROVINCE**

For:

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SUMMARY

APelser Archaeological Consulting was appointed by BAAGI Environmental Consultancy to conduct a basic Heritage Impact Assessment (as part of the Scoping and EIA process that they were appointed for by ESKOM) for the construction of a double circuit 400kV transmission line from the Arnot substation to Gumeni substation in the Mpumalanga Province. Three alternative routes for the line had to be assessed.

The proposed development is located on various farms in the Arnot/Belfast area and has been disturbed to a large degree through various activities in the past including farming, mining development, roads, powerlines and other infrastructure development. Portions still contain its natural vegetation (sparse tree cover though), while some hills and rocky ridges do occur as well. A large body of work has been done in the area in the past (Heritage Impact Assessments; Grave relocation projects, archaeological and historical research) by the author of this report and other specialists, and as a result the existence of many heritage resources are known. A number of sites were recorded during the field survey also, while others were identified in an aerial study (Google Earth) of the development area as well. It is clear that the proposed lines will impact on some of these, and recommendations regarding mitigation measures and the most preferred of the three routes will be given as well. The sites identified include stone walled Iron Age sites, possible Stone Age sites, historical homesteads/farmsteads, historical Anglo-Boer War (1899-1902) battlefield sites and others, as well as graveyards and cemeteries.

If the recommendations put forward at the end of this document are implemented, then, from a Cultural Heritage point of view, there would be no objection to the continuation of the proposed development.

CONTENTS

	page
SUMMARY	3
CONTENTS.....	4
1. INTRODUCTION	5
2. TERMS OF REFERENCE	5
3. LEGISLATIVE REQUIREMENTS	6
4. METHODOLOGY	9
5. DESCRIPTION OF THE AREA.....	10
6. DISCUSSION.....	14
7. CONCLUSIONS AND RECOMMENDATIONS	32
8. REFERENCES	33
APPENDIX A – DEFINITION OF TERMS.....	35
APPENDIX B – DEFINITION/ STATEMENT OF SIGNIFICANCE.....	36
APPENDIX C – SIGNIFICANCE AND FIELD RATING	37
APPENDIX D – PROTECTION OF HERITAGE RESOURCES.....	38
APPENDIX E – HERITAGE MANAGEMENT IMPACT ASSESSMENT PHASES	39

1. INTRODUCTION

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2. TERMS OF REFERENCE

The Terms of Reference for the study were to:

The consideration of the impacts on Cultural Heritage resources arising from the construction and operation of the proposed transmission line and the infrastructure.

Information will be provided on the following:

Results of the survey of the construction footprint and the identification of cultural heritage resources that may be affected by the proposed infrastructure, or which may affect the proposed infrastructure during construction, operation and decommissioning.

Recommended mitigation measures for enhancing positive impacts and avoiding or minimizing negative impacts and risks (to be implemented during design, construction and operation).

Formulation of a protocol to be followed by Eskom for the identification, protection and recovery of cultural heritage resources during construction and operation.

The specialist will be required to handle the process of obtaining comments from SAHRA.

The specialist will be required to adhere and comply with the NEMA regulations as well as provincial and national authorities' policies, such as the Mpumalanga Conservation Plan.

The identification of heritage resources that will be adversely affected by the proposed development.

The specialist will be required to attend two integration meetings and where necessary the specialists will be requested to attend public participation meetings.

The specialist should highlight assumptions, exclusions, gaps in knowledge and key uncertainties.

Furthermore, based on the methodology employed by Heritage Impact Assessors, the aims of the assessment were to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the proposed line corridor, substation and the pylon locations. Use will be made of annotated maps where appropriate;
3. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
4. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
5. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
6. Review applicable legislative requirements;

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate includes the following:

- 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 features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. **The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length**
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

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

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

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

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

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

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

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

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

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

3.2 The National Environmental Management Act

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4. METHODOLOGY

4.1 Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources consulted in this regard are indicated in the bibliography.

4.2 Field survey

The assessment was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural heritage (archaeological and historical) significance in the area of the proposed development. The location/position of all sites, features and objects was determined by means of a Global Positioning System (GPS) where possible, while photographs were also taken where needed.

The assessment was undertaken partially on foot, although large sections were traversed by vehicle. Areas with the potential of containing archaeological and other sites were focused on during the study. This included rocky outcrops, erosion dongas and unnatural clumps of trees and other vegetation. The Heritage specialist for the project has conducted many previous studies in the area, while other specialists have also carried out fairly extensive research in the area in the past. As a result many sites are known to exist in the development area. Google Earth images of the area were also used to identify sites and to record their locations. It has to be stated that large tracts of land in the area has been completely disturbed by agriculture and other developments (existing ESKOM lines for example) and these areas were not assessed extensively during the survey. Three alternatives for the Powerline route had to be assessed.

4.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all

circumstances. When applicable, the information is included in the text and referred to in the bibliography.

4.4 Documentation

All sites, objects, features and structures identified are documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

5. DESCRIPTION OF THE AREA

The proposed 400KV ESKOM line (with associated infrastructure) is located between Arnot Powerstation and an area a few kilometers south of the town of Machadodorp in Mpumalanga. Three alternative routes for the line have been proposed. A very large geographical area is covered by the development. Towns in the area include Arnot, Rietkuil, Belfast and smaller farming villages, with large sections of the area consisting of farming communities and operations.

The topography of the area is generally relatively flat, with rolling grass veld and some rocky ridges and low hills in certain portions. Visibility in the area was fairly good, with large tracts of land ploughed and agriculturally developed, and with sparse tree cover. Clumps of trees (bluegum stands) occur throughout. Other developments in the area (Arnot Powerstation, roads, existing powerlines, various mining activities and residential) has impacted on the area as well, and in many areas if any sites did exist here in the past it would have been disturbed or destroyed to a large degree. In the area agricultural activities (ploughing) would have played a big role in this.

A large number of farms in the area will be affected by the proposed development. It include farms such as Blyvooruitzicht, Vogelstruispoort, Waaikraal, Geluk, Wonderfontein, Zoekop, Van Wyksvlei and others. Water sources in the area include rivers, spruite and pans such as the Klein-Komati River, Witkloofspruit, Brakspruit, Waaikraalloop, Blesbokspruit and the pans Grootpan, Leeupan, Klippan, Blinkpan, Rietpan, Otterpan and various others.

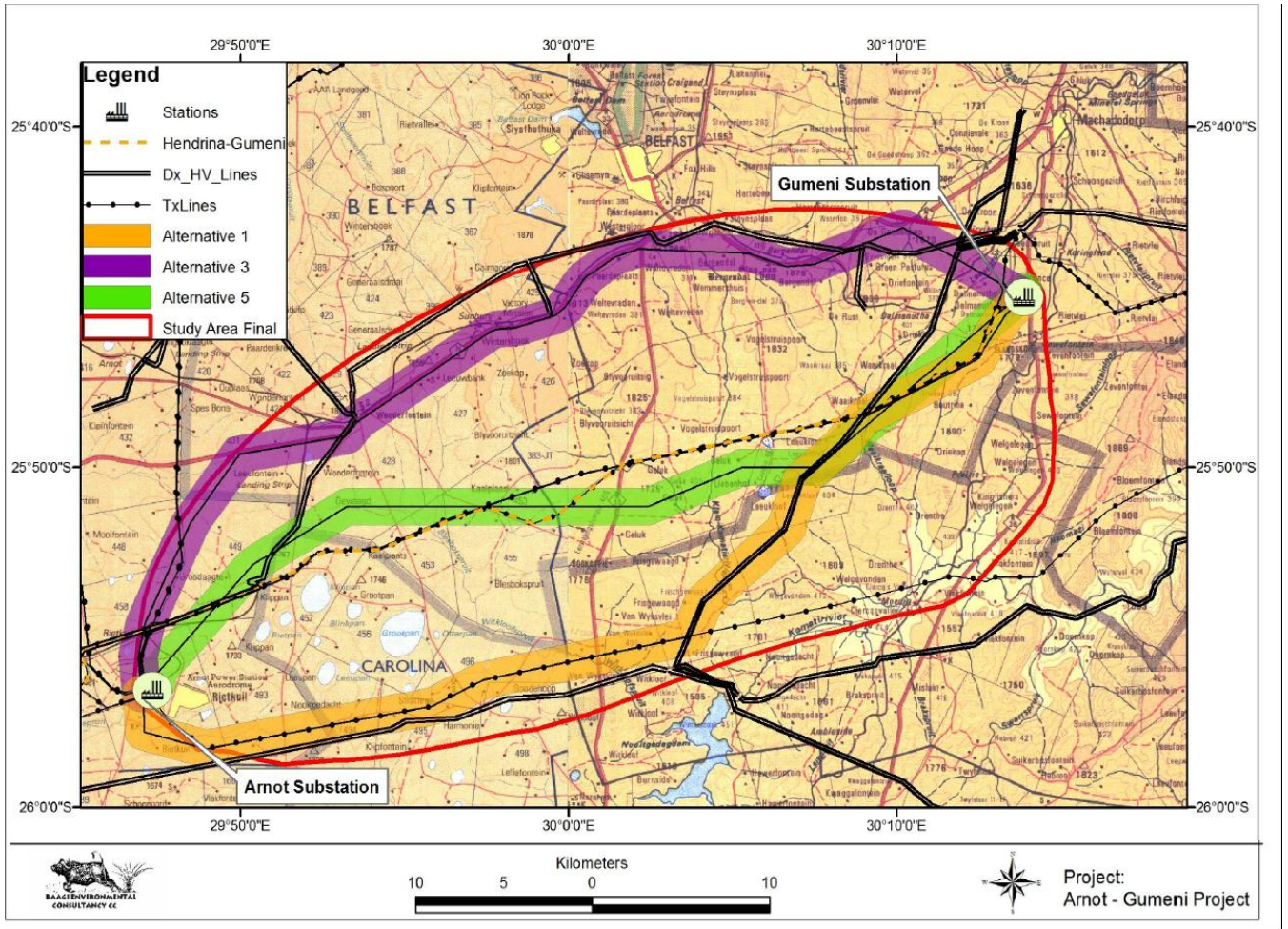


Figure 1: Regional locality of development (Map courtesy Baagi Environmental).



Figure 2: View of Arnot Powerstation.



Figure 3: Existing powerlines in area crossing over ploughed fields.



Figure 4: Large sections of the area have been ploughed.



Figure 5: Some sections contain rocky ridges and low, rolling, hills.



Figure 6: Rivers and spruite are also found in some portions where the proposed lines will run.



Figure 7: Many pans (this is Grootpan) is located in the area.

6. DISCUSSION

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided basically into three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

According to Bergh (1999: 4 – 5) there are no known Stone Age sites in the area, although there are some in the larger Mpumalanga province. The fact that there are no known Stone Age sites in the area might be indicative of the lack of Stone Age research, although recent agricultural and mining activities might have destroyed any evidence of it. No Stone Age sites or artifacts were found during the heritage impact assessment. This does not however mean that scatters of stone tools might not be found near rivers or streams, or at the many pans that does occur in the area. It is therefore recommended that watercourses and bodies of water (such as the pans) are avoided (from an archaeological perspective) by the ESKOM lines and other related infrastructure developments. Once the preferred alternative route is decided on a Heritage Walk Down will focus on those water courses that might be impacted on by the line development.

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

No Early Iron Age sites are known to exist in the area, although there are a fairly large number of Late Iron Age stone walled sites in the bigger geographical area that includes Lydenburg, Dullstroom, Machadodorp, Badplaas and Belfast (Bergh 1999: 6-7). Some of the sites might be related to the so-called Marateng facies of the Urewe pottery tradition of the LIA, dating to between AD1650 and 1840 (Huffman 2007: 207).

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, mined ore and smelted metals, occurred in this area between AD 400 and AD 1100. Dates from Early Iron Age sites indicated that by the beginning of the 5th century AD Bantu-speaking farmers had migrated down the eastern lowlands and settled in the Mpumalanga lowveld. Subsequently, farmers continued to move into and between the lowveld and Highveld of Mpumalanga until the 12th century. These Early Iron Age sites tend to be found in similar locations. Sites were found within 100m of water, either on a riverbank or at the confluence of streams. The close proximity to streams meant that the sites were often located on alluvial fans. The nutrient rich alluvial soils would have been favoured for agriculture. The availability of floodplains and naturally wetter soils would have been important for the practice of dry land farming. This may have been particularly so during the Early Iron Age when climate reconstruction for the interior of South Africa suggests decreased rainfall between AD 900 and AD 1100 and again after AD 1450. Burned dagha and plaster with pole impressions found at these early lowveld sites indicated that early farmers lived in fairly permanent agricultural villages.

Grindstones and an imprint of millet or domestic Pennisetum in a piece of pottery from an AD 400 site on the northern border of Mpumalanga provided the first evidence of the cultivation of millet in South Africa. Remains of iron tools indicated that metalworking was also practised. Iron was an important commodity, and ores in the form of haematite and magnetite were either picked up off the surface or mined from shafts dug into the ground. Large cattle byres with pits were also significant features of EIA Highveld sites dating from AD 600. While there is some evidence that the EIA continued into the 15th century in the lowveld, on the escarpment it had ended by AD1100. The Highveld, particularly around Lydenburg, Badfontein, Sekhukhuneland, Roosenekal, and Steelpoort, became active again from the 15th century onwards. This later phase, termed the Late Iron Age (LIA), was accompanied by extensive stonewalled settlements. Trade no doubt played an important role in the economy of these early

societies. Goods were traded both locally and further afield. Control of resources such as metal provided a solid economic base that was fairly impervious to changes in the environment. Traditional sources of wealth were easily bolstered as metals were used in place of cattle to encourage key marriage alliances, and at the same time used to purchase livestock and other trade items from outside the country. Local trade consisted of metal, salt, thatch, poles, cattle and grain. Salt was produced from alkaline springs. This valuable commodity could be obtained by paying a tithe to the chief on whose land the salt was located. However, there were examples of mass production where salt was 'balled' for transport and sold for huge profit in salt scarce areas.

By the 1700s, with growing trade wealth, economically driven centres of control began to emerge and, following the establishment of Portuguese trade posts, the Mpumalanga landscape became an important thoroughfare for both local and foreign traders. Mpumalanga was populated by multiple and ethnically diverse but interrelated communities. It was inhabited by the San (Hunter-Gatherer, Basarwa or Bathwa) groupings prior to the settlement of various Late Iron Age (LIA) farming communities, the ancestors of modern Sotho-Tswana and Nguni societies. The north-western and southern portions of the region came to be broadly occupied by the Kgatla (Bakgatla), Rolong (Barolong), Ntwane (Bantwane), Koni (Bakone), Kopa (Bakopa) and Southern Ndebele mixed farming communities. Despite their general association with LSA and their assumed disappearance, it is clear that San groups continued to interact with farmers in the Eastern Transvaal, as was the case elsewhere, and the evidence of a range of forms of coexistence warns us against drawing rigid distinctions between the two cultures. Material assemblages from excavated sites, San rock paintings and engravings and cultural and linguistic evidence point to some forms of peaceful contacts between these diverse communities.

According to other recorded oral traditions ancestors of Bakone groupings occupied parts of the low country (Phalaborwa and Bokgaga near Leydsdorp) at an uncertain date. The main body of the Bakone appears to have been under the Matlala ruling lineage at the time of their fragmentation into a multiplicity of groups and subsequent chiefdoms around the 15th to 16th centuries. While some groups remained in the low country others ventured further west and southwards and Koni groups came to settle in the areas later called Ohrigstad, Lydenburg and Middelburg. Either before or at the start of the 17th century an early Nguni-speaking community entered the orbit of the Sotho-Tswana communities in the Transvaal and in particular the north-eastern Highveld. The Sotho-Tswana people commonly called this early Nguni offshoot Matebele, denoting Pursuers. According to P. Lekgoathi these Nguni groups accepted the appellation Matebele but pronounced it as Amandebele. Anthropologists and historians later rendered both Sotho-Tswana and Nguni terms as Ndebele.

In due course relations between other royal contenders degenerated into open confrontation. The Manala (Mabena) and Mhwaduba sections remained independently in and around Pretoria areas while the Ndzundza and Mthombeni groups moved north-eastward into the environs of the Steelpoort (Tubatse) River valley and the slopes of Bothasberg in Middelburg. There is evidence that Mzilikazi's Ndebele invaded the south-eastern and central Transvaal areas. Accounts of the Southern Ndebele, the Koni, the Kgatla, the Rolong and the Ntwane attest to Mzilikazi's sporadic plunder and their own counter raids of Mzilikazi's frequent raids. The Koni, Kopa and some Eastern

Sotho fortified settlements in the Middelburg, Nelspruit (Waterval Boven, Sudwala Caves) and Lydenburg areas were attacked by intruding armies.

The above section comes from De Jong 2009: pp.24-26 (See References)

A number of Late Iron Age stone walled sites and features were identified through aerial studies (on Google Earth) for the assessment of the area, as well as during earlier work in the area and will be discussed later on in the report.

In 1845 the establishment of a Boer settlement at Ohrigstad marked the beginning of a new phase in the history of the Eastern Transvaal. The first Trekkers to settle in the area were the followers of A. H. Potgieter, who moved from Mooi River in the south-western Transvaal. Trekkers from Natal led by J. J. Burger joined them. Tensions between the two groups soon surfaced and the difficulties facing the community were compounded by malaria, which decimated the population, and stock disease, which ravaged their herds. In 1848, partly to escape this disease and conflict-ridden community, Potgieter and his followers moved north and founded the town of Schoemansdal. Most of those who remained behind moved to higher-lying lands to the south. The town of Lydenburg became the new center of the community and white settlers slowly established themselves in the wider region. The Trekkers' political fractiousness did not, however, diminish. In 1856 the Lydenburg community seceded from the Zuid Afrikaansche Republiek (ZAR) – a development that was symptomatic of the fragility of the wider state. Political instability and racial exclusivity – blacks were infamously denied any equality in church or state – however, co-existed with strong traditions of popular democracy. It was not until 1864 that political unity was achieved among the main Trekker communities in the Transvaal and even thereafter the state remained both rudimentary and cash strapped.

Once the Trekkers had established what they saw as their right to the land they set about distributing it among themselves. The land was demarcated into large farms and title deeds were issued. The initial policy was that all burghers (citizens) were entitled to two farms of 3 000 morgen each (about 6 330 acres or 2 564 hectares) from the state. White newcomers to the Transvaal were quickly granted citizenship and the land that went with it. Farms, which were not distributed, remained government property and the ZAR, which battled to raise revenue, increasingly fell back on its principal asset – land. This profligate distribution of land could not be sustained. From 1860 land grants to burghers were reduced to one 3 000 morgen farm each. After 1866 newcomers no longer received any grant of land and from 1871 this prohibition applied even to the sons of burghers. The most consistent supply of labour for those farmers able to enforce their claim to ownership of the land came from African families living on their property. The practice that developed in the area was that five families of a group were expected to render unpaid labour service to the landowner but were then spared from further demands on their labour or their produce by officials or neighbouring farmers. Elements of a patriarchal pact underpinned these arrangements as male elders within African communities used their authority over both women and youths to meet the farmers' appetite for workers. Over the subsequent decades the amount of labour that could be extracted from resident workers would be a source of recurring strife. Communities settled on land owned by absentee landlords were often able to secure

their tenure through payments of rent in cash or kind, to the considerable irritation of their white neighbours, who believed they should be forced to work for them.

White settlement of the Belfast area started from the direction of Lydenburg in 1847 when farmers were looking for healthier environments. At first the farms were uninhabited and used to graze cattle. At first, roads were irregular and informal. In 1878-1894 a stage-coach route was operated between Pretoria and the Lowveld and the present N 4 broadly follows this route between Wonderfontein and Belfast. The Pretoria-Maputo railway line became operational in 1894. The British established a Boer concentration camp at Belfast and erected a series of blockhouses along the railway line.

The above section comes from De Jong 2009: pp.24-26 (See References).

Historical sites in the include farmsteads, historical graves and graveyards, sites associated with the Anglo-Boer War and others. These will be discussed in more detail in the next section.

Results of fieldwork

The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

Probability: This describes the likelihood of the impact actually occurring

Improbable: The possibility of the impact occurring is very low, due to the circumstances, design or experience.

Probable: There is a probability that the impact will occur to the extent that provision must be made therefore.

Highly Probable: It is most likely that the impact will occur at some stage of the development.

Definite: The impact will take place regardless of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.

Duration: The lifetime of the impact

Short Term: The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.

Medium Term: The impact will last up to the end of the phases, where after it will be negated.

Long Term: The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.

Permanent: The impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: The physical and spatial size of the impact

Local: The impacted area extends only as far as the activity, e.g. footprint

Site: The impact could affect the whole, or a measurable portion of the above mentioned properties.

Regional: The impact could affect the area including the neighbouring residential areas.

Magnitude/ Severity: Does the impact destroy the environment, or alter its function

Low: The impact alters the affected environment in such a way that natural processes are not affected.

Medium: The affected environment is altered, but functions and processes continue in a modified way.

High: Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

Negligible: The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

Low: The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

Moderate: The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

Stone Age finds in the area

No Stone Age sites or finds (individual tools or scatters of tools) were identified in the area. However, it is possible that tools will be located along the banks of rivers or spruite, as well as the various pans found in the area. These areas were not assessed in detail during the assessment and it is recommended that the development in any case steer clear from these water sources. Once the most preferred route for the 400Kv line is determined a Heritage Walk Down will be carried out. Should any Stone Age sites or finds be located during this then suitable mitigation measures (if the development impact negatively on these) will be recommended and implemented.

Mitigation: Should any sites or finds be recorded during the subsequent Walk Down for the most preferred route then suitable mitigation measures will be recommended. It is highly recommended that any development associated with the Project stay clear of drainage lines (rivers/spruite) and other water bodies (pans) and rocky outcrops

Probability of Impact: Probable

Duration of Impact: Medium term

Scale of Impact: Site

Significance of Impact: Low - Medium

Magnitude of Impact: Medium

Iron Age Sites

A fairly large number of sites dating to the Iron Age (more specifically the LIA) were identified in the area (from Google Earth). Most of these sites are located on higher-lying areas (low hills/ridges) and contain single homesteads with livestock enclosures and hut bays, while there are also larger settlement complexes with a number of homesteads and livestock enclosures (cattle kraals).

The Iron Age stone walled sites identified through the Google Earth search of the area are mainly concentrated around the Alternative Routes number 1 & 5 (the yellow and green lines on Figure 1 – Regional Locality), with only a few close to Route 3 (purple). From that point of view Alternative 3 would therefore be most preferred. However, many of the sites close to the other routes might not be directly impacted and only once the final route has been decided on and a Walk Down has been undertaken would the impact of the development on the Iron Age sites in the area be definitely determined.

Cultural Significance: Low (single sites) to High (larger settlement complexes)

Heritage Significance: Mainly Grade III

Field Ratings: For the Iron Age sites identified the following ratings can be used. This will be determined per site after the final Walk Down has been conducted

- i. Local Grade IIIB should be included in the heritage register and may be mitigated (high/ medium significance)
- ii. General protection A (IV A) site should be mitigated before destruction (high/ medium significance)
- iii. General protection B (IV B) site should be recorded before destruction (medium significance)
- iv. General protection C (IV C) phase 1 is seen as sufficient recording and it may be demolished (low significance)

Mitigation: Detailed mapping and surveying of sites if impacted by development. Archaeological excavations could also be considered. Heritage Management Plan

Probability of Impact: Probable

Duration of Impact: Medium term

Scale of Impact: Site

Significance of Impact: Low - Medium

Magnitude of Impact: Medium

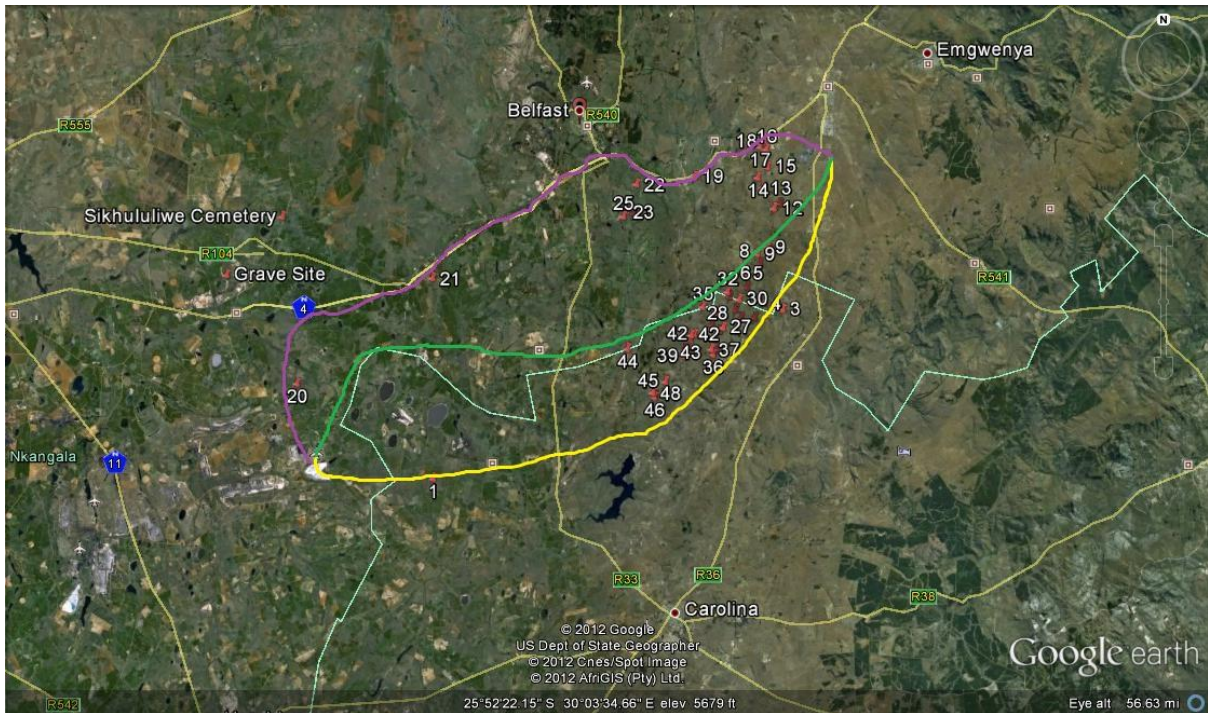
GPS Locations (per site as numbered on Google image)

1. S25 58 06.00 E29 54 28.77	2. S25 50 41.31 E30 10 59.82
3. S25 50 11.30 E30 12 26.05	4. S25 50 05.44 E30 11 24.99
5. S25 48 36.21 E30 10 31.66	6. S25 48 43.98 E30 10 57.79
7. S25 48 21.04 E30 11 10.41	8. S25 48 08.30 E30 10 26.45
9. S25 47 50.28 E30 11 05.86	10. S25 47 23.75 E30 11 39.71
11. S25 45 21.91 E30 12 14.94	12. S25 45 34.85 E30 12 00.12
13. S25 44 35.55 E30 11 22.47	14. S25 44 13.87 E30 11 06.42
15. S25 43 44.57 E30 11 38.54	16. S25 43 03.95 E30 11 31.36
17. S25 42 58.13 E30 11 11.19	18. S25 42 50.31 E30 11 20.98
19. S25 44 12.33 E30 07 52.56	20. S25 53 38.65 E29 47 34.51
21. S25 48 50.65 E29 54 28.65	22. S25 44 31.21 E30 04 56.39

23. S25 45 46.48 E30 04 23.00

24. S25 45 51.84 E30 04 46.21

Sites 25 – 49: No GPS coordinates were taken for these sites as they are basically part of/located close to other sites/complexes already recorded.



**Figure 8: Aerial view of area showing Iron Age sites identified. The three alternative
Line
Routes are estimated. Most of the sites are located close to Alternatives 1 & 5
(As per Figure 1).**



Figure 9: Examples of some of the Iron Age sites in the area (Google Earth 2012).



Figure 10: More views of some of the stone walled sites.
Note the large number of homesteads forming this complex (Google Earth 2012).

Historical sites

A number of known and previously unknown sites of a historical origin were identified in the area of the development. These include graves, farmsteads and sites related to the Anglo-Boer War (1899-1902). A number of these were identified during other assessments and historical-archaeological research by the author of this report, as well as other heritage specialists.

A unique stone architectural heritage was established in the Eastern Highveld during 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 on the Eastern Highveld. These included sandstone, ferricrete ('oukclip'), dolerite ('bloukclip'), 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. The Eastern Highveld is generally devoid of any natural trees which could be used as timber in the construction of farmsteads, outbuildings, cattle enclosures and other structures while the scarcity of fire wood also prevented the manufacture (firing) of baked clay bricks. Stone therefore served as the most important building material on the Eastern Highveld (Pistorius 2007:17).

Late Iron Age communities who contributed to the Eastern Highveld's stone walled architecture were the Sotho, Ndebele and Swazi. The tradition set by these indigenous groups may have influenced the first settlers from Natal and the Cape Colony to utilize the same resources that their predecessors. Many farmers from Scottish, Irish, Dutch, German and Scandinavian descent, settled and farmed on the Eastern Highveld. They brought the knowledge of stone masonry from Europe which compensated for the lack of fire-wood which was necessary to fire clay bricks (Pistorius 2007:18).

Farm homesteads with outbuildings that date from the more recent past occur throughout the Eastern Highveld. Many of these farm homesteads hold little historical significance. However, buildings and other infrastructure which are part of these farm homesteads may be older than sixty years or may approach this age. All, structures and buildings older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) (Pistorius 2007:18).

Many of these farm homesteads are associated with formal and informal graveyards. Dwellings which have been used by farm labourers and which have disintegrated over time are in many instances associated with informal graves and sometimes with informal cemeteries. These informal graves and cemeteries may occur in the most unexpected places - such as in maize fields where they have not been ploughed under over time (Pistorius 2007:18).

Grave Sites

The first category of site with a historical origin is single graves and graveyards. Graves have been exhumed and relocated by Anton Pelsler from farms in the area, namely at Wemmershuis (historical graves), from the farm Klippan and at the Exxarro NBC Glisa Coal Mine in Belfast.

1. Wemmershuis Graves: Moved to road reserve (Carolina bypass): **S25 43 21.6 E30 03 00.6**
2. Klippan Graves (relocated): **S25. 88064 E29. 87892.**

The following sites are known in the area:

1. Grave site with unknown number of graves on the Wonderfontein Road close to Arnot: **S25 53 47.6 E29 49 33.3** (site located around 100m from road from where reading was taken)
2. Historical farm graves (near Battle of Berg-en Dal Monument): **S25 44 03.0 E30 06 12.3**
3. Graveyard with unknown number of graves next to N4 close to Paardeplaats (No GPS coordinates)
4. Graveyard with unknown number of graves next to N4 at Wonderfontein (No GPS coordinates)

A further **25** grave sites (either single graves or larger graveyards) are known from the farms Blyvooruitzicht 383 JT, Leeuwbank 427 JS and Zoekop 426 JS. Their GPS coordinates is as follows:

S 25 49 16.58 E 29 58 36.93 S 25 48 53.23 E 29 59 38.78

S 25 50 15.73 E 29 58 58.72	S 25 49 43.49 E 29 58 53.12
S 25 50 11.10 E 30 00 12.45	S 25 48 09.10 E 30 00 15.50
S 25 50 15.80 E 29 56 06.40	S 25 47 00.90 E 29 57 10.80
S 25 48 14.22 E 29 57 13.25	S 25 48 39.55 E 29 57 16.78
S 25 49 06.34 E 29 56 37.92	S 25 48 38.60 E 29 58 40.50
S 25 48 59.85 E 29 58 22.89	S 25 48 51.57 E 29 58 09.50
S 25 47 50.55 E 29 58 28.81	S 25 49 17.24 E 29 57 16.53
S 25 49 20.01 E 29 56 06.87	S 25 48 22.10 E 29 58 53.50
S 25 48 27.44 E 29 59 08.81	S 25 48 26.83 E 29 59 13.61
S 25 47 45.48 E 30 00 02.35	S 25 45 29.10 E 30 00 04.20
S 25 45 59.90 E 30 00 04.30	S 25 47 32.07 E 29 59 02.63
S 25 47 11.70 E 29 59 27.80	S 25 45 00.60 E 29 59 44.10

Cultural Significance: **High.**

Heritage Significance: **Grade III. Other heritage resources of local importance and therefore worthy of conservation.**

Field Ratings: Local Grade IIIB: Should be included in the heritage register and may be mitigated (high/medium significance)

Mitigation: If impacted and can't be avoided then exhumation and relocation after following due process required by Law. Includes social consultation. Preferred mitigation though would be to fence-off, clean and manage

Probability of Impact: Probable

Duration of Impact: Long term

Scale of Impact: Site

Significance of Impact: High

Magnitude of Impact: High

It should be noted that there might be many other unknown, unmarked graves and grave sites in the area. This will be especially true for areas where farming communities (farmers and farmworkers) occur.

Historical Farmsteads and other Historical Structures

There are many farmsteads/homesteads in the area that include farmworker dwellings and settlements (with informal and semi-formal graveyards). Many of these would be older than 60 years of age and could date to the time when the first Europeans arrived in the area to farm. A number of sites are known in the area, but it should be mentioned this only represent a small percentage of the sites that could be located in the area. If any farmsteads are to be impacted on by the planned development then each location will have to be assessed individually. However it is envisaged that farmsteads/homesteads will be avoided by the development.

Known sites (recorded during earlier work in the area) include more modern farmsteads and homesteads with old structures as well, farmworker's dwellings and settlements, kraals and a Mission Complex (the Victory Fellowship) on Zoekop. Their GPS coordinates are as follows:

S 25 48 34.91 E 29 59 33.82	S 25 50 11.43 E 29 58 59.62
S 25 49 51.23 E 30 00 26.38	S 25 48 09.80 E 30 00 14.70
S 25 50 13.36 E 29 56 07.83	S 25 46 47.86 E 29 57 06.33

S 25 46 56.78	E29 57 08.80	S 25 48 24.11	E 29 57 10.67
S 25 48 42.80	E29 58 39.40	S 25 46 57.78	E 29 57 40.19
S 25 48 29.20	E29 58 58.50	S 25 47 42.57	E 29 59 59.36
S 25 45 34.70	E29 59 56.60	S 25 46 57.30	E 29 59 32.40
S 25 45 04.40	E29 59 53.10	S 25 45 45.54	E 29 58 18.56
S 25 47 14.60	E29 58 46.90	S 25 47 36.00	E 29 58 33.00

Two other known historical sites in the area are located on the farm Wemmershuis near Belfast. These sites are related to the historical coach route that operated here during the late 19th century. Wemmershuis was established in 1887, seemingly part of another farm, Berg-en-dal (established in 1862). The farm was first numbered Wemmershuis 100, located in the Lydenburg district (Pelser et.al 2011: 12). A map in Bulpin (1974) shows the Eastern Railway line going through Belfast, evidently making this an important stop for travelers. One of the reasons is that the road forks here to the north in the direction of Ohrigstad and Lydenburg and to the east in the direction of Nelspruit. It needs to be remembered that the town of Belfast was only established in 1890 and therefore the stop on the coach route may have been at Wemmershuis. Early in 1883 the Portuguese authorities sent Major Joachim José Machado to Pretoria to discuss the proposed Delagoabay Railway line scheme with the ZAR's Railway Commission (appointed by President Paul Kruger). During his trip to Pretoria he became aware of a completely new route that could run along the southern banks of the Crocodile River and next to the Elandsriver and up to the Highveld, and then over Belfast and Middelburg to Pretoria. Belfast (as town) was of course not established by that time (Pelser et.al. 2011: 13-14).

The sites recorded on Wemmershuis are an old Coach House and a section of the old coach (wagon) road). The GPS locations are the following:

S 25 43 20.00 E 30 03 02.10 (Coach House)
S 25 43 15.30 E 30 03 02.80 (road section)

Anglo-Boer War (1899-1902) related sites

During the Anglo-Boer War the area around Belfast saw much action. The last of the conventional military encounters between the British and Boer forces were that of the Battle of Berg-en Dal (also called the Battle of Dalmanutha). The battle took place between the 21st and 27th of August 1900.

Between the 21st and 22nd of August there were skirmishes on the farm Van Wyksvlei and Frischgewaagd, to the south of Belfast. This was followed by an attack on the 23rd of August by the British on the Boer forces on the farms Geluk and Leeukloof, with the battle in this section continuing until the 26th. There was also action on Vogelstruispoort. Later the same day the Boers at Dalmanutha were also under attack. The final phase of the battle was at Berg-en Dal on the 27th of August 1900. The Boers retreated from the scene and the British continued their advance towards the Lowveld.

On the 24th of August 1900 the British occupied Belfast. Here they established three concentration camps for Boer women and children. After they reached Komatipoort on the 24th of September 1900, the British erected blockhouses and other fortifications along the railway line in order to safeguard this from the Boers. The remains of two of these are located

on Wemmershuis. Between the 7th and 8th of January 1901 the Boers attacked Belfast and some of the blockhouses and fortifications.

Many of the farms in the area where the proposed lines will run and infrastructure will be developed therefore played a major role during this important battle during the Anglo-Boer War. An extensive area was covered by the frontlines of the two opposing forces over the seven days and the whole area should therefore be seen as a historical Battlefield site. Any development over this area should therefore be conducted very carefully and it is proposed mitigation measures be implemented in order to minimize any negative impacts. This will include a detailed Heritage Walkdown when the final Alternative route has been determined, and possibly a Heritage Monitoring Program being implemented for the duration of the project.

Known sites associated with the Anglo-Boer War and the Battle of Berg-en Dal/Dalmanutha includes the Berg-en Dal Monument and Graves and fortifications on Wemmershuis. Their GPS locations are as follows:

S 25 44 03.00 E 30 06 12.30 (Monument)

S 25 43 10.10 E 30 03 01.50 (Fortification on Wemmershuis)

Farms impacted: Geluk, Frischgewaagd, Leeukloof, Wemmershuis, Van Wyksvlei, Berg-en Dal, Dalmanutha, Vogelstruispoort.

Cultural Significance: Low to high

Heritage Significance: Grades I - III

Field Ratings: Various

Mitigation: Will be determined after walkdown and with detailed assessment of impacted sites

Probability of Impact: Probable

Duration of Impact: Long term

Scale of Impact: Site and region

Significance of Impact: High

Magnitude of Impact: High

It should be noted that the above is very difficult to determine with the final route for the proposed line not determined yet. Once this is done a Heritage Walkdown on the chosen line would determine the impact of the line (pylons, other related infrastructure) on any heritage resources (if any) and then detailed recommendations on Mitigation Measures can only be provided.



Figure 11: Typical farm cemetery in the area.



Figure 12; Historical farm cemetery close to Berg-en Dal Monument.



Figure 13: Information plaque at historical cemetery on Wemmershuis.



Figure 14: Old Coach House on Wemmershuis.



Figure 15: Old farmhouse on Leeubank farm.



Figure 16: Section of old coach road on Wemmershuis.



Figure 17: Remains of British Anglo-Boer War fortification on Wemmershuis.



Figure 18: Battle of Berg-en Dal Monument.



Figure 19: Historical farmhouse on Berg-en Dal close to Monument and battlefield.

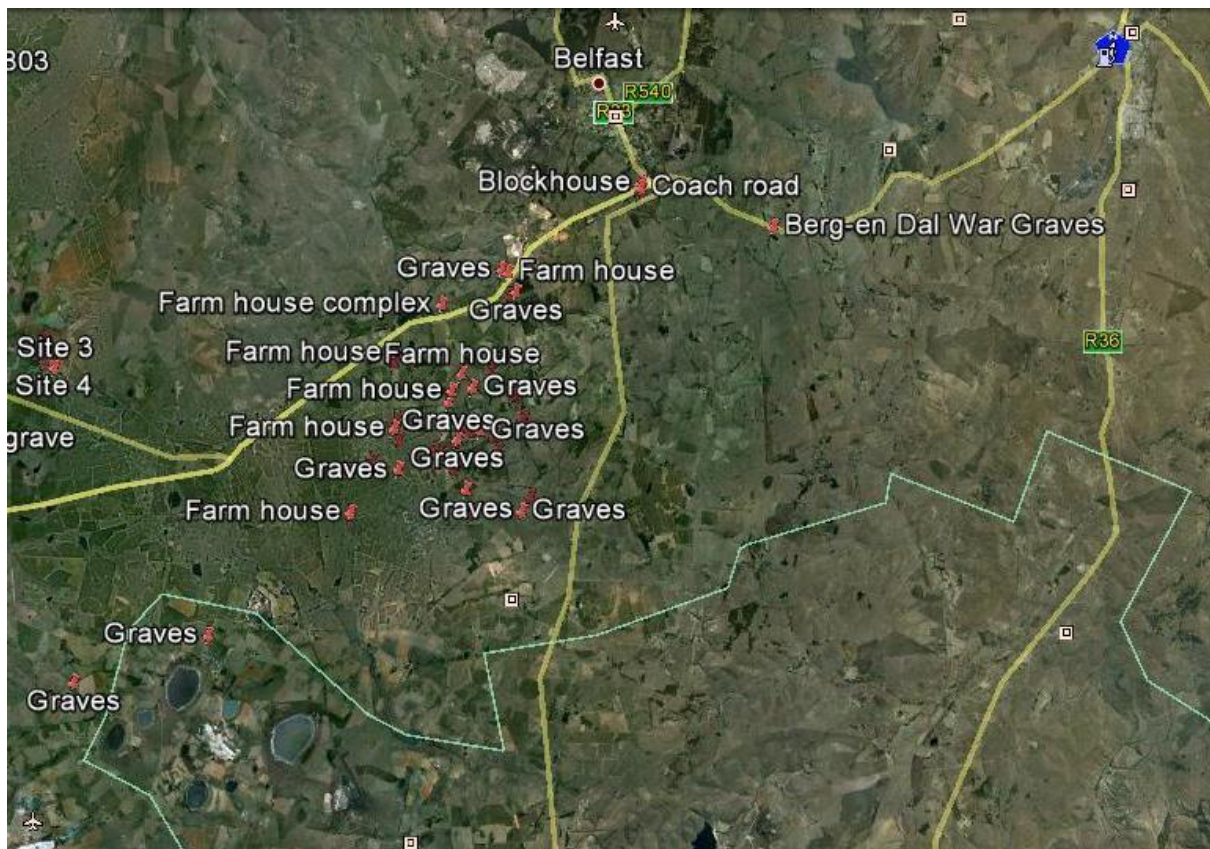


Figure 20: Aerial view of area showing graves and other historical sites recorded (Google Earth 2012).



Figure 21: Typical farming complex in area (Google Earth 2012).

7. CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is possible that this assessment for the proposed Arnot-Gumeni 400kV Powerline was completed successfully. The three alternative routes for the line are located between Arnot Powerstation and a few kilometers south of Machadodorp in Mpumalanga. It covers a fairly huge area and as a result not all sites could be visited and recorded in detail. The assessment focused on known heritage sites recorded and researched by the author and other specialists during other studies in the area, while the area was visited in order to record other unknown sites as well.

Although no Stone Age sites and finds are known in and were recorded in the area it is envisaged that Stone Age sites could be located close to the various water sources (rivers and spruite) that run through the area, as well as at the large number of pans that are found here.

The sites that are known in the area and that were recorded during the assessment include large numbers of stone walled Late Iron settlements, including individual homesteads and larger settlement complexes, as well as historical gravesites, farm/homesteads and farmworker settlements, Anglo-Boer War sites and features and other sites related to the earlier history of the region. Many of these sites will not be impacted on by the proposed development, while others will be impacted depending on the final alternative route chose for the powerline. It should be mentioned that there are probably many similar sites to those identified now that are still unknown and that were not identified during this assessment.

Based on the assessment it is clear that Alternative Route 3 (the purple line on the regional map provided by BAAGI) will be the most preferred route from a Heritage perspective, as the least number of sites will be impacted by this route. However, sites including graves, farmsteads and other historical structures, as well as sites related to the Anglo-Boer War (1899-1902) and the Battle of Berg-end Dal/Dalmanutha, will be impacted and mitigation measures will have to be implemented.

The following is therefore recommended:

1. that a Heritage Walk Down is conducted once the Final Least-Impact route is decided upon, as well as the associated infrastructural developments. This will determine exactly which sites (if any) will be impacted, what these sites significance are and what mitigation measures needs to be implemented
2. Mitigation measures could include detailed mapping and site assessments; Site Management Plans; archaeological excavations and exhumations and relocations (for grave sites). Heritage Monitoring programs could possibly also be implemented for the duration of the project
3. during any development activities, if any sites, features and objects of a cultural heritage (archaeological or historical) nature, are exposed, an expert should be called in to investigate and suitable mitigation measures are implemented. All development in these areas should be halted until the situation had been satisfactorily resolved.

8. REFERENCES

Regional location (map), Aerial views of the area, line corridor, substation location and site distribution: Google Earth 2012 and BAAGI Environmental Consultancy

Bergh, J.S. (red.). 1999. **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

De Jong, R.C. 2009. **HERITAGE IMPACT ASSESSMENT REPORT: PROPOSED BELFAST MINING PROJECT LOCATED ON PORTIONS OF THE FARMS LEEUWBANK 427 JS, BLIJVOORUITZICHT 383 JT, ZOEKOP 426 JS, BETWEEN WONDERFONTEIN AND BELFAST, MPUMALANGA.** Unpublished Report Cultmatrix Heritage Consultants for Exxaro Resources Limited December 2009.

Huffman, T.N. 2007. **Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.** Scottsville: University of KwaZulu-Natal Press.

Knudson, S.J. 1978. **Culture in retrospect.** Chicago: Rand McNally College Publishing Company.

Lombard, M., L. Wadley, J. Deacon, S. Wurz, I. Parsons, M. Mohapi, J. Swart & P. Mitchell. 2012. **South African and Lesotho Stone Age Sequence Updated (I).** South African Archaeological Bulletin **67** (195): 120–144, 2012.

Pelser, A.J. & A.C. van Vollenhoven. 2008. **THE ARCHAEOLOGICAL INVESTIGATION AND EXHUMATION OF GRAVES ON THE FARM WEMMERSHUIS 379 JT, BELFAST DISTRICT, MPUMULANGA PROVINCE.** Unpublished Report Archaeos cc AE819b. For SNA Civil & Structural Engineers June 2008.

Pelser, A.J. 2010. **A REPORT ON AN ARCHAEOLOGICAL DESKTOP STUDY FOR THE EXXARO MINING PROJECT ON PORTIONS OF LEEUWBANK 427 JS, BLIJVOORUITSICHT 383 JT & ZOEKOP 426 JS, SOUTH OF WONDERFONTEIN & BELFAST, MPUMALANGA.** Unpublished Report Archaetnos cc AE1057. For Cultmatrix Heritage Consultants. September 2010.

Pelser, A.J. & A.C. van Vollenhoven. 2011. **FINAL REPORT ON THE HISTORICAL AND ARCHAEOLOGICAL INVESTIGATION OF THE HISTORICAL COACH HOUSE ON THE FARM WEMMERSHUIS 379 JT, NEAR BELFAST MPUMALANGA.** Unpublished Report Archaetnos cc (no number). For TRAC May 2011.

Pistorius, J.C.C. 2007. **A Phase 1 Heritage Impact Assessment Study for the proposed new Mafube Coal Mine between Middelburg & Belfast in the Mpumalanga Province of South Africa.** Unpublished Report July 2007. For Anglo-Coal Eyesizwe.

Republic of South Africa. 1999. **National Heritage Resources Act** (No 25 of 1999). Pretoria: the Government Printer.

Republic of South Africa. 1998. **National Environmental Management Act** (no 107 of 1998). Pretoria: The Government Printer.

APPENDIX A

DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

- Historic value:** Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value:** Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value:** Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value:** Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity:** Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity:** Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance should be managed as part of the national estate
- ii. Provincial Grade II significance should be managed as part of the provincial estate
- iii. Local Grade IIIA should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB should be included in the heritage register and may be mitigated (high/ medium significance)
- v. General protection A (IV A) site should be mitigated before destruction (high/ medium significance)
- vi. General protection B (IV B) site should be recorded before destruction (medium significance)
- vii. General protection C (IV C) phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or Scoping phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of Recommendation for Exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.