AGES Gauteng
(Africa Geo-Environmental Services Gauteng (Pty) Ltd)
Reg: 2006/011434/07 Vat:4910184854

AGES GAUTENG
The Village,Block E
309 Glenwood Road
(Cnr. Glenwood & Oberon Avenues)
Faerie Glen
0081

Postnet Suite 74
Private Bag X07
Arcadia 0007

Tel: +27 12 751 2160
Fax: +27 86 607 2406
gauteng@ages-group.com
www.ages-group.com

AGES
Purpose with Passion

Attention:
Me Lelani Stolp
AGES Gauteng Office
The Village,Block E
309 Glenwood Road
Faerie Glen
0081
2013-05-10

RECOMMENDED EXEMPTION FROM ARCHAEOLOGICAL IMPACT ASSESSMENT STUDY: ANNLIN 20ML RESERVOIR PROJECT, WONDERBOOM, PRETORIA.

1. Background

Africa Geo-Environmental Services Gauteng (PTY) LTD was appointed by VIP Consulting Engineers on behalf of the City of Tshwane Metropolitan Municipality to conduct a Heritage Scan for the construction of the Annlin Reservoir in Wonderboom, Gauteng, subject to a Section 24 G application for the project. The site is located in the Wonderboom Area of Pretoria next to Voortrekkers Weg, east of the Wonderboom Nature Reserve, generally at **S25°41'24.03" E28°11'54.15".**

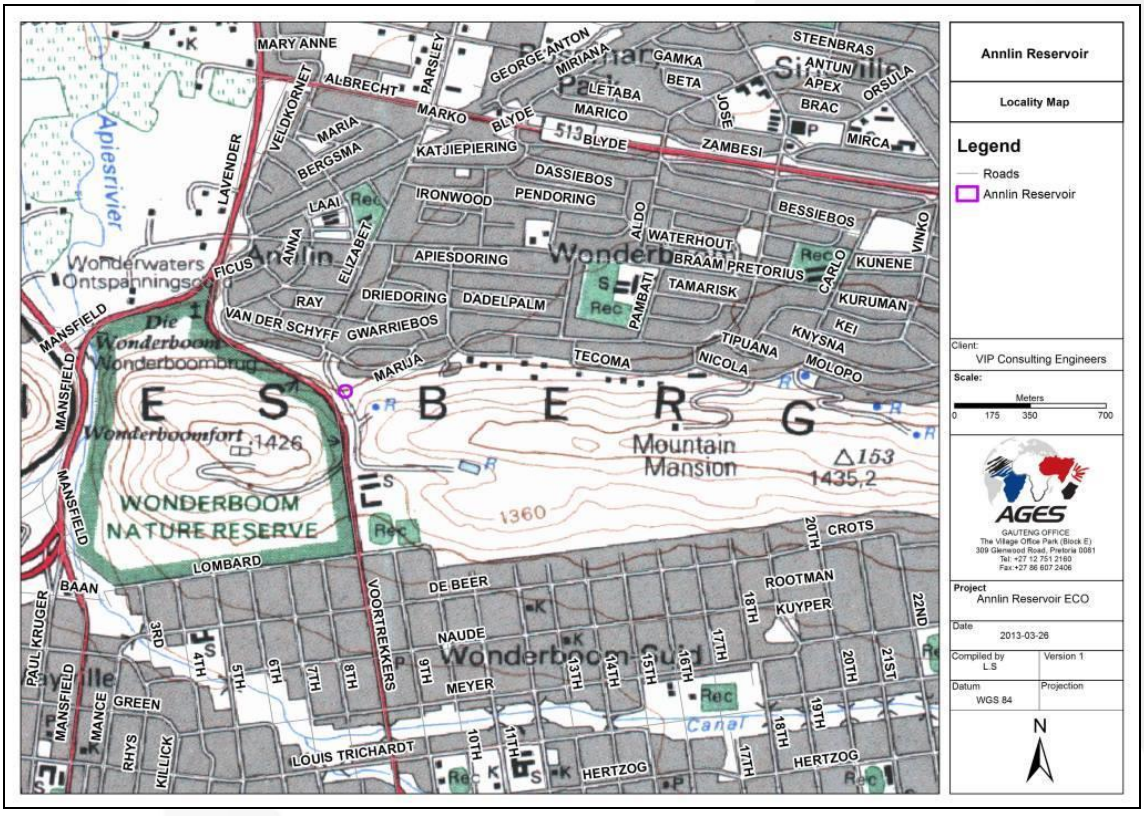

Figure 1: Geographical location of the Annlin Reservoir project area (1:50 000 Map reference 2528CB)

Prior to the commencement of construction of the reservoir, the GDACE assessed that the development did not trigger activities that are listed in terms of the EIA Regulations, 2006 (GNR 385 which was the applicable Regulations at the time) and therefore environmental authorization from the Department was not required. However, the 2006 EIA Regulations were replaced by a new set of Regulations in 2010, the amendments of which implied that the Annlin project now required environmental authorisation. The project team was not aware of this and construction of the reservoir commenced in 2012. Thus, officials of the GDARD, (previously GDACE) issued a Compliance Notice and the project proponent decided to initiate an application for Rectification under Section 24G of the NEMA in response to the compliance notice.

2. Site and Project Description

The Annlin reservoir is being constructed at the location of the existing Wonderboom Break Pressure tank. The activities undertaken involves the upgrading of the existing Wonderboom break pressure tank to a 20 000m^3 reservoir known as the Annlin Reservoir on the farm Wonderboom 302JR Portion 55 in the City of Tshwane Metropolitan Municipality. Construction of the reservoir began in 2012 and is scheduled to be completed June 2013.

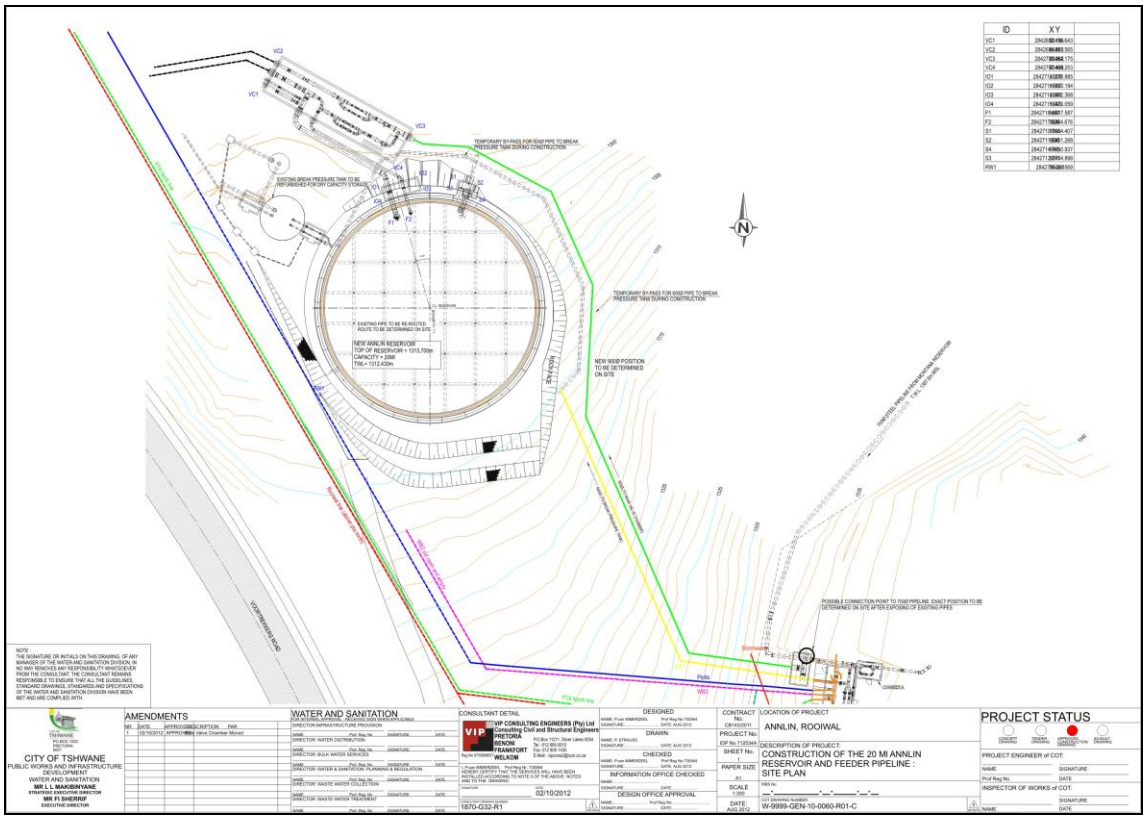

Figure 2: Plan of infrastructure currently constructed for the Annlin Reservoir facility.

Activities on the site include:

- Construction of the reservoir and valve chamber;
- Installation/re-alignment of pipes between the existing Wonderboom Reservoir and the Annlin Reservoir under construction;

- Storage facilities and areas for construction-related materials;
- Movement of construction vehicles;
- Offices and associated temporary infrastructure, including parking space and chemical toilets.

The property is 56 740 m^2 in extent but the footprint affected by the reservoir and associated construction is extends over a surface area of approximately 8 862 m^2. After construction and rehabilitation, the affected footprint of the reservoir and associated structures will be approximately 6 116 m^2.

Figure 3: Aerial photo detailing the extent of the Annlin Reservoir project area.

- ***Current construction site***

Construction of the Annlin reservoir is in an advanced stage with completion of the project estimated to be June 2013. At the site, the existing bench was deliberately utilized as the platform for the construction of the new reservoir to reduce unnecessarily impacting upon undisturbed areas. The engineering assessment prior to construction pointed out that the most suitable placement of the reservoir would have been further east (450m) as no pilling would have been necessary. In order not to disturb any Greenfield areas the reservoir was placed on the already existing bench, which is underlain by a diabase intrusion.

Figure 4: View of the Annlin Reservoir construction site along the western sector of the site. Note the existing Wonderboom Reservoir on the hill in the background.

Figure 5: Infrastructure construction at the Annlin Reservoir site. The existing break pressure tank is visible to the right of the new reservoir structure.

- ***Site Status***

This area around the construction site was previously prepared for further expansion where initial preparation of the bench took place during the 1960's. The existing bench is clearly visible in historic aerial photographs and was also noted during site surveys undertaken prior to construction (See Figure 6). In addition, excavation of topsoil and trenches is evident in places and other infrastructure related to the existing reservoir has been constructed here. Vegetation cover in the area is in a degraded state and encroacher species occur throughout the area. It may therefore be confirmed that the area was already impacted upon prior to these construction activities.

Figure 6: Aerial imagery of the Annlin Reservoir site dating to 2001 (left), 2007 (centre) and 2012 (right) indicating the extent to which the landscape has been altered and disturbed prior to the commencement of construction of the Annlin Reservoir. The position of the construction site is indicated by the white dotted lines in the earlier images.

Figure 7: Partially intact vegetation cover near the construction site.

3. Heritage survey and scoping

An archaeological scoping survey at the Annlin Reservoir site (2013-05-02) was done by means of a pedestrian survey in accordance with standard archaeological practise by which heritage resources are observed and documented. The visibility at the time of the survey was moderate to high as a result of vast surface disturbances across the majority of the property. By means of field walking with a Garmin E-trex Legend GPS, the landscape and the site impacted on were recorded and photographed with a Canon Digital camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion.

During the survey, no sites of archaeological and historical value were documented at the site of the reservoir construction, or elsewhere on the property. It is also apparent that no heritage resources were impacted upon during initial construction phases of the facility.

4. Brief archaeo-historical context

The cultural landscape of the northern and eastern sections of present-day Gauteng area encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power.

Early History: Stone Age

The Highveld areas of Gauteng were inhabited by humans since the Earlier Stone Age (ESA) times and stone tools dating to this period, typically found in the vicinity of watercourses, are abundantly scattered in the landscape. A significant ESA site has been documented on the farm Kaalfontein (366JR) where an Earlier Stone Age habitation site occurs about 1m sub-surface. The site yielded some of the oldest and largest Stone Age implements found in South Africa. The Middle Stone Age (MSA) marked the occupation of formerly unoccupied areas on the Highveld near water sources and tools belonging to this period mostly occur in the open or in erosion dongas. Later Stone Age (LSA) people displayed advanced technologies and therefore occupied larger and more diverse environments. Most LSA sites are found in association with rock shelters and caves with material found across the Magaliesberg, to the north and east of Mamelodi and scattered throughout Pretoria's surroundings. A few stone tools, mostly dating to the Middle Stone Age, are known to have been found in the area close to the banks of the Pienaars River. The Wonderboom area is rich in pre-history remnants and evidence of Earlier, Middle and Later Stone Age settlements have been documented, yielding significant finds in the form of hand axes, scrapers, cleavers and arrow heads

Early History: Iron Age

Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes and other resources. Remains of Early Iron Age occupation on the Highveld is scarce, with isolated sites occurring in the Magaliesberg, e.g. at Broederstroom. Large scale occupation of the larger Gauteng area by Bantu speaking farming communities occurred only in the second millennium AD. The 16th century was marked by a warmer

and wetter climate, providing conditions favourable for Later Iron Age (LIA) farmer occupation in areas in the Witwatersrand, the Free State and the Mpumalanga escarpment. This, in turn resulted in increased food production with expanding populations on the central Highveld by the 19th century. Due to ever expanding territories and resulting conflict situations these Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing. A number of Later Iron Age stone-walled archaeological sites, conventionally associated with Tswana and Ndebele speakers occur, in amongst other areas, across the Pienaars River around Wallmannsthal, Roodeplaat dam and southwards across the N4 Highway. Large concentration of Later Iron Age sites in the larger landscape have been documented on the farms Downbern 494JR, Elandshoek 337JR, Leeuwkloof 258 JR, the Windybrow Game Farm and Buffelskloof 281JR. During the early 1990s a Late Iron Age site was excavated by Wits University on the banks of the Pienaars Rivier between the R101 and the N1. At Wonderboom Poort, members of the Kwena Magopa group of Tswana-speakers settled in the vicinity of the Wonderboom Nature Reserve and were later displaced by members of the Po group of Nguni-speakers in the early 19th Century. Later Mzilikazi, set up a kingdom in the Magaliesberg and a group of his followers, the Kungwini, settled in the Wonderboom area.

Early History & Ethno-history

It should be noted that terms such as “Nguni”, “Sotho”, “Venda” and others refer to broad and comprehensive language groups that demonstrated similarities in their origins and language. It does not imply that these Nguni / Sotho groups were homogeneous and static; they rather moved through the landscape and influenced each other in continuous processes marked by cultural fluidity.

Whereas it is impossible to attribute any living group of people to Early Iron Age communities, ethnographic evidence enables us to identify some of the groups of people that entered the region in Pre-colonial times and are currently settled in the larger region. Ethnographers generally divide major Bantu-speaking groups of southern Africa into two broad linguistic groups, the Nguni and the Sotho with smaller subdivisions under these two main groups. Nguni groups were found in the eastern parts of the interior of South Africa and can be divided into the northern Nguni and the southern Nguni. The various Zulu and Swazi groups were generally associated with the northern Nguni whereas the southern Nguni comprised the Xhosa, Mpondo, Thembu and Mpondomise groups. The same geographically based divisions exist among Sotho groups where, under the western Sotho (or Tswana), groups such as the Rolong, Hurutshe, Kwena, Fokeng and Kgatla are found. The northern Sotho included the Pedi and amalgamation of smaller groups united to become the southern Sotho group or the Basutho. Other smaller language groups such as the Venda, Lemba and Tshonga Shangana transpired outside these major entities but as time progressed they were, however to lesser or greater extend influenced and absorbed by neighbouring groups. The Highveld areas of Gauteng and Mpumalanga were occupied during the last 500 years mainly by Ndebele and Pedi (Kgatla) groups. These Ndebele groups originated from the Hlubi, a small split group that moved to the north-eastern parts of the Transvaal where they became known as the Transvaal Ndebele (not to be confused with the Ndebele of Mzilikazi). Ndebele groups settled in areas surrounding present-day Pretoria, at Kwa Maza near present-day Stoffberg, at Polokwane and Modimole and across large parts of Mpumalanga. The Kgatla, a Pedi group was established at the end of the 15th century by chief Mokgatla, who broke away from the Hurutshe group to settle in the Witwatersrand area. The Kgatla resided in an expansive area that included present-day Pretoria, the surroundings of the Magaliesberg and areas around present-day Brits, Rustenburg, Modilmolle and Warmbaths as well as the Pilansberg area. Isolated Kgatla communities also settled in the surroundings of Lydenburg, Middelburg, Bronkhorstspruit and the Soutpansberg.

Later History: The Colonial Period, the South African War and Fort Wonderboom.

For centuries the areas surrounding present-day Pretoria proved to be ideal farmland because of its water richness and the first white settlers trekked into this area during the early part of the 19th century. Specifically Lucas Bronkhorst and the Erasmus brothers occupied stretches of land surrounding the area that was later to become Pretoria. The first farms in the areas were registered at around 1850 and from the onset farmers practiced mixed farming. Possibly the most prominent colonial remnants on the Highveld and in Mpumalanga can be attributed to the South African War or the Anglo-Boer War (1899-1902). The various battles and skirmishes resulting from this influential conflict left a legacy of heritage sites scattered across Pretoria where fortifications, war cemeteries and battlefields still remain. After their defeats in Natal and the Southern Free State during the first phase of the South Africa War, the Boers slowly adopted a new strategy whereby mobile mounted commandos would be used to wage war over large distances. Lord Roberts was under the impression that if Pretoria fell, the Republican armies would lay down arms. He therefore pressed onwards from Johannesburg. The well-known Boer general, Genl. Louis Botha had decided not to defend the city and ordered the retreat of his commandos along the Delagoa Bay (Maputo) railway line. On the 5th of June 1900 Roberts entered Pretoria unhindered and presumed that the war would be over. The Republican forces were however far from surrendering and Roberts had to continue the war by capturing the rest of Transvaal. The Boer forces had retreated from Pretoria and fortifications were erected all along the Magaliesberg mountain range.

Figure 8: Entrance to the Fort Wonderboompoort, a Provincial Heritage Site.

These “Pretoria Forts” consisted mainly of four forts built by the government of the South African Republic (ZAR) just before the outbreak of the War around Pretoria. After the abortive Jameson Raid, the government of the ZAR became concerned about the safety of its capital city, Pretoria, both from foreign invasion as well as from the growing number of Uitlanders (Foreigners) on the Witwatersrand. Consequently, a defence plan for Pretoria was drawn up by a former

French artillery officer, Leon Grunberg. This plan was approved on 24 March 1896 by the Executive Council of the ZAR. The plan recommended that eight strategic positions around the city should be fortified by means of armoured turrets equipped with artillery. The positions identified were Schanskop, Kwaggaspoort, Daspoortrand, Magaliesberg-wes, Wonderboompoort, Derdepoort, Strubenkop and Klapperkop. The armoured turrets were subsequently found to be unacceptable, and thus the plan of two German engineers, Otto Albert Adolph von Dewitz and Heinrich C Werner to build forts instead, were accepted. However, due to a lack of money, only four forts were eventually built. Fort Wonderboompoort was completed in September 1897 by Von Dewitz and Werner for a total cost of GBP £49,000. As with Fort Schanskop, it was also supplied with electricity, a telephone and running water. The fort was armed with a 75 mm Creusot gun ("Long Tom"), a 37 mm Maxim-Nordenfeldt cannon and a hand-cranked Martin-Henry Maxim. Initially eighteen gunners were stationed in the fort, but both men and armaments were gradually withdrawn until only one gunner and no cannons were left on 5 June 1900. After the war Fort Klapperkop and Fort Schanskop continued to be used for military purposes, but were neglected. On 8 July 1938 the two forts were declared provincial heritage sites. Fort Klapperkop was restored in 1966 and converted to a military museum and Fort Schanskop followed in 1978.

Initially there were plans to convert Fort Wonderboompoort and Fort Daspoortrand into prisons but these were never carried out. The roofs of both forts were later demolished; it was speculated that General Jan Smuts gave the orders for this during World War II, but this has never been proven. The ownership of Fort Wonderboompoort was transferred to the City Council of Pretoria in 1954. In 1986 it was cleaned up and partially restored; it was declared a provincial heritage site the following year.

Figure 9: The location of the Fort Wonderboompoort Provincial Heritage site in relation to the Annlin Reservoir construction site to the east.

5. Recommendations

Following an inspection of the Annlin Reservoir construction site, and considering the circumstances surrounding the Annlin Reservoir Section 24G application, the author of this document recommends that the developer be exempted from further Phases of heritage and / or archaeological impact assessments, subject to Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment as set out by the South African Heritage Resources Agency (SAHRA) which states that:

> *"When a property is either very disturbed (e.g. has been quarried or mined) or is very small and the archaeologist can see that it is highly unlikely that any archaeological remains will be found, a '**Letter of Recommendation for Exemption'** from a full Phase 1 report may be supplied."*

This recommendation is motivated on the following grounds:

- No heritage resources were observed in, or directly around the area under construction for the Annlin Reservoir facility.
- It could not be established that heritage resources were impacted on by construction activities, cognisant of the fact that the site has already been altered prior to the commencement of construction of the reservoir.
- Surface and subterranean deposits at the site has been adversely affected and altered by historical, recent and current construction activities.
- Construction of the Annlin Reservoir is at such an advanced stage that the assessment of possible impacts on heritage resources would serve no aim, provided that the site is monitored to avoid possible heritage impacts during final stages of construction.

This recommendation is made subject to the following conditions:

- Since sensitive heritage receptors including Stone Age sites and Colonial Period sites such as the Fort Wonderboompoort Provincial Heritage site occur in the landscape immediately surrounding the Annlin Reservoir construction site, a watching brief monitoring process is proposed for all construction phases at the site. Should any subsurface paleontological, archaeological or historical material or heritage resources be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- Due cognisance should be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites in the area.
- Cognisance should be taken of the National Heritage Resources Act (Act No. 25 of 1999, section 38) and detailed guidelines pertaining to Cultural Resources Management and prospective developments (see attached summary).

Neels Kruger *Association of Southern African Professional Archaeologists (ASAPA) - Registered Archaeologist & Cultural Resources Practitioner.*
Archaeologist *BA, BA Hons. Archaeology (Pret.)*

GENERAL LEGISLATIVE FRAMEWORK

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of a site:

(i) exceeding 5 000 m^2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development."

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIA's) or scoping to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

- It must also be clear that Archaeological Specialist Reports (AIA's), Heritage Impact Assessment Reports (HIA's) and included motivations and recommendations will be assessed by the relevant heritage resources authority (SAHRA). The final decision as to heritage resources conservation, mitigation and destruction rests with the heritage resources authority. The close vicinity of the existing Fort Jackson cemetery should be regarded and impact on existing graves / burial places should be avoided at all times.

LIST OF REFERENCES

Acocks,J.P.H. 1988. Veld types of South Africa (3rd edition). Memoirs of the Botanical Survey of South Africa 57: 1-146

Bergh, J.S. 1999. Geskiedenisatlas van Suid-Afrika: die vier noordelike provinsies. Pretoria: J.L. van Schaik.

Deacon,J. 1996. Archaeology for Planners, Developers and Local Authorities. National Monuments Council. Publication no. P021E.

Deacon, J.1997. Report: Workshop on Standards for the Assessment of Significance and Research Priorities for Contract Archaeology. In: Newsletter No 49, Sept 1998. Association for Southern African Archaeologists.

Evers,T.M.1988. The recognition of Groups in the Iron Age of Southern Africa. PhD thesis. Johannesburg: University of the Witwatersrand.

Holm, S.E. 1966. Bibliography of South African Pre- and Protohistoric Archaeology. Pretoria: J.L. van Schaik

Huffman, T.N. 2007. Handbook to the Iron Age. Pietermaritzburg: University of Kwazulu-Natal Press

Maggs, TM.O. 1976. Iron Age Communities of the Southern Highveld. Pietermaritzburg: University of Natal Press.

Schlüter, T. 2005. Geological Atlas of Africa, with Notes on Stratigraphy, Tectonics, Economic Geology, Geohazards and Geosites of Each Country. London: Springer

Swanepoel, N. et al (Eds.) 2008. Five hundred years rediscovered. Johannesburg: Wits University Press

Van Vollenhoven, A.C. 1995. Die militere fortifikasies van Pretoria, 1880-1902. Pretoria: Heinekor, Pretoria

Van Warmelo N.J. 1935. A Preliminary Survey of the Bantu Tribes of South Africa. Ethnographic Publications No. 5. Pretoria: Government Printer.

Thackeray, A.I. 1992. The Middle Stone Age south of the Limpopo River. *Journal of World Prehistory* 6(4):385-440.

Human Tissue Act and Ordinance 7 of 1925, Government Gazette, Cape Town

National Resource Act No.25 of 1999, Government Gazette, Cape Town