

ARCHAEOLOGICAL IMPACT ASSESSMENT

FOR THE PROPOSED PHOSPHORIC ACID PLANT, STANDERTON,
MPUMALANGA

Prepared for
Terra Pacis Environmental (Pty) Ltd



HCAC - Heritage Consultants

Private Bag X 1049

Suite 34

Modimolle

0510

Tel: 082 373 8491

Fax: 086 691 6461

E-Mail: jaco.heritage@gmail.com

Report Author:

Mr. J. van der Walt

Project Reference:

216127

Report date:

December 2016

DOCUMENT PROGRESS
Archaeological Impact Assessment

Document status

Document Version	V2.0
Report Purpose	Final Report
Report Ref. No.	216127

Distribution List

Date	Report Reference number	Document Distribution	Number of Copies
2016/12/15	216127	Terra Pacis Environmental	Electronic copy

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CLIENT: Terra Pacis Environmental (Pty) Ltd

CONTACT PERSON: Paula Tolksdorff

LEADING CONSULTANT: Heritage Contracts and Archaeological Consulting
CC (HCAC)

CONTACT PERSON: Jaco van der Walt
Heritage Contracts and Archaeological Consulting
Professional Member of the Association of Southern
African Professional Archaeologist (#159)

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EXECUTIVE SUMMARY

Site name and Location:

The proposed Phosphoric Acid Plant site is located off R23 approximately 27km from Standerton on Portion 4 of the farm Holfontein 399 (S 26° 52' 11.25" E 29° 01' 51.79") in the Mpumalanga Province. The site falls within the jurisdiction of the Lekwa Local Municipality, which forms part of the greater Gert Sibande Municipality.

Purpose of the Study:

Phase 1 Archaeological Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed project on these resources within the study area.

1: 50 000 Topographic Map:

2629 CD.

EIA Consultant:

Terra Pacis Environmental (Pty) Ltd.

Contact person: Paula Tolksdorff

Tel: +27 11 44 77100

E –mail: paula@terrapacis.co.za

Developer:

Hi-Fos (Pty) Ltd

Heritage Consultant:

Heritage Contracts and Archaeological Consulting CC (HCAC).

Contact person: Jaco van der Walt

Tel: +27 82 373 8491

E –mail: jaco.heritage@gmail.com

Date of Report:

15 December 2016

Findings of the Assessment:

HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the National Heritage Resources Act of 1999 (NHRA) (Act 25 of 1999). as part of the Environmental Impact Assessment for the project. The results of the report demonstrate that there are and no archaeological features or artefacts recorded within the study area thus no mitigation prior to construction is recommended in terms of Section 35 for the proposed project to proceed.

In terms of the built environment of the area (Section 34 of the NHRA) no standing structures older than 60 years occur within the study area.

In terms of Section 36, of the NHRA, no burial sites were recorded in the study area. However if any graves are identified it is recommended that a qualified archaeologist is contacted for an assessment of the graves and the impact of the proposed project thereon.

The study area is surrounded by commercial agricultural developments and no significant cultural landscapes or viewsapes were noted during the fieldwork.

Due to the lack of significant heritage features in the study area there is from an archaeological point of view no reason why the project cannot commence based on approval from South African Heritage Resources Agency.

Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the Environmental Management Programme.

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ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BP: Before Present
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EAP: Environmental Assessment Practitioner
ESA: Early Stone Age
GPS: Global Positioning System
HCAC: Heritage Contracts and Archaeological Consulting CC
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MSA: Middle Stone Age
NHRA: National Heritage Resources Act of 1999 (Act 25 of 1999).
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRIS: South African Heritage Information System
SAHRA: South African Heritage Resources Agency
Sonskyn: Sonskyn Kunsmis (Pty) Ltd
Terra Pacis: Terra Pacis Environmental (Pty) Ltd

**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

Heritage Contracts and Archaeological Consulting CC (HCAC) was appointed by Terra Pacis Environmental (Pty) Ltd (Terra Pacis) to conduct an Archaeological Impact Assessment (AIA) for the proposed Phosphoric Acid Plant (proposed project) as part of the Environmental Impact Assessment (EIA) process.

The aim of the AIA or Heritage Impact Assessment (HIA) is to identify cultural heritage sites, document, and assess their importance within local, provincial and national context as per the National Heritage Resources Act of 1999 (NHRA) (Act 25 of 1999). 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 may be required to assist the developer in managing any discovered heritage resources in a responsible manner.

This report comprises:

- Phase 1 – Desktop Study.
- Phase 2 - Physical Survey.
- Phase 3 – Reporting on the outcome of Phase 1 and 2.

1.1 Terms of Reference

1.1.1 Phase 1 - Desktop Study

Conduct a brief desktop study where information on the area is collected to provide a background history of the area.

1.1.2 Phase 2 - Physical Survey

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

1.1.3 Phase 3 - Reporting

Report on the identification of anticipated and cumulative impacts the proposed project activity may have on the identified heritage resources for all 3 phases of the project; construction, operation and decommissioning. 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 Association of South African Professional Archaeologists (ASAPA).

And furthermore to assist the Hi-Fos (Pty) Ltd (the developer) in managing any discovered heritage resources in a responsible manner, and to protect, preserve, and develop such within the framework provided by the NHRA.

1.2 Archaeological Legislation and Best Practice

Phase 1, an AIA is a pre-requisite for development in South Africa as prescribed by the South African Heritage Resources Agency (SAHRA) and stipulated by the NHRA. 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; and
- Make recommendations for the appropriate heritage management of these impacts.

The AIA, as a specialist sub-section of the EIA, is required under the NHRA (Act 25 of 1999) and section 23(2)(b) of the National Environmental Management Act of 1998 (Act 107 of 1998).

The AIA should be submitted, as part of the EIA, to the Provincial Heritage Resources Authority (PHRA) if established in the province or to the SAHRA. The SAHRA will be ultimately responsible for the professional evaluation of the Phase 1 AIA reports upon which review comments will be issued.

'Best practice' requires the Phase 1 AIA report and additional development information, as per the EIA, to be submitted in duplicate to the SAHRA after completion of the study. The SAHRA will accept the Phase 1 AIA report authored by a professional archaeologist, accredited with the ASAPA or with a proven ability to undertake archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university Cultural Resource Management (CRM) experience (field supervisor level). Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with the SAHRA. The ASAPA is a legal body, based in South Africa, representing professional archaeology in the Southern African Development Community (SADC) region. The 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 study 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 the SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by the 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 impact on a site. Phase 2 excavations can only be conducted with a permit, issued by the SAHRA to the appointed archaeologist. Permit conditions are prescribed by the SAHRA and include (as minimum requirements) reporting back strategies to the SAHRA and deposition of

excavated material at an accredited repository. After mitigation of a site, a destruction permit must be applied for from the SAHRA by the developer before development may proceed.

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 the SAHRA, will suffice as minimum requirement.

Human remains older than 60 years are protected by the NHRA. Graves older than 60 years, but younger than 100 years fall under Section 36 of the NHRA, as well as the Human Tissues Act of 1983 (Act 65 of 1983), and fall under the jurisdiction of the SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5)) of the NHRA 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 the 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 of 1925 (Ordinance No. 7 of 1925), as well as the Human Tissues Act of 1983 (Act 65 of 1983), and fall under 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 Member of the Executive Council (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 the Human Tissues Act of 1983 (Act 65 of 1983).

1.3 Description of Study Area

1.3.1 Location Data

The proposed Phosphoric Acid Plant site (study area) is located off R23 approximately 27km from Standerton on Portion 4 of the farm Holfontein 399 (S 26° 52' 11.25" E 29° 01' 51.79") in the Mpumalanga Province (Figure 1). The study area falls within the jurisdiction of the Lekwa Local Municipality, which forms part of the greater Gert Sibande Municipality. Portion 4 of the farm Holfontein 399 surveyor general code is T0IS0000000039900004.

Although Portion 4 of the farm Holfontein 399 is currently zoned as agricultural, a historical brickwork (constructed in 1964, decommissioned in 1999), farm houses, a community settlement and other farming structures exist.

The study area is approximately 5ha in size and is situated approximately 300m south-east of the main farmstead on the farm Holfontein, with the Holfontein Dam on the eastern side and a quarry on the western side. The area slopes gently towards the Rietspruit; situated approximately 2km to the south of the study area. Majority of the study area is overgrown with scattered grass and alien invasive plant species (Figure 3 and 4). As a result of recent rains, water was observed in the south-eastern corner of the study area as the dam had extended into this area.



Figure 1: Locality Map indicating the proposed study area.

2 APPROACH AND METHODOLOGY

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

2.1 Phase 1 - Desktop Study

The first phase comprised desktop study and gathering of data to compile background history of the study area. It included scanning existing records for archaeological, historical and grave sites.

2.1.1 Literature Search

Utilising data from the archaeological database information was extracted on the study area, focusing on archaeological sites, historical sites and graves.

2.1.2 Information Collection

The South African Heritage Information System (SAHRIS) was consulted to obtain data from previously conducted CRM reports in the region to provide a comprehensive account of the history of the study area.

2.1.3 Consultation

No public consultation was conducted by HCAC however the land owner, Mr. A.B. Bowker, was consulted. Terra Pacis will undertake public participation as part of the EIA process.

2.1.4 Google Earth and Mapping Survey

Google Earth and 1:50 000 mapping of the study area was consulted to identify possible sites of heritage significance.

2.1.5 Genealogical Society of South Africa

The database of the Genealogical Society of South Africa was consulted to collect data on any known grave sites in the study area.

2.2 Phase 2 - Physical Survey

Due to the nature of cultural remains, the majority of which occur below surface, a field survey of the study area was conducted; focussing on drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The study area was surveyed by HCAC by means of vehicle and foot during the week of 10th December 2016. Track logs of the areas covered were taken (Figure 2).

2.3 Assumptions and Limitation

Due to the fact that most cultural remains occur below surface, the possibility exists that some features or artefacts may not have been discovered/recorded during the field survey. The possible occurrence of

unmarked/informal grave sites and other cultural material cannot be excluded. This study did not assess intangible issues.



Figure 2: Track logs of the areas surveyed indicated in light blue with the study area indicated in blue.

3 NATURE OF THE DEVELOPMENT

Sonskyn Kunsmis (Pty) Ltd (Sonskyn) supplies liquid and blended solid fertilisers to farms in the area around Standerton Mpumalanga. In this regard, Sonskyn purchase raw materials from suppliers throughout Southern Africa to produce the liquid fertiliser.

The solid raw materials currently used are potassium chloride, urea, mono-ammonium phosphate, limestone ammonium nitrate and zinc sulphate. These materials are presently dissolved in water and filtered to produce the liquid fertiliser formulations. Liquid raw materials used are phosphoric acid and ammonium nitrate solution.

In addition, raw material in the form of solid granules are blended in a scroll mixer to give solid granular fertiliser formulations.

The objective of the proposed Phosphoric Acid Plant (proposed project) is to construct and operate the following:

- Phosphoric Acid Plant.
- Calcium Ammonium Nitrate Plant.
- Pure Mono Ammonium Phosphate Plant.
- Mono Ammonium Phosphate Plant.
- solid granular fertiliser blending plant.
- Chicken manure/Gypsum granulation plant. (Gypsum Treatment).

Also, to move the Granular Fertiliser Blending Plant from Sonskyn in Standerton to the proposed project site (Portion 4 of the farm Holfontein 399).

One of the raw materials used by Sonskyn, phosphoric acid, is becoming increasingly difficult to procure. Accordingly, the developer is investigating the construction and operation of a Phosphoric Acid Plant and auxiliary plants to manufacture phosphoric acid, CNX, MAP 39, MAP 33 and a chicken manure/gypsum mix granular product. These products are for their own use and for sales.

Trailblazer Technologies (Pty) Ltd, a chemical engineering design company, is providing the Nitrophos Process technology to manufacture the phosphoric acid, and their own technology for the other products in this regard. The proposed project would produce phosphoric acid from phosphate rock sourced from Phalaborwa and nitric acid from Sasol.

4 PHASE 1 DESKTOP STUDY - HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Archaeological and Historical Information Available

This section will endeavour to give an account of the history of the regional and district in which the proposed project is located.

4.1.1 *Historiography and Methodology*

Sources for the history of the area surrounding the study area include secondary source material, maps, electronic sources and archival documents.

4.1.2 Historical Background of the Area

The Stone Age is divided in Early; Middle and Late Stone Age, namely the ESA, MSA and LSA. Stone was widely used to make implements with an edge, a point or a percussion surface. Stone Age artefacts include tools, which are used by the earliest modern humans of South Africa. Very few ESA sites are on record for Mpumalanga and there are no sites dating to this period are expected in the study area. An example where ESA tools have been discovered in Mpumalanga is at Maleoskop on the farm Rietkloof, which is one of only a handful of such sites in Mpumalanga.

The MSA has not been extensively studied in Mpumalanga, but evidence of this period has been excavated at Bushman Rock Shelter, a well-known site on the farm Klipfonteinhoek in the Ohrigstad district. This cave was excavated twice in the 1960s by Louw and later by Eloff. The MSA layers show that the cave was repeatedly frequented over a long period. Lower layers have been dated to over 40 000 Before Present (BP), while the top layers date to approximately 27 000 BP (Esterhuysen and Smith in Delius, 2007). MSA material is found widely across South Africa and some MSA manifestations can be expected in the study area.

The LSA began at around 20 000 years BP. This period was marked by numerous technological innovations and social transformations within these early hunter-gatherer societies. These homosapiens may be regarded as the first modern inhabitants of Mpumalanga, known as the San or Bushmen. The San were a nomadic people who lived together in small family groups and relied on hunting and gathering of food for survival. Evidence of their existence is to be found in numerous rock shelters throughout the Eastern Mpumalanga, where some of their rock art is still visible. A number of these shelters have been documented throughout the Province (Schoonraad in Barnard, 1975; Bornman, 1995 and Delius, 2007). These include areas such as Witbank, Ermelo, Barberton, Nelspruit, White River, Lydenburg and Ohrigstad.

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

- The Early Iron Age (EIA): Most of the first millennium AD.
- The Middle Iron Age (MIA): 10th to 13th centuries AD
- The Late Iron Age (LIA): 14th century to colonial period.

The Iron Age is characterised by the ability of these early humans to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. No sites dating to the EIA or MIA have been recorded or are expected in the study area. The same can be said for the Later Iron Age period, where the study area is situated outside the southern periphery of distribution of LIA settlements in Mpumalanga. This phase of the Iron Age (AD 1600-1800's) is represented by various tribes including Ndebele, Swazi, BaKoni, Pedi marked by extensive stonewalled settlements found throughout the Mpumalanga escarpment.

Iron Age sites have been identified to the north of the area, around Bethal (Geschiedenisatlas van Suid-Afrika 1999: 6-7). These all are dated to the LIA. It is also known that the early trade routes did not run through this area (Geschiedenisatlas van Suid-Afrika 1999: 9).

By the start of the nineteenth century no major African tribes seem to have settled very close to where study area is located today, however the Phuthing Tribe was prominent in the area to the north thereof. (Geschiedenisatlas van Suid-Afrika 1999: 10)

In a few decades, the sociographic nature of the then Transvaal province would go under a radical change. The Difaqane (Sotho), or Mfekane (“the crushing” in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820’s until the late 1830’s (Geschiedenisatlas van Suid-Afrika 1999: 109-115). These upheavals occurred in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka’s Zulus to attack other tribes (Geschiedenisatlas van Suid-Afrika 1999: 14; 116-119). Mzilikazi and his raiders had moved from the Northern Nguni area to the area north of the Vaal River by 1821. It has been recorded that the Ndebeles first attacked the Phuthing tribe, which in turn migrated to the south of the Vaal River and joined groups of Southern Sotho speakers. The Phuthing and Southern Sotho tribes moved westward and northward and started raiding Tswana communities in the surrounding area. The Phuthing were commanded first by Chief Tshane, and later Ratsebe. As the Phuthing, under Ratsebe, moved eastwards along the Vaal River, they collided with Mzilikazi’s Ndebele once more. Mzilikazi’s men finally took the Phuthing and other raiding groups captive in 1823 (Geschiedenisatlas van Suid-Afrika 1999: 110-111). It is unlikely that these events would have had a great influence on the study area; however, it is still important to understand the social dynamics of the larger area.

During the time of the Difaqane, a northwards migration of European settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa – some as early as in the 1720’s. Robert Scoon was one of the adventurers who formed part of a group of Scottish travellers and traders who had travelled the northern provinces of South Africa in the late 1820s and early 1830s. Scoon had gone on two long expeditions in the late 1820s and once again ventured eastward and northward of Pretoria in 1836. During the latter journey, Scoon passed by the area, which is now known as Witbank (Geschiedenisatlas van Suid-Afrika 1999: 13, 116-121).

By the late 1820’s, a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to growing feelings of dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek.

The first Voortrekker groups of Hans van Rensburg and Louis Tregardt also passed close to this area (Geschiedenisatlas van Suid-Afrika 199: 13-14). The first European farmers only settled here during the late 1850’s.

This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent (Ross 2002: 39). As can be expected, the movement of Europeans into the northern provinces would have a significant impact on the African people who populated the South Africa. By 1860, the population of Europeans in the central Transvaal was already very dense and the administrative machinery of their leaders was firmly in place. Many of the policies that would later be entrenched as legislation during the period of apartheid had already been developed (Geschiedenisatlas van Suid-Afrika 1999: 170).

The discovery of diamonds and gold in the northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonised the Cape and Natal, had intentions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa’s history. Even before the outbreak of war in October 1899, British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain’s differences with the

Zuid-Afrikaanse Republiek result in violence, it would mean the end of republican independence. This decision was not immediately publicised, and as a consequence, republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was, however, a clear statement of British war aims (Du Preez 1977).

The Anglo-Boer war also affected the area in which the study area is located. In A Gazetteer of the Second Anglo-Boer War. 1899-1902., it is noted that the Bethal District to the north of the study area, provided a commando for the Boer forces. Among those on commando were Commandant P. J. Greyling, Commandant D. J. J. Breytenbach and Commandant H. S. Grobler. Lieutenant-General J. D. P. French commanded the British forces in this district. French's march towards the Bethal District stretched over an area of 173 miles of country destitute of supply depots, and he was therefore obliged to travel with a company of 155 wagons drawn by 1 480 oxen. The journey proved to be a very hard one, as the grazing lands had not recovered from the winter draughts and provided little nourishment for the oxen. It was French's intention to move on a broad front with Mahon and Gordon's brigades in advance and Dickson's brigade and the convoy in the rear. Mahon reach Geluk on 12th October 1900, and Gordon and Dickson marched towards the Komati River on the following day. Mahon was however driven back by Tobias Smuts, who attacked the regiment with a thousand men of the Ermelo and Carolina Boer commandos. French was also constantly harassed on the flanks and front, but was able to reach Ermelo by 18th October 1900. By that time, the regiment had lost 500 oxen due to starvation and exhaustion. French moved onwards in the direction on Bethal, while being constantly attacked by Boer guerrilla forces. Bethal was occupied on the 20th of October 1900 and French ended his march at Heidelberg on the 26th October 1900. Bethal was never regularly garrisoned during the occupation. In the fortnight, French had suffered about 100 casualties, and had lost 320 horses, 1230 oxen and 55 wagons, while only 49 Boers surrendered voluntarily and only 9 men had been taken captive. (Jones, H. M. & Jones G. M. 1999: 17; The Times History of the War in South Africa 1899-1902 1907: 48-49)

4.2 Previous Studies

Limited previous AIA or HIA studies are on record for the study area. The following two studies consulted fall in the immediate vicinity of the study area; Van Schalkwyk (2007) and Van Vollenhoven (2016). Van Schalkwyk (2007) recorded historical buildings and Van Vollenhoven (2016) recorded graves.

4.3 Consultation

Mr. A. B. Bowker was interviewed and confirmed his grandfather commenced with the brickworks during 1964. Additional buildings and structures were constructed by his father during 1979 with the works being closed in 1999. Mr. A. B. Bowker noted that he was unaware of any graves or sites of heritage value/significance within the study area.

4.4 Genealogical Society of South Africa and Google Earth

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.

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 study area, or a representative sample, depending on the nature of the project. In the case of the proposed development the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section 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 deposits;
- 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/is known);
- The preservation condition of the sites; and
- Potential to answer present research questions.

Furthermore, the NHRA Section 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:

- Its importance in/to the community, or pattern of South Africa’s history;
- Its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- Sites of significance relating to the history of slavery in South Africa.

5.1 Field Rating of Sites

Site significance classification standards prescribed by the SAHRA (2006), and approved by the 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	Grade 2	-	Conservation; provincial site

Significance (PS)				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

6 PHASE 2 PHYSICAL SURVEY - DESCRIPTION OF SITE

The farm Holfontein and surrounding properties are commercial farms with their main focus being the production of maize. During the time of the site visit the ploughing of fields and planting of crops were observed.

The study area is approximately 5ha in size and is situated approximately 300m south-east of the main farmstead on the farm Holfontein, with the Holfontein Dam on the eastern side and a quarry on the western side. The area slopes gently towards the Rietspruit; situated approximately 2km to the south of the study area. Majority of the study area is overgrown with scattered grass and alien invasive plant species (Figure 3 and 4). As a result of recent rains, water was observed in the south-eastern corner of the study area as the dam had extended into this area.

The derelict remains of the historical clay brickworks (constructed in 1964, decommissioned in 1999) occupy the northern section of the study area. This facility occupies most of the northern quarter of the study area. It consists of various buildings and structures used during the brick manufacturing process (Figure 5 and 6). These include workshops and yards for the moulding and shaping of the bricks, drying ovens for drying of the bricks and extensive kilns for the firing of the bricks. A large tower assisted in achieving the precise temperature during the firing of the bricks. The material for the manufacturing of the bricks was extracted from a clay quarry to the west of the study area. A large section of the study area is paved with bricks (Figure 8), which were manufactured on site. These structures are not of any heritage significance and no further action is necessary for this aspect.

Two fenced off farm silos are situated in the north-western corner of the study area and will remain part of the current farming operations. An operational pump station, at the Holfontein Dam, just outside the southern extent of the study area was constructed some 20 to 30 years ago.

During the field survey, there was no evidence of graves or cemeteries in the study area.

No Stone Age sites associated with caves, outcrops/hills and river courses are known to exist or to have been recorded in the study area possibly due to the lack of raw material suitable for knapping. Similarly, there has been no Iron Age material recorded in the study area or within any of the other surveys conducted in the immediate vicinity of the study area (Van Schalkwyk 2007 and Van Vollenhoven 2016).



Figure 3: General site conditions.



Figure 4. General site conditions from the north east.



Figure 5. Drying ovens associated with the historical brickworks.



Figure 6. Firing kilns associated with the historical brickworks.



Figure 7: Historical ash dumps.



Figure 8: Brick paving in the study area.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Phase 3 - Reporting

HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the NHRA as part of the EIA for the project. The results of the report demonstrate that there are and no archaeological features or artefacts recorded within the study area thus no mitigation prior to construction is recommended in terms of Section 35 for the proposed project to proceed.

In terms of the built environment of the area (Section 34 of the NHRA) no standing structures older than 60 years occur within the study area.

In terms of Section 36, of the NHRA, no burial sites were recorded in the study area. However if any graves are identified it is recommended that a qualified archaeologist is contacted for an assessment of the graves and the impact of the proposed project thereon.

The study area is surrounded by commercial agricultural developments and no significant cultural landscapes or viewsapes were noted during the fieldwork.

Due to the lack of significant heritage features in the study area, there is, from an archaeological point of view, no reason why the project cannot commence based on approval from SAHRA.

Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the Environmental Management Programme.

7.2 Chance Find Procedure

In the unlikely event that during construction any possible finds such as stone tool scatters, possible graves or fossil remains are made, the construction operations must stop and a qualified archaeologist contacted for an assessment of the find.

It is recommended that chance find procedure be put in place during the construction period as described below.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures. Personnel must be inducted to ensure they are fully aware of the procedures regarding a chance find as discussed below.

- If during the construction, operations or decommissioning phases of the proposed project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site manager will inform the Environmental Control Officer (ECO) of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the find and required reporting of such.

7.3 Reasoned Opinion

If the above recommendations are adhered to and based on approval from SAHRA, HCAC is of the opinion that the development can continue as the development will not impact negatively on the archaeological record of the area. If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded, but can be easily mitigated by preserving the sites in-situ within the development.

8 PROJECT TEAM

Jaco van der Walt, Project Manager and Archaeologist
Liesl Bester, Archival Study

9 STATEMENT OF COMPETENCY

I Jaco van der Walt from Heritage Contracts and Archaeological Consulting, Professional Member of the Association of Southern African Professional Archaeologist (#159) have the suitable expertise and experience to complete the AIA study at a high level of scientific quality.

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