

Archaeological Impact Assessment

For the Clulee (Linbro Park East) and The Reid (Linbro Park West) Developments,
Modderfontein, Gauteng

Prepared For
LEAP Environmental

By



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VERSION 1.0
18 June 2015

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



SIGNATURE: _____

EXECUTIVE SUMMARY

Site name and location:

The development consists of two proposed developments.

The Clulee (Linbro Park East) is located on Holding 30, Holding 31, Holding 32 and Holding 33 Linbro Park Agricultural Holdings.

The Reid (Linbro Park West) located on Holding, 20, Portion 1 of Holding 20, Holding 21, Holding 22, Holding 23, Holding 27, Holding 28 and Holding 29 Linbro Park Agricultural Holdings

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

1:50 000 Topographic Map: 2628 AA

Environmental Consultant: Leap Environmental

Developer: Balwin Properties.

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

Contact person: Jaco van der Walt Tel: +27 82 373 8491

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Date of Report: 18 June 2015

Findings of the Assessment:

The study area was assessed in terms of the archaeological component of Section 35 of the NHRA and no surface indicators of archaeological (Stone or Iron Age) material was identified in the study area and therefore the impact by the proposed development on archaeological resources is considered to be of low significance. Furthermore the area is of low paleontological sensitivity and there for the development is not seen to have a negative impact on Section 35 resources of the area.

In terms of the built environment of the area (Section 34), various structures occur in the proposed development footprint mostly being used as residential dwellings. Some of these buildings might possibly be older than 60 years or approaching the sixty year clause and would then be protected under the NHRA. Please refer to section 7 of this report for recommendations

If during construction any archaeological finds are made (e.g. stone tools, ceramics or skeletal material), the operations must be stopped, and an archaeologist must be contacted for an assessment of the find.

General

Due to the subsurface nature of heritage artefacts, the possible occurrence of unmarked or informal graves and other finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

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

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- The results of the project;
- The technology described in any report;
- Recommendations delivered to the Client.

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ABBREVIATIONS

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

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

GLOSSARY

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

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

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

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

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 BACKGROUND INFORMATION

<i>Kind of study</i>	Archaeological Impact Assessment
<i>Type of development</i>	Township Development
<i>Developer:</i>	Balwin
<i>Consultant:</i>	Leap Environmental

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

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

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

During the survey no archaeological sites were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the SAHRA for peer review.

1.1 Terms of Reference

Desktop study

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

Field study

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

Reporting

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

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

1.2. Archaeological Legislation and Best Practice

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

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

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

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

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

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the

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

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

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

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

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

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

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

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

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

1.3 Description of Study Area

1.3.1 Location Data

The Clulee (Linbro Park East) located on Holding 30, Holding 31, Holding 32 and Holding 33 Linbro Park Agricultural Holdings and the Reid (Linbro Park West) located on Holding, 20, Portion 1 of Holding 20, Holding 21, Holding 22, Holding 23, Holding 27, Holding 28 and Holding 29 Linbro Park Agricultural Holdings, Gauteng Province.

The topography of the area is flat and the study area falls within the bioregion described by Mucina *et al* (2006) as Mesic Highveld Grassland Bioregion with the vegetation described as Egoli Granite Grassland. The surrounding area is extensively developed as part of residential developments.

1.3.2. Location Map

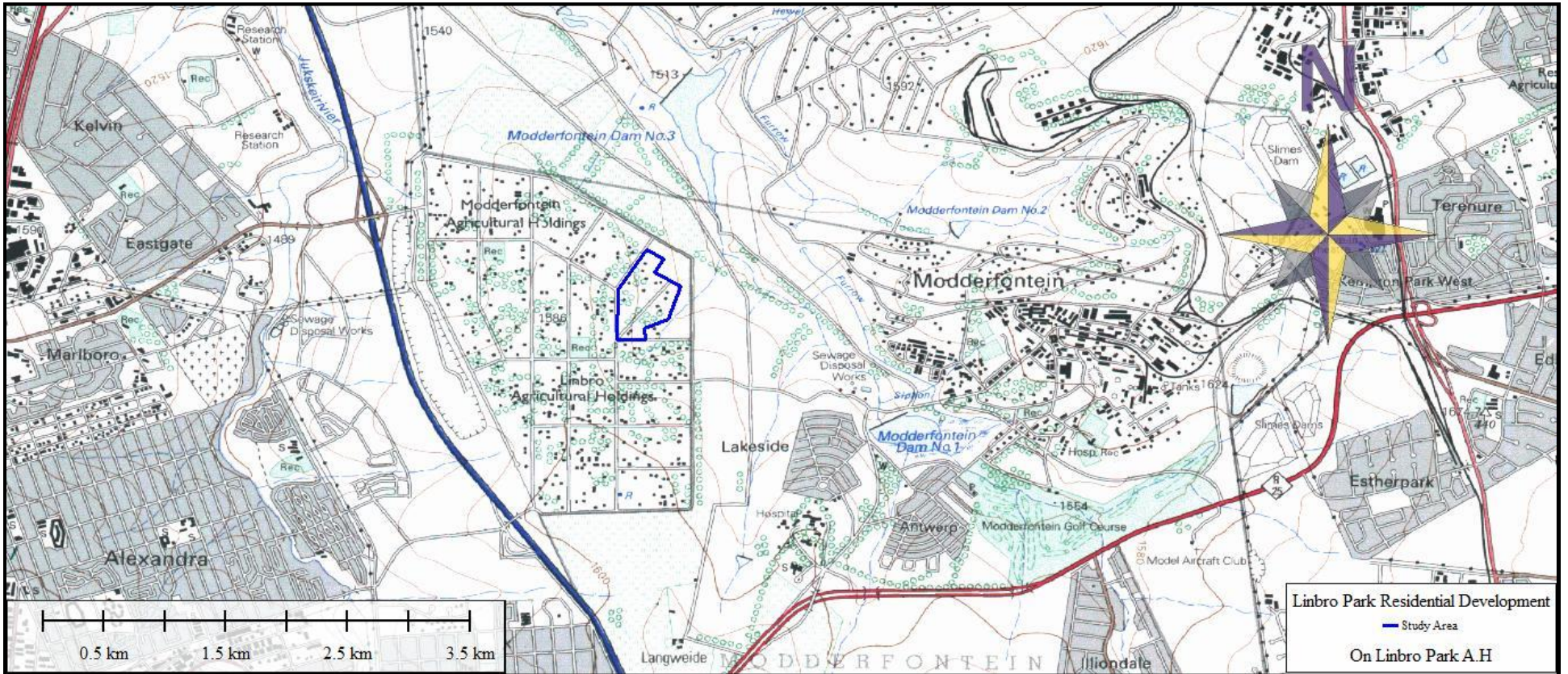


Figure 1: Study area.

2. APPROACH AND METHODOLOGY

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

2.1 Phase 1 - Desktop Study

The first phase comprised a desktop study, gathering data to compile a background history of the area in question. It included scanning existing records for archaeological sites, historical sites and graves, on the inhabitants of the area.

2.1.1 Literature Search

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

2.1.2 Information Collection

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

2.1.3 Consultation

No consultation was conducted by the heritage team as this is conducted as a separate process as part of the BA.

2.1.4 Google Earth and Mapping Survey

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

2.1.5 Genealogical Society of South Africa

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

2.2 Phase 2 - Physical Surveying

Due to the nature of cultural remains, the majority of which occurs below surface, a field survey of the study area of 21 Ha was conducted; focussing on drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The study area was surveyed on foot by a professional archaeologist on 23 April 2015.

2.3. Restrictions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Low archaeological visibility is due to extensive ground disturbance, illegal dumping and vegetation, and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as unmarked graves, stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

3. NATURE OF THE DEVELOPMENT

The development comprises a residential development with associated uses.

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Databases Consulted

Archaeological Data Bases

Several sites are on record for the larger geographical area at the Wits database. These sites consist of Stone Age (ESA & LSA) sites and Historic remains. None of these sites are located within or close to the project area but provide a background of to the sites that can be expected.

SAHRA Report Mapping Project and SAHRIS

Several previous studies are on record for the general study area (Mason 1997, Huffman 1999 and Bosman 2010). Mason conducted excavations for the boulders shopping centre approximately 10 km North of the current study area and found occupation levels dating to the Stone, Iron Age and historic periods. Huffman conducted an AIA for a residential development at Blue Hills A.H approximately 7.5 km north west of the study area and recorded LSA sites and historic buildings. Bosman conducted a heritage study in the Modderfontein area and recorded numerous historic structures. Other studies consisted of Hall (1997) and van Schalkwyk (2006).

Genealogical Society and Google Earth Monuments

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

4.2 Archaeological and Historical Information Available on the Study Area

This section will endeavour to give an account of the history of this area and also a brief overview of the history of the wider area in which the study area is located.

4.2.1. Archival Map Of The Area Under Investigation

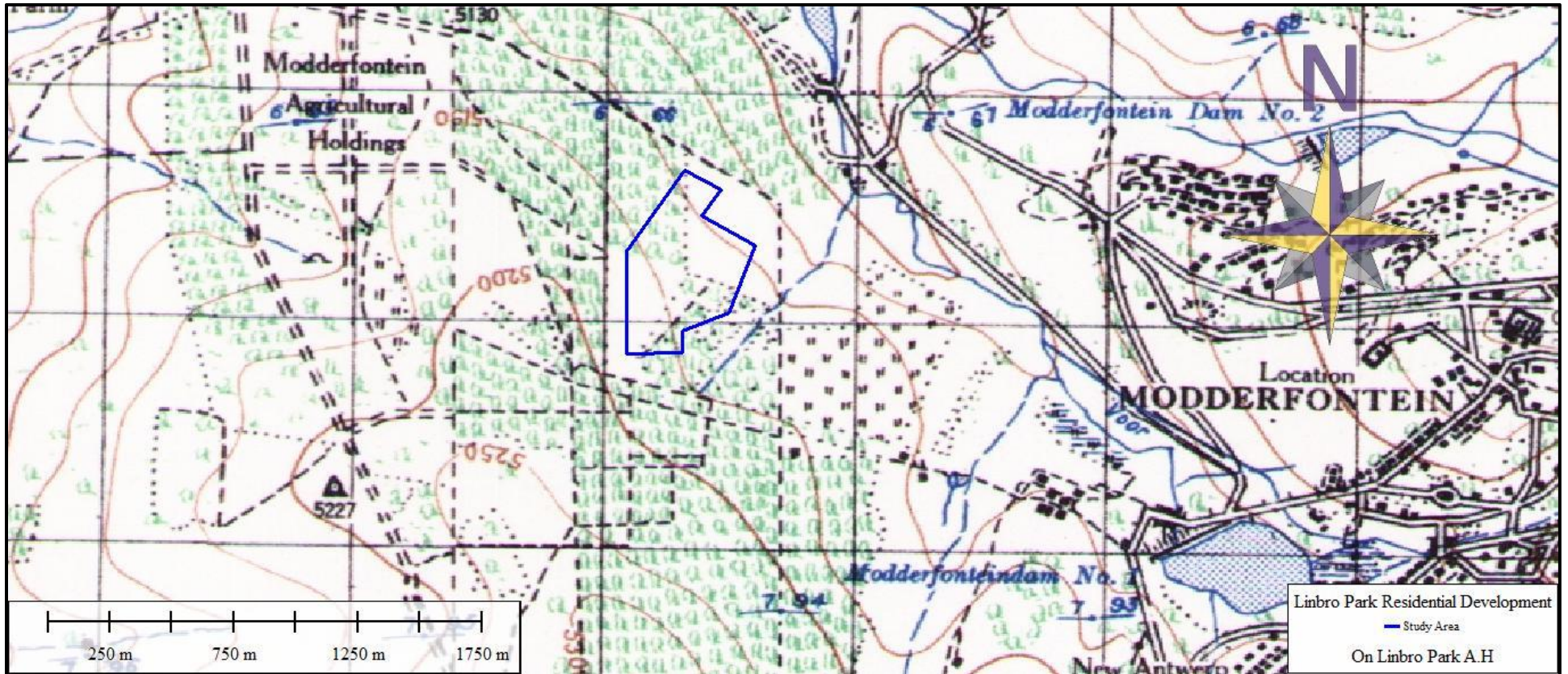


Figure 2: Enlarged section of the topographical map that was drawn in 1944

S.G.N. 9A 1765/44
GENERAL PLAN OF LINBRO PARK AGRICULTURAL HOLDINGS

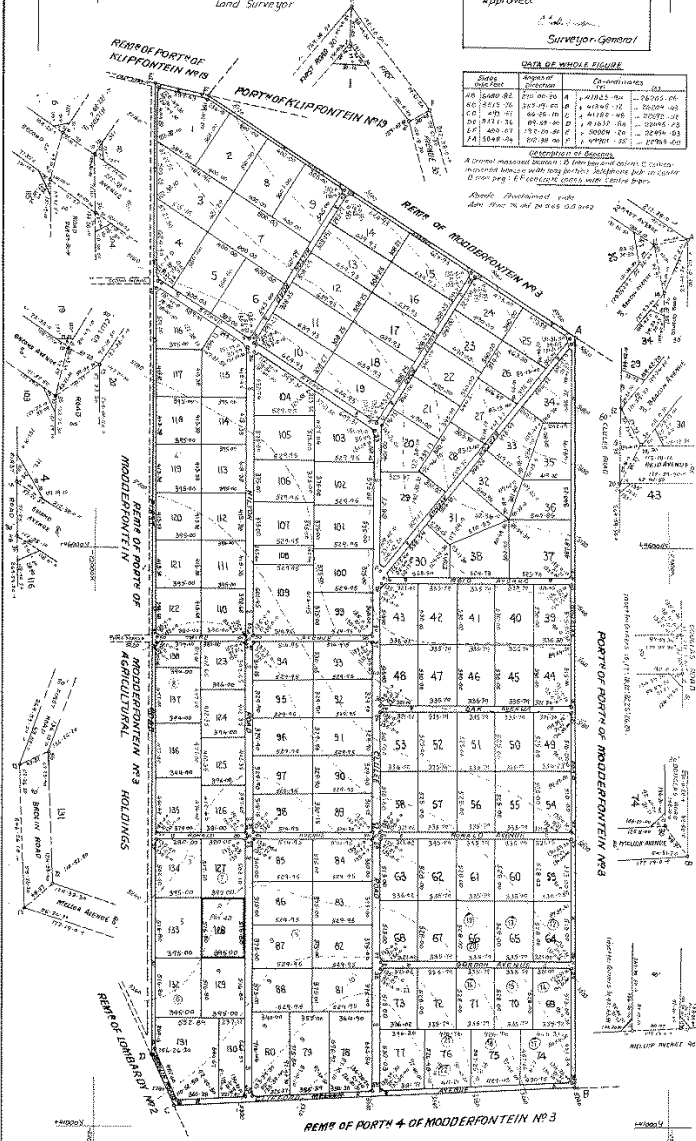
The figure lettered A B C D E F represents Linbro Park Agricultural Holdings in Extent 331-9413 Morgan, comprising 138 Holdings numbered 1-138 and Roads, situated on Portion 13 of the Farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844.

The Bearings of each Holding represented on this Plan are in accordance with Regulation and have been placed under my supervision.
 Surveyed in Jan. 1942 - Dec. 1943 by me
 J. G. B. B. L.
 Land Surveyor

Approved
 Surveyor-General

DATA RE WHOLE FIGURE

Serial Number	Area (Acres)	Comments
1	0.1867	1-2-2825-294
2	0.1867	1-2-2825-294
3	0.1867	1-2-2825-294
4	0.1867	1-2-2825-294
5	0.1867	1-2-2825-294
6	0.1867	1-2-2825-294
7	0.1867	1-2-2825-294
8	0.1867	1-2-2825-294
9	0.1867	1-2-2825-294
10	0.1867	1-2-2825-294
11	0.1867	1-2-2825-294
12	0.1867	1-2-2825-294
13	0.1867	1-2-2825-294
14	0.1867	1-2-2825-294
15	0.1867	1-2-2825-294
16	0.1867	1-2-2825-294
17	0.1867	1-2-2825-294
18	0.1867	1-2-2825-294
19	0.1867	1-2-2825-294
20	0.1867	1-2-2825-294
21	0.1867	1-2-2825-294
22	0.1867	1-2-2825-294
23	0.1867	1-2-2825-294
24	0.1867	1-2-2825-294
25	0.1867	1-2-2825-294
26	0.1867	1-2-2825-294
27	0.1867	1-2-2825-294
28	0.1867	1-2-2825-294
29	0.1867	1-2-2825-294
30	0.1867	1-2-2825-294



AREAS OF HOLDINGS

NO.	AREA (ACRES)	HOLDING NO.	AREA (ACRES)	HOLDING NO.	AREA (ACRES)
1	0.1867	1	0.1867	1	0.1867
2	0.1867	2	0.1867	2	0.1867
3	0.1867	3	0.1867	3	0.1867
4	0.1867	4	0.1867	4	0.1867
5	0.1867	5	0.1867	5	0.1867
6	0.1867	6	0.1867	6	0.1867
7	0.1867	7	0.1867	7	0.1867
8	0.1867	8	0.1867	8	0.1867
9	0.1867	9	0.1867	9	0.1867
10	0.1867	10	0.1867	10	0.1867
11	0.1867	11	0.1867	11	0.1867
12	0.1867	12	0.1867	12	0.1867
13	0.1867	13	0.1867	13	0.1867
14	0.1867	14	0.1867	14	0.1867
15	0.1867	15	0.1867	15	0.1867
16	0.1867	16	0.1867	16	0.1867
17	0.1867	17	0.1867	17	0.1867
18	0.1867	18	0.1867	18	0.1867
19	0.1867	19	0.1867	19	0.1867
20	0.1867	20	0.1867	20	0.1867
21	0.1867	21	0.1867	21	0.1867
22	0.1867	22	0.1867	22	0.1867
23	0.1867	23	0.1867	23	0.1867
24	0.1867	24	0.1867	24	0.1867
25	0.1867	25	0.1867	25	0.1867
26	0.1867	26	0.1867	26	0.1867
27	0.1867	27	0.1867	27	0.1867
28	0.1867	28	0.1867	28	0.1867
29	0.1867	29	0.1867	29	0.1867
30	0.1867	30	0.1867	30	0.1867

REMARKS:
 All corners of blocks are iron pegs in wells of standard section. Old Bearing Boreholes and
 Indications (M.S. 1-17) and cross-pegs in the corners of 4 ft. squares
 are shown. Corner lines are shown with the following bearings: 90° 0' 0"
 (or 270° 0' 0") where shown - from the iron pegs.
 All angles are shown in degrees. 100 feet are to be used in all cases.
 Block corners, where shown, are set back 15 feet from the intersection of street lines, unless otherwise shown.
 Bearings West are to 360° 0'.

FILE NO. 12042
 Survey Records No. 493-44
 Consolidation No. 69-124-1

- 1. Holding 28 enclosed New known as Parcel 28 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
- 2. Holding 28 enclosed New known as Parcel 28 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
- 3. Holding 33 enclosed New known as Parcel 33 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
- 4. Holding 33 enclosed New known as Parcel 33 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
- 5. Holding 33 enclosed New known as Parcel 33 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
- 6. Holding 33 enclosed New known as Parcel 33 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
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- 14. Holding 33 enclosed New known as Parcel 33 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15
- 15. Holding 33 enclosed New known as Parcel 33 of the farm Modderfontein No. 3, District of Germiston, Province of Transvaal, see Diagram S.G.N.A 17742 relating to Certificate of Consolidated Title No. 17500/1844. Page 14, 15

Figure 3: 1944 plan of Linbro Park AH

4.2.2. Background history of the area

Excavations by Mason (1997) at the Boulders shopping centre (approximately 10 km to the north of the current study area) was aimed at interpreting the cultural layering of the Midrand area and provides a good platform for understanding the cultural use of the landscape in this area. He identified 7 occupational layers in his excavations that can be broadly divided into Stone Age, Iron Age and historical occupations.

The Stone Age can be divided in three main phases as follows;

- Later Stone Age; associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago
- Middle Stone Age; associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

Remains dating to all three of these phases were identified by Mason at the Boulders shopping Centre site, MSA and LSA material was also recorded at Glenn Ferness cave. The Iron Age of the region consists of Tswana speaking people who settled the area from the early 16th century.

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. (Bergh 1999: 10) It came about 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. (Bergh 1999: 14; 116-119) It seems that, in 1827, Mzilikazi's Ndebele started moving through the area where Johannesburg is located today. This group went on raids to various other areas in order to expand their area of influence. (Bergh 1999: 11).

During the time of the Difaqane, a northwards migration of white 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 already as early as the 1720's. It was however only by the late 1820's that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. 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) By 1939 to 1940, farm boundaries were drawn up in an area that includes the present-day Johannesburg and Krugersdorp. (Bergh 1999: 15).

4.2.3. History of Modderfontein

Modderfontein village was established in 1894 to meet the dynamite need of the gold mining industry brought on by underground mining (<http://www.modderfonteinreserve.co.za/>). The Modderfontein Dynamite Factory was officially opened by President Paul Kruger of the Transvaal Republic in April 1896, it was situated about 20 km north-east of Johannesburg in order to ensure it is a safe distance from human habitation due to the hazardous nature of its operations (<https://modderconserve.wordpress.com>).

Germans were responsible for building the original factory. A cosmopolitan labour force was recruited from all over Europe. Villages with names depicting the residents' countries of origin were established around the factory.

Three years after the factory began production, the Anglo-Boer War broke out in October 1899 and the role of the factory was greatly changed. Within a matter of months the factory became the munitions supplier to the two Boer Republics, making propellants for the big guns and cartridges by the hundred thousand for rifles and hand guns (<https://modderconserve.wordpress.com>).

General J R P Morgan and the 3rd Cavalry Brigade occupied Modderfontein in 1900. Soon afterward, a 'peacekeeping' force called the South African Constabulary was formed under the command of Major-General Baden-Powell. Modderfontein became the South African Constabulary's first depôt and Baden-Powell's headquarters (<https://modderconserve.wordpress.com>).

After the war the old explosives company was liquidated and reconstituted with a British parent headquartered in London. It was now called the British South African Explosives Company. The majority of shares were held by the Nobel Trust and its subsidiary companies (<https://modderconserve.wordpress.com>).

Various heritage buildings have been retained in Modderfontein, these include The Modderfontein Dynamite Company Museum (constructed in 1895 this was originally the residence of first chief engineer, it has served as a museum since 1987), Franz Hoenig Haus (first factory manager's house, constructed in 1896), the Casino (established for recreational requirements in 1897) and 33 High Street (the assistant factory manager's house constructed in 1897) (<http://www.modderfonteinreserve.co.za/>).

The proposed development will not have any impact on the historical Modderfontein Reserve or Modderfontein Village.

5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the 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;
- » Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- » 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;
- » Sites of significance relating to the history of slavery in South Africa.

5.1. Field Rating of Sites

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

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

6. BASELINE STUDY-DESCRIPTION OF SITES

The study area measures less than 22 hectares and is easily accessible from either Reid Avenue or Clulee road in Modderfontein (Figure 5). Current land use is residential although two stands are vacant and do not have any buildings on them. The other properties are characterised by residential dwellings and outbuildings, these residential dwellings are still in use and many of the properties are characterised by a manicured & maintained landscape. Most of the stands have tennis courts and swimming pools. The properties are all fenced off and for the purposes of this report site descriptions are general, specific to the area, inclusive of all the small holdings.

The study area falls in a densely developed urban area and construction activities in the area together with current land use (manicured gardens) would have impacted on any surface indications of archaeological material. This was confirmed during the survey as no sites relating to the Stone Age, Iron Age or graves were noted.

In terms of the built environment of the area 10 of the 12 small holdings have residential dwellings and associated outbuildings on the holdings, the other two are empty, overgrown stands. Most of the buildings are modern pitched tile roof buildings with face brick plinths and stone clad chimneys. Archival maps dating to 1943 of the area (Figure 2) indicated no features, settlements or major roads within the study area at that time. Plans from 1944 (Figure 3) indicate that Linbro Park Agricultural Holdings was only established (sub divided) in 1944. Aerial photographs taken in 1952 (Figure 4) indicate possible structures in the north western part of the study area as well as just south of these with possible access roads. If these structures are still standing they would be protected by the Heritage Act. If any of the other buildings in the area was constructed between 1952 and 1955 these would be protected by law and would require a demolition permit.

According the paleontological sensitivity map on SAHRIS the study area is located in an area of low paleontological sensitivity and therefor this report only includes a protocol for possible finds



Figure 4: 1952 aerial photograph of the study area.



Figure 5: Study area in blue with track logs of the areas covered



Figure 6. Typical landscaped garden.



Figure 7. Typical residential dwelling in study area.



Figure 8. Open stand.



Figure 9. Modern dwelling in study area.

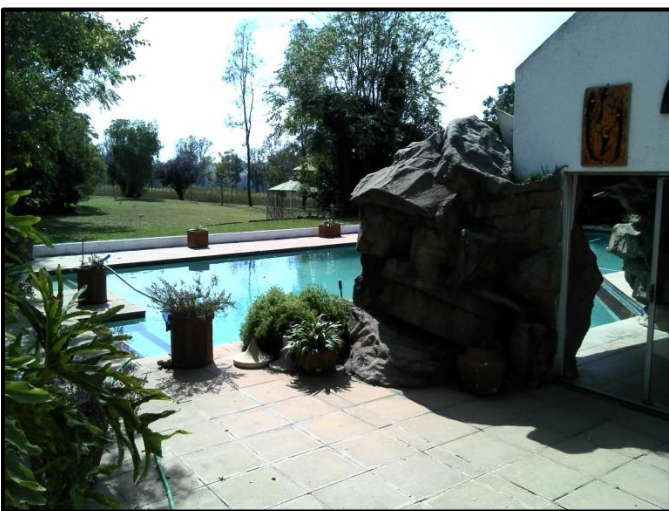


Figure 10: Main dwelling with swimming pool



Figure 11: tennis courts



Figure 12. Horse stables.



Figure 13. Residential dwelling.



Figure 14. Manicured gardens.



Figure 15. Overgrown open stand.

7. CONCLUSIONS AND RECOMMENDATIONS

The proposed residential development located in Linbro Park Agricultural Holdings will be less than 22 ha in extent. The study area is located on twelve agricultural holdings referred to as the Reid and the Clulee developments. For the purposes of this report both developments are referred to as Linbro Park.

As part of the Basic Assessment for the development HCAC was commissioned to conduct a Phase 1 Archaeological Impact Assessment of the development area. The study area was assessed in terms of the archaeological component of Section 35 of the NHRA and no surface indicators of archaeological (Stone or Iron Age) material was identified in the study area and therefore the impact by the proposed development on archaeological resources is considered to be of low significance. Furthermore the area is of low paleontological sensitivity and there for the development is not seen to have a negative impact on Section 35 resources of the area.

In terms of the built environment of the area (Section 34), various structures occur in the proposed development footprint mostly being used as residential dwellings. Some of these buildings might possibly be older than 60 years or approaching the sixty year clause and would then be protected under the NHRA. A demolition permit will then be required for these structures. It is therefore recommended that a built environment survey is conducted of the structures in the development footprint, and will constitute a second phase of study.

From an archaeological point of view there is no compelling reason why the development cannot commence work (based on approval from SAHRA).

If during construction, any archaeological finds are made (e.g. stone tools, fossils or skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds.

9. PROJECT TEAM

Jaco van der Walt, Project Manager

10. STATEMENT OF COMPETENCY

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

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique and Tanzania as well as the DRC; having conducted more than 300 AIAs since 2000.

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