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Heritage Impact Assessment for the proposed Sammy Marks mixed-used development

Remainder of Portion 2 of the Farm Zwartkoppies 364 JR, City of Tshwane Metropolitan Municipality, Gauteng Province



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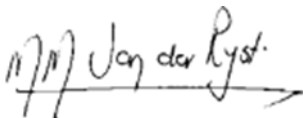


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List of acronyms

AIA	Archaeological Impact Assessment
ASAPA	Association of Southern African Professional Archaeologists
BAR	Basic Assessment Report
BP	Before Present
CCS	Cryptocrystalline silicas
CFP	Chance Finds Procedure
CRM	Cultural Resources Management
DEA	Department of Environmental Affairs
EAA	Environmental Authorisation Application
EAP	Environmental Assessment Practitioner
EIA	Early Iron Age
ESA	Earlier Stone Age
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
EIA	Environmental Impact Assessment
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HBEIA	Heritage Built Environment Impact Assessment
HMF	Heritage Management Framework
HMP	Heritage Management Plan
ICOMOS	International Council on Monuments and Sites
LCTs	Large Cutting Tools
LIA	Late Iron Age
LMS	London Missionary Society
LOM	Life of Mine
LSA	Later Stone Age
MPRDA	Mineral and Petroleum Resources Development Act (No. 28 of 2002)
MRA	International Council on Monuments and Sites
MSA	Middle Stone Age
NEMA	National Environmental Management Act (No. 107 of 1998)
NHRA	National Heritage Resources Act (No. 25 of 1999)
OES	Ostrich Eggshell
PHRAs	Provincial Heritage Resources Authorities
SACLAP	South African Council for the Landscape Architectural Profession
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
ToR	Terms of Reference

1 Background information on the project¹

(a) Whether the report is part of a scoping report/EIA/HIA or not:

A positive ROD was issued 30 May 2018 by GDARD, reference number GAUT 002/16-17/E0112. A Part 1 ROD Amendment was submitted on 16 August 2019 to GDARD (receipt acknowledged 16 August 2019) reference number GAUT 006/19-20/E0049. The Phase 1 HIA was conducted in 2006 and submitted to the then farm owner. It seems that this was never filed with SAHRA.

(b) Type of development (e.g. low-cost housing project, mining etc):

Sammy Marks Development, a mixed-use development

(c) Whether re-zoning and/or subdivision of land is involved.

No. This parcel of land will be subject to a township establishment application.

(d) Developer and consultant and owner and name and contact details:

Developer/Owner: Cosmopolitan Projects

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P O Box 754

Auckland Park

2006

Tel: 011 541 3800

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¹ Note that the structure of this report is according to the Minimum Standards for Heritage Specialist Studies in terms of Section 38 of the National Heritage Resources Act (No. 25 of 1999) (2017).

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1.1 Description of the Property of Affected Environment

- Details of area surveyed:

Remainder of Portion 2 of the Farm Zwartkoppies 364 JR, City of Tshwane Metropolitan Municipality, Gauteng Province.

- 1:50 000 map:

2528CB Silverton and 2528CD Rietvlei Dam

- Location Map/Site Maps



Figure 1. Study area in the context of the wider area.



Figure 2. Locality map of the study area in red. Note the location of the Sammy Marks Museum.

2 Executive summary

2.1 The purpose of the study

In view of the proposed mixed development project by Cosmopolitan Projects on the remainder of Portion 2 of the farm Zwartkoppies, African Heritage Consultants CC have been appointed by LEAP Enviro to conduct a Phase 1 HIA. During a previous Phase 1 HIA (Küsel 2006) a total of 31 heritage resources were identified within the surveyed areas and appropriate mitigation measures were proposed.

2.2 A brief description of the development project

The proposed township development will be a mixed-use development that includes residential development, commercial, business and social infrastructure such as parks and schools.

2.3 Brief methodology of the desktop study and fieldwork

Prior to conducting the site assessment a desktop survey of existing literature on the wider region was conducted to assess the heritage context. These included published research articles, unpublished reports and other online information. The SAHRIS data base was also accessed for previous heritage reports that relate to the general region of the survey.

The relevant 1:50 000 topographical maps were sourced, and consulted for pointers to possible heritage resources. Historical imagery and maps were also systematically scrutinised to identify potential sites, areas of disturbance and vegetation anomalies and for any evidence of structural remains, likely areas for archaeological features or to identify potential sites, areas of disturbance and vegetation anomalies.

Prior to the field work all maps and diagrams of the proposed mine infrastructure provided by the Client were mapped and plotted on Google Earth and high-resolution aerial imagery, and converted to .gpx format. The data were transferred to the mobile App GPS HD (Motion X) to allow for georeferencing during the field survey via Ipad and Iphone. GPS coordinates were recorded with a Garmin e-Trex 30 (Datum WGS84). During the field survey conducted on 30 August 2019 the locality under review was systematically inspected on foot (Fig. 3). Use was also made of a Drone to photograph some areas prior to the survey. The survey was conducted at the end of winter. The low vegetation cover and burnt areas allowed for prime archaeological visibility.



Figure 3. *Field survey tracks 2019.*

2.4 Previous Heritage Impact Assessments (HIAs)

A Cultural-Heritage Resources Impact Assessment of the remainder of Portion 2 and Portions 8 and 9 of the farm Zwartkoppies 364 JR was undertaken in 2006 (Küsel).

2.5 Identification of interested and affected parties relating specifically to heritage resources

As part of the Environmental Impact Assessment Process extensive consultation took place between September 2016 and the issuing of the RoD by the Gauteng Department of Agriculture and Rural Development (GDARD) in May 2018. During this process heritage issues was included as reflected in the RoD based on the 2006 Phase 1 report by Küsel.

2.6 Findings

The following table details the combined finds of the Küsel 2005, 2006 and this Phase 1 Assessment.

Table 1: Iron Age and Historical sites recorded at Zwartkoppies			
Site name	Brief description	Coordinates	Significance and recommendations
Stonewalled Iron Age sites			
ZK1 2006	Large Iron Age complex/cluster Low stone walling part of complex 1	25° 45' 11.0 28° 24' 50.8"	The complex is regarded as having a medium significance. There is much variation in the unit regarding size and wall heights. These sites must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK2 2006	Small Iron Age complex/cluster 30 m in diameter with low stonewalling	25° 45' 07.0 28° 24' 09.0"	Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK3 2006	Part of a large Iron Age complex/cluster, ± 300 m from east to west	25° 45' 03.1 28° 24' 12.1"	Part of Cluster 2. Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK4 2006	A smaller site that seems to have been impacted by robbing	25° 45' 02.5 28° 24' 27.1"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK5 2006	Large number of units, variable	25° 44' 29.0 28° 22' 57.5"	Part of Cluster 4. These sites are collectively



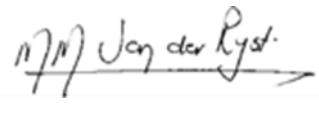
ZK6 2006	walling and scattered over a large area. Rand Water servitude impacts this area. Previously several settlements were investigated in a Phase 2(PGS 2014).	25° 44' 34.2 28° 23' 00.2"	assigned a Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK7 2006		25° 44' 32.9 28° 22' 56.5"	
ZK8 2006		25° 44' 39.6 28° 22' 51.8"	
ZK9 2006		25° 44' 39.1 28° 23' 01.2"	
ZK10 2006		25° 44' 45.4 28° 23' 01.1"	
ZK11 2006	Small site with poor visibility	25° 45' 04.6 28° 23' 43.3"	Low to no significance, no further action required Proposed Field Rating/Grade IIIC Local Resource
ZK12 to ZK 31 are historical sites			
ZK32 2019	Large number of stone wall units forming a cluster or complex. Stone walling varied from 300mm to 800mm. Some later occupation also present.	25° 45' 06.4 28° 23' 27.3"	Part of Cluster 3. Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK33 2019		25° 45' 02.0 28° 23' 36.3"	
ZK34 2019		25° 44' 58.2 28° 23' 33.0"	
ZK35 2019		25° 45' 00.4 28° 23' 30.4"	
ZK36 2019		25° 44' 59.4 28° 23' 24.8"	
ZK37 2019		25° 45' 00.6 28° 23' 20.5"	
ZK38 2019		25° 45' 03.6 28° 23' 24.2"	
ZK39 2019		25° 45' 01.3 28° 23' 27.0"	
ZK40 2019		25° 45' 03.4 28° 23' 29.9"	
ZK41 2019		25° 45' 01.7 28° 23' 32.2"	
ZK42 2019		Small site, transformed	
ZK43 2019	Small site, possibly extensively robbed	25° 45' 05.3 28° 23' 50.1"	
ZK44 2019	At least three smaller units forming a complex/cluster	25° 45' 13.1 28° 24' 01.5"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK45 2019		25° 45' 11.9 28° 23' 58.4"	
ZK46 2019		25° 45' 15.2 28° 24' 02.1"	
ZK47 2019	Several Iron Age stone wall units forming a cluster or complex. Most of the stonewalling is low > 500mm. Several instances of later occupation were also observed	25° 45' 12.9 28° 24' 56.9"	Part of Cluster 1 The complex is regarded as having a medium significance. There is much variation in the unit regarding size and wall heights. These sites must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK48 2019		25° 45' 11.7 28° 24' 53.3"	
ZK49 2019		25° 45' 12.90 28° 24' 51.17"	
ZK50 2019		25° 45' 09.5 28° 24' 48.1"	
ZK51 2019		25° 45' 15.3 28° 24' 51.6"	
ZK52 2019		25° 45' 17.0 28° 24' 47.6"	
ZK53 2019		25° 45' 13.8 28° 24' 48.0"	
ZK54 2019		25° 45' 11.0 28° 24' 46.4"	
ZK55 2019		25° 45' 08.5 28° 24' 45.3"	
ZK56 2019	Form Large Iron Age complex/cluster, ± 300 m from east to west	25° 45' 01.8 28° 24' 17.5"	Part of Cluster 2 Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK57 2019		25° 45' 04.5 28° 24' 15.8"	
ZK58 2019		25° 45' 05.5 28° 24' 13.1"	
ZK59 2019		25° 45' 05.1 28° 24' 10.5"	
ZK60 2019		25° 45' 05.7 28° 24' 07.7"	
ZK61 2019	Isolated Iron Age complex	25° 44' 49.4 28° 23' 39.3"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIC Local Resource

ZK62 to ZK63 are historical sites			
ZK64 2019	Large number of units, variable walling and scattered over a large area. Rand water servitude impacts this area. Previously number of graves were relocated from here.	25° 44' 33.4 28° 23' 04.7"	Part of Cluster 4. These sites are collectively assigned a Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK65 2019		25° 44' 31.1 28° 22' 55.0"	
ZK66 2019		25° 44' 32.8 28° 22' 47.6"	
ZK67 2019		25° 44' 36.8 28° 23' 05.6"	
ZK68 2019		25° 44' 35.3 28° 22' 53.4"	
ZK69 2019		25° 44' 40.8 28° 22' 57.4"	
ZK70 is a historical site			
Historical sites:			
Irrigation features			
ZK12 2006	Pienaarsrivier weirs Canal channelled water to dam, boathouse and power station. Excess water channelled to a dam south of the homestead. Water released from this dam and the hydro power station was used for the irrigation of the fields between the homestead and the river.	25° 45' 58.2 28° 24' 09.6"	The proposed development will not directly impact the areas below the flood line. The canal system has not functioned since the 1940s. It is recommended to retain these landscape elements where possible. Proposed Field Rating/Grade IIIC Local Resource
ZK13 2006		25° 45' 10.7 28° 22' 39.3"	
ZK14 2006	Hoffmann dams The dams collected rainwater, with canals to the gardens and fields.	25° 44' 50.0 28° 23' 20.5"	The proposed development will not directly impact the areas below the flood line. The area has been set aside in the proposed development plan and will be retained Proposed Field Rating/Grade IIIC Local Resource
ZK15 2006		25° 44' 47.9 28° 23' 22.4"	
Labourer housing, formal cemeteries and graves			
ZK16 2006	Labourer house remains and cemetery of the Molefi family. Family resident since 1902 (pers. comm. 2006 Juanitha Molefi, and that the family moved to another dwelling).	25° 45' 38.1 28° 24' 38.0"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK17 2006	Cemetery with 13 graves of the Molefi family	25° 45' 37.7 28° 24' 15.0"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK18 2006	Labourers houses Bobo family, resident for 23 years in 2006	25° 46' 36.9 28° 24' 31.4"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK19 2006	Labourer house Masangane family, resident for 15 years in 2006	25° 46' 18.0 28° 24' 32.6"	
ZK20 2006	Labourer house Lodi family, resident since early 20 th century	25° 45' 41.2 28° 24' 45.9"	
ZK21 2006	Labourer cemetery, 41 graves, earliest headstone with a date, 1942	25° 45' 41.3 28° 24' 43.7"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK22 2006	Labourer cemetery, 12 graves, earliest headstone with a date, 1934	25° 45' 43.7 28° 24' 44.8"	
ZK23 2006	Two houses Manyake family, resident since 1921	25° 44' 39.0 28° 22' 35.4"	Medium significance. This site must be documented/recorded prior to destruction.

ZK24 2006	Ruins of labourer house	25° 46' 31.5 28° 24' 33.2"	Proposed Field Rating/Grade IIIC Local Resource
ZK25 2006	Ruins of labourer house	25° 46' 28.2 28° 24' 32.2"	
ZK26 2006	Ruins of labourer house	25° 46' 25.9 28° 24' 31.3"	
ZK27 2006	Ruins of labourer house plus 1 grave	25° 46' 27.4 28° 24' 34.2"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK28 2006	Ruins of labourer house plus 1 grave	25° 45' 34.2 28° 24' 36.7"	
ZK29 2006	Ruins of labourer house plus cemetery with 33 graves, earliest headstone with inscription that of Salome Nolola 1946.	25° 46' 42.6 28° 24' 29.2"	
Other historical features			
ZK30 2006	Anglo Boer War trench on the eastern and northern sides of a low hill. Just north of this koppie in the new township of Nellmapius is another koppie with trenches. The Zwartkoppies farm formed part of the Diamond Hill Battlefield during the Anglo Boer War. This was the last conventional battle between the Boers and British soldiers before the Boers turned to guerrilla warfare.	25° 44' 32.5 28° 22' 58.9"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK31 2006	Shale quarry. The foundation stones for the buildings on Sammy Marks were probably quarried at this locality.	25° 44' 42.1 28° 22' 50.6"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK62 2019	Horse cart racetrack and associated tree avenue	25° 44' 53.3 28° 23' 02.9"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK63 2019	Clay pigeon shooting range dating from after the 1940s very little remains	25° 44' 42.6 28° 23' 08.2"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK70 2019	Smaller shale quarry	25° 44' 40.9 28° 22' 49.6"	Low significance. Proposed Field Rating/Grade IIIC Local Resource

2.7 Declaration of Independence and information on the authors

We declare that as independent consultants we have no business, financial, personal or other interest in the proposed development project, application or appeal in respect of which we were appointed other than fair remuneration for work performed in connection with the activity or application.

		
S.U. Küsel	Dr U.S. Küsel	Dr M.M. van der Ryst

As a Landscape Architect, co-director of Habitat Landscape Architects (Pty) Ltd and a heritage practitioner, Siegwalt Küsel has been involved for 18 years in heritage surveys, sensitivity and probability mapping and desktop research with application in the fields of tourism, heritage and conservation, and also site development and management. He is currently enrolled for an MA in Archaeology (UNISA).

Dr Udo Küsel has more than fifty years of experience in heritage planning, development and management. From a strategic planning perspective, he was involved in the planning and the declaration of the Robben Island Museum as a National Cultural Institution. He also served as President of the South African Museums Association as well as the South African Cultural History Association. In 2001 he established African Heritage Consultants CC and has undertaken more than 1500 Heritage Impact Assessments and compiled numerous heritage management plans. As consultant he has been involved in the development of the Dzata Museum in Venda, the Tšate Site Museum in Sekhukhune and Thomo Cultural Village near Giyane to name but a few. He also served as a part-time lecturer in Museum and Heritage Studies at Pretoria University for 30 years. Recently he trained 30 unemployed people in Sekhukhune to undertake the recording of the heritage of the area. He supervised the project for three years and recorded 200 heritage sites in the area with the aim to develop the heritage resources of the region.

Dr Maria van der Ryst has more than 40 years' experience in archaeological research, field assessments, heritage resource mitigation and specialist input on Stone Age and Iron Age archaeology. Up to her retirement in 2015 she has been a Senior Lecturer in the Department of Anthropology and Archaeology. She is currently an independent consultant and heritage practitioner.

2.8 Stakeholders

As part of the Environmental Impact Assessment Process extensive consultation took place between September 2016 and the issuing of the RoD by the Gauteng Department of Agriculture and Rural Development (GDARD) in May 2018. During this process heritage issues was included as reflected in the RoD based on the 2006 Phase 1 report by Küsel. A copy of the detailed Public Participation report is available from LEAP Enviro.

3 Introduction and Terms of Reference (ToR)

African Heritage Consultants CC have been appointed by LEAP Enviro to conduct a Phase 1 HIA in view of the time lapse (Küsel 2006) when a previous HIA had been commissioned. A heritage survey that would be sufficient for a Phase 1 HIA was required that takes into consideration historical surveys conducted within the general area, but in the main a

reappraisal of the heritage resources previously identified at Zwartkoppies.

4 Background information on the project

4.1 Project description

The purpose of this report is to provide a more detailed background on the proposed development and to identify the heritage resources on Zwartkoppies that will be impacted by such developments. The proposed mixed-use development will include commercial, business, residential and institutional uses as part of the township establishment by Cosmopolitan Projects.

Table 2 Farm portions	
Size of farm and portions	Remainder of Portion 2 of the farm Zwartkoppies
Magisterial District	Pretoria, Tshwane
Current zoning of the development	Agricultural
1: 50 000 map sheet number	2528CB Silverton and 2528CD Rietvlei Dam

Table 3	
Type and extent of the development	Mixed use: 680 Ha including business, residential, institutional and Open Space
Details of the proposed activities of the project	Township establishment



Figure 4. *Locality map of the study area in the regional context.*



Figure 5. *Locality Map of the study area in red. Note the location of the Sammy Marks Museum.*

5 Legislative framework

5.1 National Heritage Resource Act (NHRA)

The National Heritage Resources Act (NHRA) (Act No. 25 of 1999) is the primary legislative act dealing with the conservation and management of heritage resources. In brief the Act aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that this may be bequeathed to future generations.

The NHRA clearly defines the national estate and sets out principles for the management of heritage resources, determines the constitution, powers, functions and duties of heritage authorities and provides a framework for the enforcement of the Act. All sites, heritage resources and archaeological remains are protected in terms of the National Heritage Resources Act (NHRA) Act No. 25 of 1999:

- All archaeological remains, artefactual features and structures older than 100 years and historical structures older than 60 years are protected by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999, section 35). No archaeological artefact, assemblage or settlement (site) may be moved or destroyed without the necessary approval from the South African Heritage Resources Agency (SAHRA).
- Human remains older than 60 years are protected by the National Heritage Resources Act Section 36. Human remains that are less than 60 years old are protected by the Human Tissue Act (Act 65 of 1983 as amended).

The following sections of the South African Heritage Resources Act, 1999 (Act 25 of 1999) must be noted:

In terms of section 3 (1 & 2) of the NHRA, heritage resources of South Africa that are of cultural significance or other special value for the present community and for future generations and are considered part of the national estate and fall within the sphere of operations of heritage resources authorities include:

- (a) places, buildings, structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds, including —
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
 - (i) movable objects, including—
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with

<p>living heritage;</p> <ul style="list-style-type: none"> (iii) ethnographic art and objects; (iv) military objects; (v) objects of decorative or fine art; (vi) objects of scientific or technological interest; and (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).
<p>(3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of —</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa’s history; (b) its possession of uncommon, rare or endangered aspects of South Africa’s 30 natural or cultural heritage; (c) its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage; (d) its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects; (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and (i) sites of significance relating to the history of slavery in South Africa.

Note that all sites and artefacts associated with the Anglo Boer War are sensitive. It is critical that this information be relayed to visitors, tour operators and private landowners. This message also needs to be reinforced through appropriate signage. From a tourism development and visitor management perspective there are a number of activities that can potentially trigger the need for a permit application or the submission of a Heritage Management Plan to the South African Heritage Resource Agency.

5.2 Grading and field rating

Section 7 of the NHRA distinguishes between three grades of declared (formally protected) heritage resources.

- National (**Grade I**): Heritage resources with qualities so exceptional that they are of special national significance.
- Provincial (**Grade II**): Heritage resources which, although forming part of the national estate, can be considered to have special qualities that make them significant within the context of a province or a region. All other declared heritage resources in the province are by default Grade II.
- Local (**Grade III**): Other heritage resources worthy of conservation. The Grade III tier is further split into three sub-categories, with IIIa = high, IIIb = medium and IIIc = low local significance (SAHRA 2005/2007, 2016; Wiltshire 2013: 325).

Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I resources are intended to be managed by the national heritage authority. Provincial heritage resources authorities would manage Grade II sites. Grade III resources would be managed by the relevant local planning authority (Wiltshire 2013: 325; Orton 2016: 5). These bodies are responsible for grading, but anyone may make recommendations for grading. Unfortunately, only a few Provincial Heritage Resources Authorities (PHRAs) are fully functional.

While **grading** is actually the responsibility of the heritage resources authorities, all reports must include **Field Ratings** for the site(s) discussed (proposals for grading), to comply with section 38 of the national legislation (SAHRA Draft Minimum Standards 2016: 25-26):

- a) **Proposed Field Rating/Grade 1 National Resource:** This site is considered to be of Field Rating/Grade I and must be nominated as such (mention must be made of any relevant international ranking), a protected buffer zone must be proposed, these sites must be maintained *in situ* and a CMP must be recommended for the *in situ* conservation of the site;
- b) **Proposed Field Rating/Grade II Provincial Resource:** This site is considered to be of Field Rating/Grade II and must be nominated as such, a protected buffer zone must be considered, these sites must be maintained *in situ* and a CMP must be recommended for the *in situ* conservation of the site;
- c) **Proposed Field Rating/Grade IIIA Local Resource:** The site must be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised, a protected buffer zone must be considered, these sites must be maintained *in situ* and a CMP must be recommended for the *in situ* conservation of the site;
- d) **Proposed Field Rating/Grade IIIB Local Resource:** This site could be mitigated and (part)

retained as a heritage register site (High/Medium significance). Mitigation of these sites must be subject to a formal permit application process lodged with the relevant heritage resources authority;

- e) **Proposed Field Rating/Grade IIIC Local Resource:** These are sites have been assigned a Low field rating which, once adequately described in the phase I assessment, may be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process, (with regard to section 38(8) cases, this will be subject to the granting of the Environmental Authorisation).

5.3 International treaties, conventions and charters

South Africa is signatory to a number of international agreements, which have implications for heritage conservation and management including the World Heritage Convention that places certain obligation on the state and civil society for the management of heritage resources.

South Africa as a member of the United Nations Organization for Education, Science and Culture (UNESCO) subscribes to and takes part in a number of the subsidiary programs including the International Council of Museums (ICOM), International Committee for Monuments and Sites (ICOMOS) and various other international conservation bodies under the umbrella of UNESCO.

Of these the most important and pertinent is the ICOMOS Charter for the Conservation of Places of Cultural Significance, commonly known as the Burra Charter (2009, 2013). Although first adopted in 1979, the Charter remains current with the latest version adopted in October 2013. The Charter is considered to be the international blueprint on the conservation of places of cultural significance. The Burra Charter accordingly sets the international standard for standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians. (Australian ICOMOS Charter for places of Cultural Significance 2013).

6 Literature review and physical survey

Prior to conducting the site assessment, a desktop survey of existing literature on the wider region was conducted to assess the heritage context. These included published research articles, unpublished reports and other online information. The SAHRIS data base was also accessed for previous heritage reports that relate to the general region of the survey.

The relevant 1:50 000 topographical maps were sourced and consulted for pointers to possible heritage resources. Historical imagery and maps were also systematically scrutinised to identify potential sites, areas of disturbance and vegetation anomalies and for any evidence of structural remains, likely areas for archaeological features or to identify potential

sites, areas of disturbance and vegetation anomalies.

Prior to the field work all maps and diagrams of the proposed mine infrastructure provided by the Client were mapped and plotted on Google Earth and high-resolution aerial imagery and converted to .gpx format. The data were transferred to the mobile App GPS HD (Motion X) to allow for georeferencing during the field survey via Ipad and Iphone. GPS coordinates were recorded with a Garmin e-Trex 30 (Datum WGS84). During the field survey conducted on 30 August 2019 the locality under review was systematically inspected on foot (Fig. 3). The survey was conducted at the end of winter. The low vegetation cover and burnt areas allowed for prime archaeological visibility.

7 History and development of Sammy Marks

7.1 The Sammy Marks Museums: Acquisition

The Sammy Marks estate, a Victorian country house known as Zwartkoppies Hall, became a museum in 1986. Marks willed that Zwartkoppies Hall and the contents were to be preserved for up to four generations. Sammy's son Joe was the last Marks occupant of Zwartkoppies. Joe died in 1975 and his widow in 1978. None of the remaining family were interested the property. In 1980 negotiations began with the then National Cultural History Museum (now the Ditsong Museum. Marks had left the house to his great-great grandchildren). His grandchildren managed to overturn part of the will (Noomé 2006). A final agreement was reached in 1984 according to which the movables were to be bought (thanks to a generous donation by the M Kaplan Family Trust), and the mansion leased for a nominal sum to establish the Sammy Marks Museum. This museum opened its doors to the public on 12 November 1986. The parent Museum undertook to maintain the property and to restore the buildings and movables to their original state. In 1995, the house, its outbuildings and 73 acres were bought for the National Cultural Historical Museum (Noomé 2006).

The Museum and associated infrastructure were declared a National Monument in 1989 (since the promulgation of the National Heritage Resources Act (NHRA) of 1999 a Provincial Heritage Site). The buildings included the a 47-room Zwartkoppies Hall, the house cellar and outbuildings were to be known as the Sammy Marks Museum. Other protected buildings included Jill's Cottage, Swallow Cottage, the farm manger house, Dairy Cottage, Pott's Cottage, the building with horse stable, coach house and attic, a double story building consisting of a cow shed and attic, a single story cow shed, two silos, the cattle dip with a portion of the old water canal and dams (please refer to Figs 6-25 that illustrate buildings and features at and around Zwartkoppies Hall). These comprised 21.6067 ha of Figure A B C D E F G H J K L M N P Q R S T U on Land surveyor Map LG A 2276/88, dated 26 July 1987 lodged in the office of the Surveyor General Pretoria, and File 2/T/Pre/34 at SAHRA (then the Raad vir Nasionale Gedenkwaardighede Cape Town). Transport Act 221/1884, dated 25 March 1884. (Government Gazette 1989 No. 11728/382). The rose garden was said to be a typical example

of this period. Bertha imported seedling roses in weekly consignments from Kent to plant in her very English Victorian garden situated against the alien South African veld surrounds (Mendelsohn 1991; Farber & Dreyer 2012).



Figure 6. *View of the rose garden, Sammy Marks Museum c. 2010 (Farber 2012: 58).*



Figure 7. *Main house with rose garden in front.*



Figure 8. *Wine cellar.*



Figure 9. *Garden wall built with stones collected from Iron Age sites.*



Figure 10. *Cow shed with fire-damaged section on the left that housed the coaches.*



Figure 11. *Coach building of which the roof was destroyed by a fire.*



Figure 12. *1915 new-built double storey dairy.*



Figure 13. *Silos.*



Figure 14. *Roofed storeroom/silo.*



Figure 15. *Dairy and a house on the left.*



Figure 16. *Farm manager's house.*



Figure 17. *Chicken shed.*



Figure 18. *Chicken shed.*



Figure 19. *Staff house.*



Figure 20. *Swallow cottage.*



Figure 21. *Pott's cottage.*



Figure 22. *Canal.*



Figure 23. *Underground canal and sump.*



Figure 24. *One of the avenues of Beefwood trees at the large dam.*



Figure 25. *The main weir in the Pienaars River from where the water was channelled to the main settlement.*



Figure 26. *One of the two Hoffman dams.*



Figure 27. 1940 aerial photograph showing infrastructure on Zwartkoppies farm.

7.2 Brief introduction to the entrepreneur and capitalist, Sammy Marks

7.2.1 Mining and industry

Sammy Marks was born in 1844 in Lithuania on the Russia border (1844-1920). His parents were poor Jewish citizens who could only afford an elementary education at a Jewish institution for the young Samuel (Sammy) Marks. At the age of 18 he emigrated to Sheffield in England. Here Sammy met Tobias Guttman, a Jewish businessman, who persuaded him to join him in migrating to South Africa. In 1848 at the age of 24 he left England for South Africa which would become his new home country. All he had to his name was a case of knives which he sold on his arrival. With the proceeds he bought trade goods which he peddled setting him on a lifelong business career in mining and industry.

Sammy and his cousin, Isaac Lewis, formed a partnership, Lewis & Marks, which survived his lifetime. At the Kimberley diamond fields he set up a trading store. The partners soon began selling mining and digging supplies in the rapidly expanding mining town. They were often paid in diamonds and expanded their interests to diamond mining. The partnership, together with three other major claimholders, eventually owned a quarter of the Kimberley mine. They subsequently also became owners of the Du Toit's Pan Mine.

When coal was discovered on the border between the then Transvaal and the Orange Free

State the two partners sold their diamond claims to invest in coal. They made a great fortune in the Vaal River coal mines. On acquiring coal-bearing farms on the banks of the Vaal River in 1880 Marks launched De Zuid-Afrikaansche en Oranje Vrijstaatse Kolen en Mineralen Mijn Vereeniging (after which the town of Vereeniging was named) to exploit these deposits (Noomé 2006). In 1895 he also bought up coal-bearing farms in the Witbank and Belfast areas. He envisaged the establishment of a steel industry for South Africa on the same basis as the Sheffield works in England. (National Cultural Museum n.d.).

Sammy Marks saw a business opportunity in virtually anything in his rise to prosperity. He conducted many of his ventures as ancillary operations of inter alia the coal mining. Marks, for example, recruited tenant sharecroppers and native farmers for coal mine labour (Freund 1987). During this period of intense industrial growth and infrastructural development Marks and associates even managed to site the railway bridge across the Vaal River close to his own coal mines and several of his other commercial enterprises (Van Schalkwyk 2015). A proposal by Marks to develop his own railway line was rejected. He then managed to convince the Cape Government (who at that stage imported coal from Wales) to transport coal from his mines to the Cape in empty railway cars that brought goods to the mines on the Witwatersrand (van Schalkwyk 2015). This suited both parties since Marks found a ready market for his coal and a large saving for the Cape Government (Mendelsohn 1991).

The pair expanded their interests to include a distillery, canning factory, glass factory, brick and tile works, maize mill and steel works. Marks met a Hungarian Jew, Hugo Alois Nellmapius (1847-1893), on a business trip to Pretoria with whom he went into partnership to distil liquor. To this end he bought the farm Hatherley outside Pretoria where he erected the Eerste Fabrieken Hatherley Distillery. This required the building of a glass factory. Products other than bottles for the distillery could be used in a jam factory that he established (Noomé 2006). Later he also initiated a meat preserving works at Hatherley. As businessman he became the father of the South African industry with several ventures still extant in some form (steelworks in Vereeniging; Vereeniging Brick and Tile Company Ltd). His Transvaal and Victoria Falls Power Supply Company was the stimulus for the development of Eskom. He was a founder member of 'De Eerste Nasionale Bank', now First National Bank. He was also a major shareholder in Nedbank. (National Cultural Museum n.d.).

7.2.2 Agriculture

Marks ventured into agriculture. The Vereeniging Estates Limited that he formed owned 16 farms which they cultivated by employing the system of sharecropping. Plantations on one of these, Macauvlei, supplied timber to the mines. He also owned the farm Pienaarspoort close to Hatherley where he established extensive orchards. The Pienaars River flows through the farms. He was eventually the owner of more than 100 farms in the Transvaal. Marks was one of the largest producers of maize. He was the first person in South Africa to import a steam

plough. He also was an active cattle breeder. In 1911 he was elected President of the Witwatersrand Agricultural Union in which he served until his death. (National Cultural Museum n.d; Noomé 2006).

7.2.3 Politics

Marks, anticipating trouble between Britain and the South African Republic, wanted to avoid war. He, however, failed to persuade President Kruger and other Boer leaders to negotiate. During the ensuing war he sensibly remained neutral. He knew and interacted with many eminent political figures around the time of the Second Anglo-Boer (Noomé 2006). He befriended both warring factions and was sometimes induced to provide aid or assistance to either of the sides. He was also involved in the redrafting of the Transvaal Constitution in 1897 in which the 'Jewish disability clause' was removed. Marks was central in the unification process. He was selected as a senator in the Union Parliament in 1910, a position held until his death in 192. (National Cultural Museum n.d.)

Marks was a close friend of President Kruger. The statue of President Paul Kruger erected on Church Square, Pretoria was commissioned by Sammy from the sculptor, Anton van Wouw and donated to the City.

7.2.4 Marks as conservationist

Sammy Marks cared greatly for the environment. Hunting was not allowed although exceptions clearly were made, such as during a visit from the Crown Prince of Portugal. He was said to be proud of the game on his farm. He was moreover active in establishing orchards and gardens that were in harmony with the natural habitat.

7.2.5 His legacy

Marks had an important part to play in Jewish society and became Honorary President of the Pretoria Jewish congregation (1905–1920) (Noomé 2006). When he died in 1920 Sammy was buried in the orthodox Jewish cemetery in Rebecca Street, Pretoria. His beloved farm Zwartkoppies was willed to his great-grandchildren. Sammy was jocularly referred to by his contemporaries as 'the uncrowned king of the Transvaal' (National Cultural Museum n.d.; Mendelsohn 1991).

8 Zwartkoppies farm

The farm Zwartkoppies of 755 hectares was acquired in 1883 for the sum of £1400. The property was acquired from Charles William Rufus Cockcroft (AGES 2008). That the transport road linking Pretoria and Lourenço Marques ran through the farm was a factor in the decision to acquire the property in view of Marks' commercial interests (Naudé 2003). In 1884 the building of the house commenced based on a plan drawn up by Sammy himself. In the 1890s

he commissioned the Dutch architects De Zwaan and Van Dyk to enlarge the house into a double storey. The work was undertaken by John Johnston Kirkness, a Scottish building contractor (AGES 2008). The house was extended several times (Fig. 28). At the end of 1884, at the age of 40, Sammy married the 22-year old Bertha Guttman (1862-1934), the daughter of his erstwhile benefactor in Sheffield, Tobias Guttman (Noomé 2006). The couple had nine children of which two died early.

After his marriage in London he returned with wagonloads of furniture and household articles. These were periodically augmented during overseas visits or replaced with new acquisitions shipped from England and often ordered by catalogue (National Cultural Museum n.d.; Faber & Dreyer 2012). Sammy chided Bertha on her lavish spending while on a European holiday: 'It is no doubt needless for me to point out to you that you have spent a lot of money ... Do you expect to open a retail shop at Zwartkoppies, or are you afraid that the manufacturers will cease making more things (S Marks in a letter dated 4 October 1902 as quoted by Farber and Dreyer 2012: 7/11). The family lived here until 1909 when they moved to Park Town, Johannesburg to be closer to the company headquarters (Noomé 2006).

Marks hosted illustrious persons at Zwartkoppies, including Randolph Churchill (1891), H.M. Stanley (November 1897) and his close friend President Paul Kruger. Boer generals, including Koos de la Rey, Christiaan De Wet, Jan Smuts and Louis Botha also visited (Mendelsohn 1991; Noomé 2006). On account of his neutral stance, he also entertained Cecil John Rhodes, Lord Milner, Lord and Lady Roberts and their two daughters and several British officers (Mendelsohn 1991; Noomé 2006).



Figure 28. *Zwartkoppies Hall c. 1900 (Farber 2012: 11).*

9 The archaeology of Zwartkoppies

9.1 The Stone Age

Very little data is available on the Stone Age within the study area. Van Schalkwyk (2011a) in a report on the proposed upgrading of road R104, Silverton to Bronkhorstspruit merely noted that stone tools from all phases of the Stone Age are present within the region, and especially along water courses and lithic outcrops. In a survey for heritage resources on Hatherley 331JR the National Cultural History Museum (now Ditsong) (1995) recorded isolated elements of Middle Stone Age (MSA) lithics on hornfels, quartz and quartzite. The authors point out that whereas no Later Stone Age (LSA) lithics were recorded, some LSA examples have been found to the south on the farm Donkerhoek 365JR. The National Cultural History Museum (1995) in a survey for heritage resources on Pienaarspoort 339 JR recorded isolated elements of MSA lithics on hornfels, quartz and quartzite

9.2 Iron Age archaeology

9.2.1 Hatherley 331 JR

Stone-walled structures from the Late Iron Age (LIA)/Historical period are ubiquitous in the study area (National Cultural History Museum 1995; Van Schalkwyk et al.1996). Archaeologists of the Ditsong Museum undertook several assessments. They recorded

settlements of southern Ndebele-speaking people from the late 1600s to the mid-1800s on Hatherley 331JR (National Cultural History Museum 1995, 1998; Van Schalkwyk et al. 1996).

Wits Heritage Contracts (2009) conducted an AIA for the Wildebees infeed station and associated power lines on the farm Hatherley 311 JT. The AIA process recorded 31 sites with heritage value. Most of the archaeological sites and associated cultural remains found during the 2009 Wits survey were described as typical LIA stone-walled settlements. Two historic structures were also documented.

Archaetnos (2009) conducted excavations on the remainder of the farm Hatherley 331 JR, near Mamelodi in view of a proposed new housing development project on the locality. Several stone-walled sites, ascribed to the Manala Ndebele, were investigated, mapped and excavated (Permit No. 80/08/10/008/51). An application for a Destruction Permit was subsequently filed. Archaetnos also undertook mitigation of three LIA stone-walled sites on Hatherley 311 JR through mapping and test excavations (Permit No. 80/11/09/029/51; SAHRIS 5 February 2015).

9.2.2 Pienaarspoort

Several historical Ndebele settlements have been recorded on the farm.

9.2.3 Zwartkoppies 364 JR

Extensive stone-walled sites are present on the remainder of portion 2 of the farm Zwartkoppies 364 JR. Some settlements at both Hatherley and Zwartkoppies are associated with historical groups (National Cultural History Museum 1995). Huffman (2005) documented several LIA stonewalled sites and historic housing for farm labourers in his survey at Zwartkoppies. He recommended mitigation measures but emphasized that these would be costly and that the road should therefore be realigned.

Küsel (2005) recorded numerous LIA stonewalled sites, including some large settlements, on the property that comprises the remainder of Portion 2 and Portion 89 of the farm Zwartkoppies 364 JR.

Archaetnos (2009) conducted excavations on the remainder of the farm Hatherley 331 JR, near Mamelodi in view of a proposed new housing development project on the locality. Several stone-walled sites, ascribed to the Manala Ndebele, were investigated, mapped and excavated (Permit No. 80/08/10/008/51). An application for a Destruction Permit was subsequently filed.

9.2.4 Zwavelpoort

At Zwavelpoort Küsel (2008) recorded LIA settlements that are typical of the Manala Ndebele who lived in the Bronberg and the valley east of the mountain up to Mamelodi. An assessment on Portions 275 and 478 of the Farm Zwavelpoort 373 JR documented several LIA stone-walled settlements (Archaetnos 2008). Another heritage survey of Zwavelpoort 373JR (Van Schalkwyk 2010) documented a large LIA settlement. It was recommended that as a Grade III sites it 'should be documented (mapped and photographed) and small test excavations done by an archaeologist to retrieve material in order to place the site in its correct cultural and temporal context' (Van Schalkwyk 2010:iii).

9.3 Farm labour housing

9.3.1 Hatherley

In 1998 the Museum undertook archaeological investigations on the farm Hatherley 331 JR/Nelmapius (National Cultural History Museum 1998). Several excavations were made at an old house, middens, and a clay household structure. Artefactual remains recovered from the excavations date to the early and mid-20th century, and even later. Some of these indicate occupation by farm labourers.

9.3.2 Pienaarspoort

Archaeology Africa (2007) in an HIA for a residential development on Pienaarspoort 339 JR documented five sites that comprised four labourer cottages and one possible grave. The locality lies to the south of the Pretoria-Nelspruit railway line and with Mandela Village north and across the railway line. Based on historical maps by the authors of the report there were already established agricultural activities at this locality since the early 1940s.

9.4 Historical structures

9.4.1 Hatherley

Limited historical structures have been documented on the farm Hatherley

9.4.2 Pienaarspoort

In a report by AGES (2011) on Delf Cullinan Sand Mine Brandbach 471 JR reference is made to a war concentration camp for farm labourers east of Pienaarspoort at the Van der Merwe railway halt on the farm Elandshoek (337JR) as well as at Elands River on the farm Kaalfontein. Fortifications from the Anglo-Boer War (1899-1902) are also evident along the Magaliesberg in the Pienaarspoort area (AGES 2014).

9.4.3 Zwartkoppies

Other historic structures recorded include a bridge said to be built by Sammy Marks to the east of the excavations. It is situated on the road from his house at Zwartkoppies to the Eerste

Fabrieken (Fig. 29). Fortifications dating to the First War of Independence during the battle of Zwartkoppies were also recorded. Stone-walled structures from the Late Iron Age (LIA)/Historical period are ubiquitous in the study area (National Cultural History Museum 1995; Van Schalkwyk et al.1996) and several settlements were also recorded during this survey.

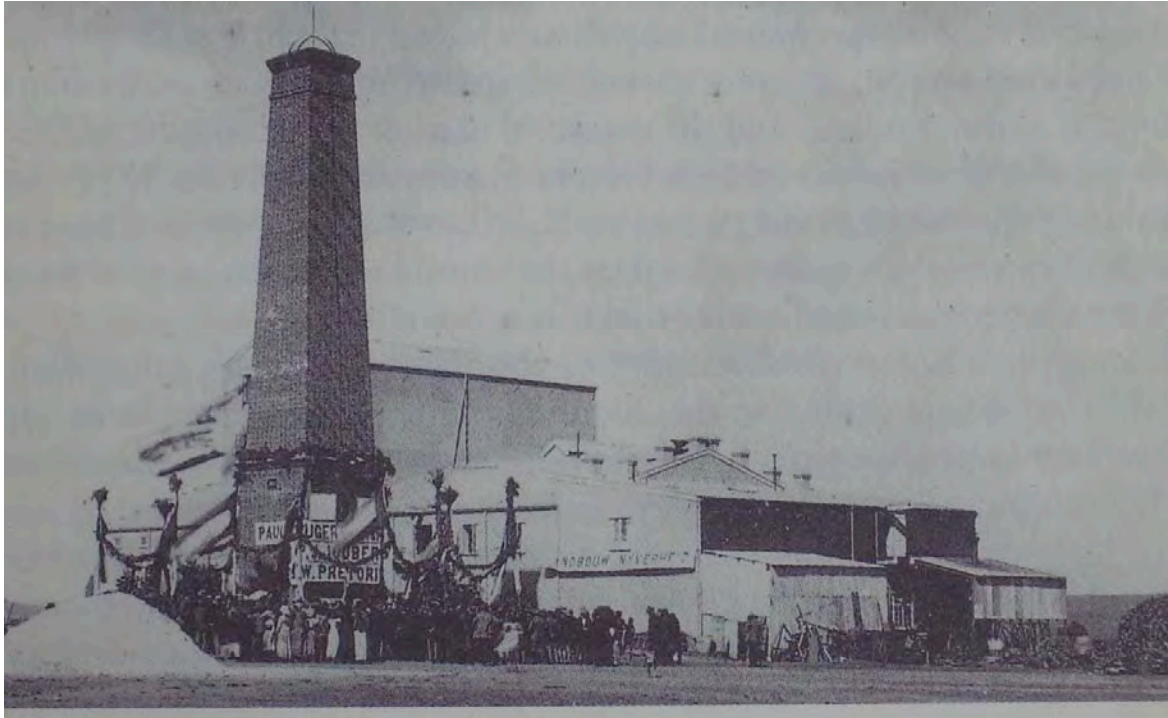


Figure 29. *Historic photograph of Eerste Fabrieke (AGES 2008: 32).*

Küsel (2005) in his report for a proposed housing development on this historic property of the Sammy Marks Museum, as a satellite of the now Ditsong Museum, noted that the main house from the 1880s, numerous outbuildings and a historic garden. Some historic farm labourer housing structures were associated with specific occupants that could be recorded. The ruins of other housing features and several graves were also found to be present within the study area.

9.5 Other

Küsel (2005, 2006) lists other historic features at Zwartkoppies such as Anglo-Boer War trenches, the Hoffman dams and canals, and weirs in the Pienaars River. There is also a shale quarry associated with the Marks period.

Coetzee (2008) in a survey of Nooitgedacht 333JR, Mamelodi found only historic structures and no other heritage resources.

Four bridges across the Pienaars River, Forfar Spruit, Hondsrivier and the Bronkhorstspruit

were to be impacted upon by the proposed upgrading of road R104, Silverton to Bronkhorstspuit. These 'have Grade III status [and] they are judged to have high significance on a regional level' (Van Schalkwyk 2011a: ii). It was accordingly recommended that these structures should be incorporated in the development.

Archaetnos (2012) recorded 10 localities of cultural value at the site of the proposed Moretele Resort on portions of Mamelodi 608 JR, Vlakfontein 329 JR, Derdepoort 326 JR and Baviaanspoort 330 JR, for which a Cultural Heritage Plan was subsequently provided. Some of these areas on the southern and eastern boundaries of the proposed development border on Mamelodi. Heritage features within the proposed development area include several stone-walled sites that feature in current initiation practises. Separate localities are being used for male and female initiates. These structures are of particular social and ritual value to the groups who utilize the resources. It was recommended that other initiation localities that do not form part of current use are also in need of protective measures. Archaetnos (2012) recommended that all localities recorded as currently being used for church and ritualized activities should be protected. Circular stone walls that were assigned to either a cattle post or to the Anglo-Boer War were also graded as sensitive. It should also be noted that at some distance from Mamelodi an industrial site consisting of a tunnel used to channel sewage through the mountain and with associated infrastructure were recorded (GPS: northern side of the tunnel 25°41.598'S; 28°21.533'E and southern side of the tunnel 25°41.677'S; 28°21.566'E). The features are deemed significant in view of their industrial heritage value.

Bruwer and Martinson (2012) provide a synthesis of the development of Mamelodi and the development of the Solomon Mahlangu Freedom Square. The home of slain uMkhonto weSizwe combatant Solomon Mahlangu in Mamelodi was recently declared a National Heritage Site.

9.6 Cemeteries and informal graves

It should be noted that unidentified graves often occur within the area. For example, PGS (2007) acquired a permit (No. 80/07/04/003/51) for Hatherley Farm 331JR. Nienaber and Steyn acquired a permit (No. 80/05/10/01/51) for the exhumation of seven unidentified graves from the farm Zwartkoppies 364 JR, which were subsequently relocated to Mamelodi cemetery.

PGS (2014) mitigated eight LIA sites of which six were located to the north-east of the Sammy Marks Museum for the Vlakfontein (Benoni) – Mamelodi water supply proposed pipeline and servitude. The report provides a synthesis of the historical development of the settlement and politics of the Ndzundza and Manala Ndebele. The history of archaeological investigations within the broader area on these groups is also discussed in some detail and site plans of

settlement layouts are included (PGS 2014).

Jaco van der Walt HCAC assessed Portion 20 of the Farm Zwartkoppies 364 JR as part of the basic assessment for the Sabis School project (2017). During the survey five Late Iron Age (LIA) stone walled sites, middens and undecorated ceramics were recorded.

9.7 Concluding remarks

From the above it is evident that stonewalled settlements from the LIA, and the historical period, and unmarked graves of informal cemeteries form a major component of the heritage resources of the study area and adjacent land parcels. Tangible and intangible features from the Anglo-Boer War and the recent colonial history should also be considered in any future development.

10 Oral history on the Manala-Ndebele (based on van Vuuren 2006)

The Manala branch of the Transvaal Ndebele is associated with the Transvaal Ndebele. They were the earliest Nguni-speaking groups to move into the area. Van Vuuren (2006: 81) notes as follows:

In terms of South African Ndebele oral tradition, the Ndebele first settled at *Emhlangeni* ("At the reeds") near Randfontein, Gauteng. This site remains unidentified. The Ndebele entered the region of Pretoria during the early to mid-1600s. This arbitrary date is calculated using a dating system in Ndebele society which is explained later. The first Ndebele settlement was at *KwaMnyamana* ("Place of the Black Hills"), an area close to the present Hippo Quarries crusher site on the southern slopes of the range found on De Onderstepoort (300JR) and Doornpoort (295JR) farms. ... On the west of the site is the Bon Accord dam which bears the name of a farm once owned by General JC Smuts. According to some Ndebele, their territory stretched as far south in the Magaliesberg range as what is known as Wonderboom today. *KwaMnyamana* was also known as *Emarula* ("At the Morula [trees]"), *Emnyameni* ("Place of darkness") or *KoMusi* ("Place of Musi").

The Ndebele divided into various tribal entities through a split between the sons of Musi, namely the eldest son, Manala, and the younger Nzundza. Each formed his own tribal community, such as the *Hwaduba* and the Kekana (Northern Ndebele) and other (van Vuuren 2006: 82). This allegedly took place at Bon Accord. The translation from the Ndebele text reads: "Manala and Nzundza separated in the neighbourhood of Swartkoppies" twenty kilometres north of Pretoria. The oral tradition on the subdivision and its consequences for the Ndebele explain the origin of separate identities for what became known as the Northern and Southern Ndebele. Two other sons of Musi, Mhwaduba and Kekana, too established their own settlements (van Vuuren 2006: 82).

The Manala royal dynasty contains the names of thirty-one chiefs. The Manala rulers and regimental leaders are venerated in the royal praise poetry, performed during rituals and ceremonies. Praise poetry is often subjected to political intents, leading to distortion and telescoping of events. The dating mechanism of regimental dates provides temporal markers for settlement and events. The 14th king of the Manala, Matshaba with the regimental name of Ngana (No. 8 Ngana, tabled in van Vuuren 2006: 86) is known in praise poetry. He is also linked to the place name *Emakopana* on Hatherley farm (331 JR), east of Pretoria. The Ngana regiment was apparently installed in 1747. Since Ndebele men are initiated at the ages of 18 to 20 years, the calculated birth date for Matshaba is 1727. A LIA settlement archaeologically excavated on Hatherley in 1996 (van Schalkwyk et al. 1996: 55) is linked to the Manala oral tradition, although it is not clear whether Matshaba actually lived here.

Van Vuuren (2006: 89) maintains that “[t]he investigation into the pre-colonial settlement sites of the Manala-Ndebele around Pretoria receives new impetus once some form of dating based on the oral tradition of that community can be added to these sites. The dating mechanism as it is explained here, also adds a chronology to the settlement history of this community”.

10.1 The Pienaars River basin: Manala-Ndebele territory

According to van Vuuren (2006: 89) the pre-colonial history of the Manala-Ndebele is closely tied into the historical mapping of Pretoria. The Manala settlement at the Berlin Mission Station was established in 1871. The arrival of the Manala here is recorded in oral history only, with a few limited references to the pre-1871 settlement history in the missionary literature. However, here is no direct territorial relationship between the European farm names and Manala place names. Localities close to the study area include *Embilaneni* (place of the dassie/rock rabbits), which is maintained to have stretched towards the Magaliesberg range and included the present Mamelodi and Pienaarspoort. It also included Zwartkoppies 364 JR (see van Vuuren 2006: 92-93 for other farms that formed part of the *Embilaneni* composite settlement).

The Pienaars River was known as *Moretele* (or *Umriddili*). In summary, the Manala pre-colonial territory broadly comprised the Pienaars River drainage basin and its main tributary the Swawelpoort River. Geographically the area is demarcated to include the Bronberg range that formed its southern boundary, the Pienaarsrant/ Magaliesberg range its northern boundary,

the Sour Grassveld farms towards Bronkhorstspuit the eastern boundary and the present Hans Strijdom Drive as the western boundary.

Van Vuuren (2006: 93) also points out that where Ndebele elders with whom he worked were always aware of

[n]eighbouring traditions of a Tswana-speaking origin towards the west of *KwaMnyamana*, but undoubtedly not in the eastern parts of Pretoria. Names of landmarks such as mountain ranges, hills, rivers and springs, provide indicators of the cultural and historical mapping of a region. Each of the rivers, tributaries and mountains in the designated region above is said to have a name in the Ndebele language. Manala spokespeople were always certain that they could compile such an inventory.

11 Description of the physical environment

The study area is currently zoned Agricultural. Historically farming, cultivation and landscaping transformed the area significantly. Large areas of the property were formerly planted with exotics for both wood and ornamental reasons. This has been further aggravated by the proximity of the site to the large informal areas of Mamelodi resulting in the presence of extensive dumping, land invasions and wood harvesting (Fig. 30).

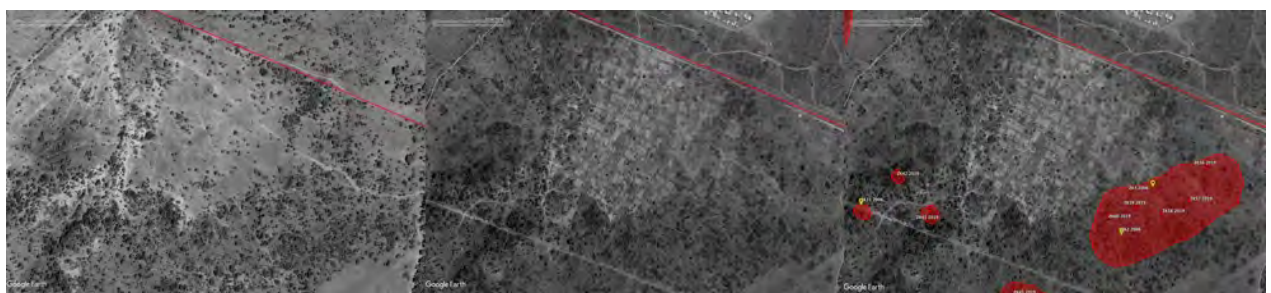


Figure 30. *Example of the impact of land invasion on the study area.*

The geology of the area comprises mainly shale of the Magaliesberg Formation of the Pretoria Group of the Transvaal Sequence. Some later intrusions of diabase occur as outcrops.



Figure 31. *Low level drone image of the central study area looking north towards Mamelodi. Note the good visibility.*

The study area is dominated by the presence of a series of east-west trending hills comprised of both diabase and extensively underlain by shales and mudstones (Fig. 32). Stone walled sites are closely associated with the diabase outcrops.



Figure 32. *Shale ridge landscape.*

Fieldwork was conducted in winter following a series of veld fires resulting in good visibility (Fig. 31).

12 Findings

Table 1 is an inventory of the archaeological sites recorded during the 2006 and 2019 field surveys. The heritage resources recorded during the survey are assigned significance and a field rating. Recommendations for future mitigation are also included in the table.

12.1 Iron Age Sites

Numerous Iron Age stone-walled settlements were recorded. At several of these the stones have been robbed to use in features such as garden walls at Zwartkoppies (see Fig. 9 and Fig. 49). Küsel (2005) and PGS (2014) also commented on numerous instances of robbed sections, where frequently only the foundations of stone walls remain.

The Iron Age settlements have been grouped into several clusters according to their spatial distribution (Fig. 33).



Figure 33. *Distribution of Iron Age clusters along the ridge area.*

12.1.1 Cluster 1

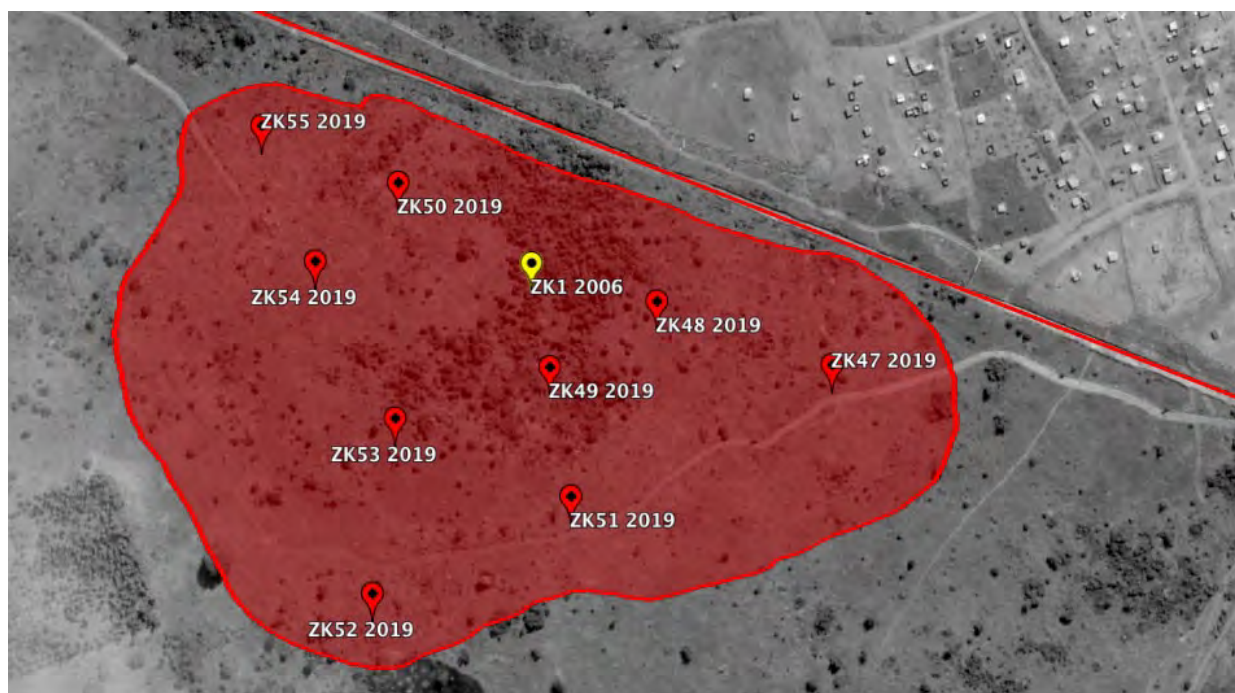


Figure 34. Iron Age sites in Cluster 1.

Site name	Brief description	Coordinates	Significance and recommendations
ZK1 2006	Several Iron Age stone wall units forming a cluster or complex. Most stonewalling is low > 500 mm. Some later occupation is also evident.	25° 45' 11.0 28° 24' 50.8"	The complex is regarded as having a medium significance. There is much variation in the unit regarding size and wall heights. These sites must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK47 2019		25° 45' 12.9 28° 24' 56.9"	
ZK48 2019		25° 45' 11.7 28° 24' 53.3"	
ZK49 2019		25° 45' 12.90 28° 24' 51.17"	
ZK50 2019		25° 45' 09.5 28° 24' 48.1"	
ZK51 2019		25° 45' 15.3 28° 24' 51.6"	
ZK52 2019		25° 45' 17.0 28° 24' 47.6"	
ZK53 2019		25° 45' 13.8 28° 24' 48.0"	
ZK54 2019		25° 45' 11.0 28° 24' 46.4"	
ZK55 2019		25° 45' 08.5 28° 24' 45.3"	

The following images illustrate some of the walling of sites in Cluster 1 (Figs 35-37)



Figure 35. *Current housing close to archaeological site ZK48 2019.*



Figure 36. *ZK49 219 rectangular structure in old kraal.*



Figure 37. *Example of low-level walling in Cluster 1.*

12.1.2 Cluster 2

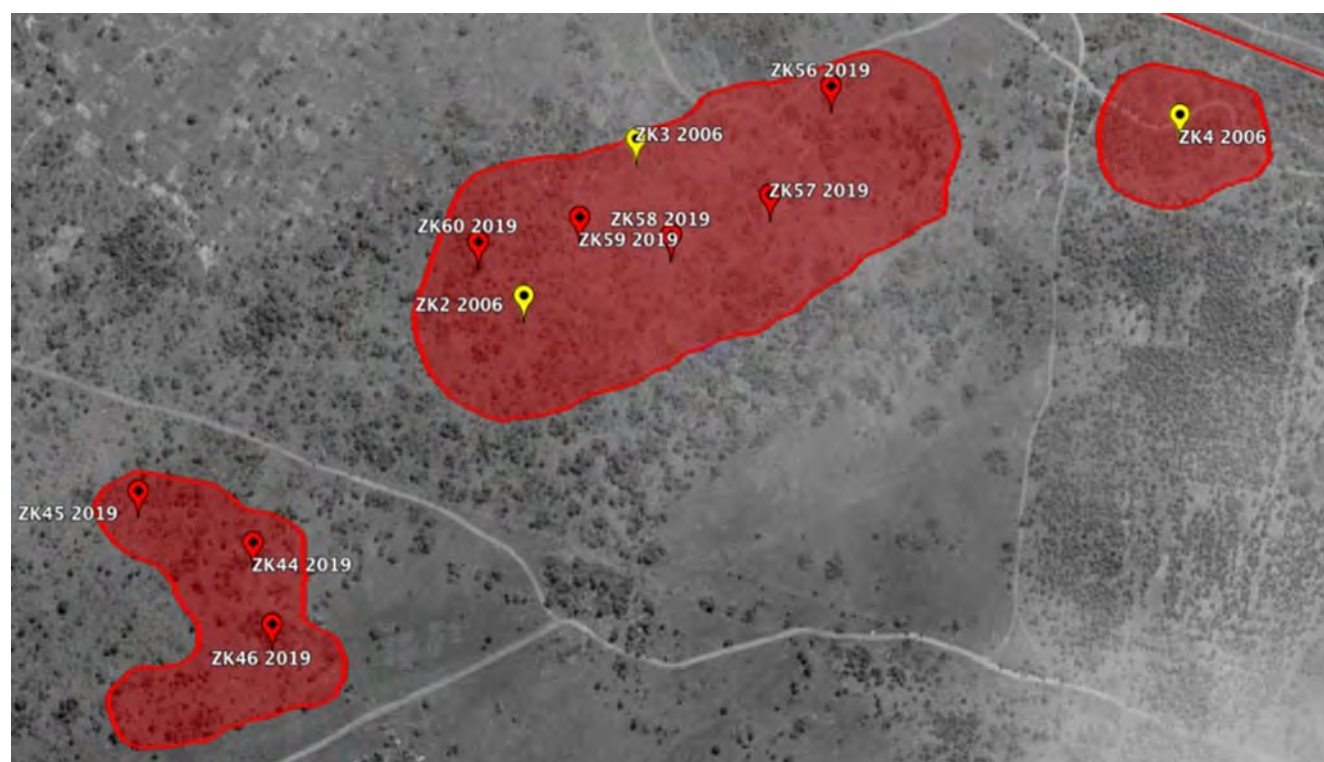


Figure 38. Iron Age sites in Cluster 2.

Site name	Brief description	Coordinates	Significance and recommendations
ZK2 2006	Small Iron Age complex/cluster 30 m in diameter with low stonewalling	25° 45' 07.0 28° 24' 09.0"	The complexes are regarded to have a medium significance. These sites must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK3 2006	Large Iron Age complex/cluster, ± 300 m from east to west	25° 45' 03.1 28° 24' 12.1"	
ZK56 2019		25° 45' 01.8 28° 24' 17.5"	
ZK57 2019		25° 45' 04.5 28° 24' 15.8"	
ZK58 2019		25° 45' 05.5 28° 24' 13.1"	
ZK59 2019		25° 45' 05.1 28° 24' 10.5"	
ZK60 2019		25° 45' 05.7 28° 24' 07.7"	
ZK4 2006	This smaller site seems to have been impacted by robbing of stones.	25° 45' 02.5 28° 24' 27.1"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK44 2019	At least three smaller units forming a complex/cluster	25° 45' 13.1 28° 24' 01.5"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local
ZK45 2019		25° 45' 11.9 28° 23' 58.4"	
ZK46 2019		25° 45' 15.2 28° 24' 02.1"	

			Resource
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12.1.3 Cluster 3

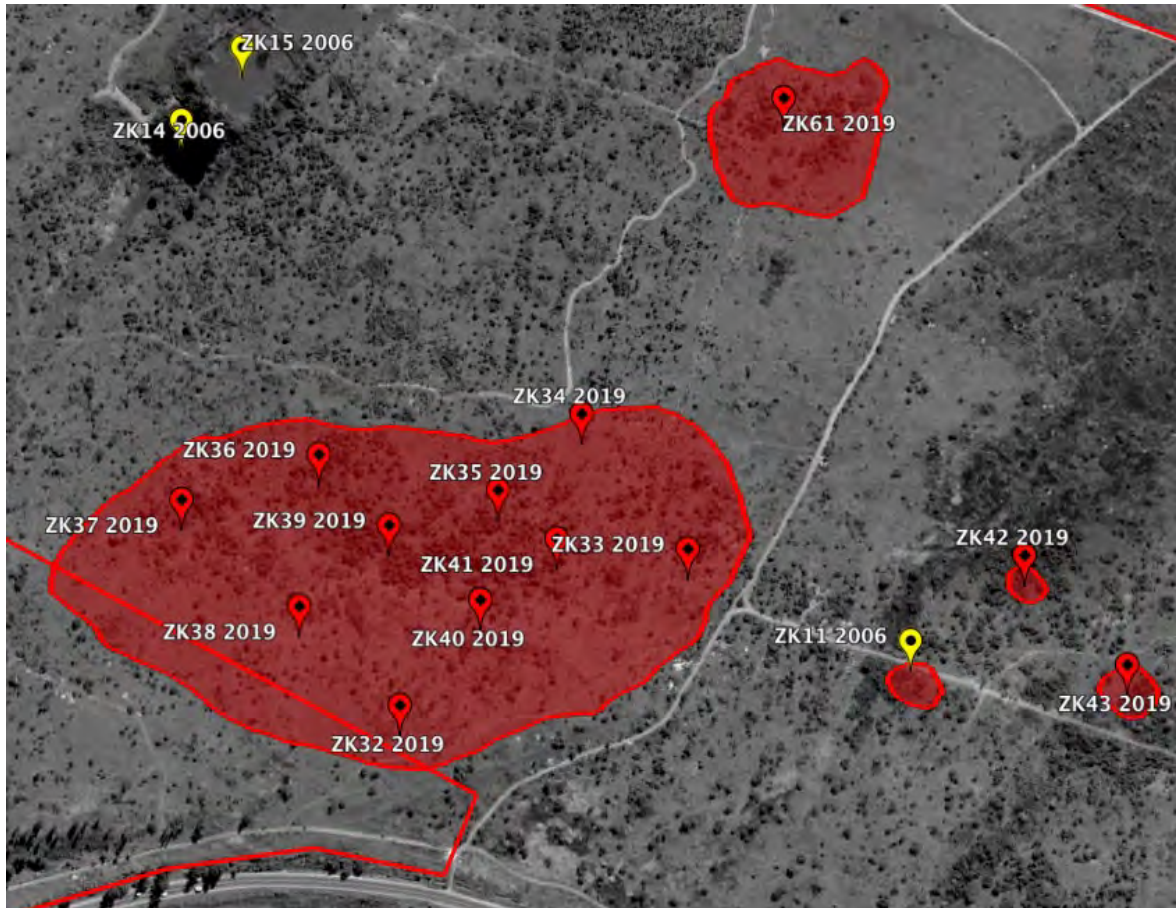


Figure 39. Iron Age sites in Cluster 3.

Site name	Brief description	Coordinates	Significance and recommendations
ZK11 2006	Small site with poor visibility	25° 45' 04.6 28° 23' 43.3"	Low to no significance, no further action required Proposed Field Rating/Grade IIIIC Local Resource
ZK42 2019	Small site, transformed	25° 45' 02.2 28° 23' 46.8"	Low to no significance, no further action required Proposed Field Rating/Grade IIIIC Local Resource
ZK43 2019	Small site, possibly extensively robbed for stones	25° 45' 05.3 28° 23' 50.1"	Low to no significance, no further action required Proposed Field Rating/Grade IIIIC Local Resource
ZK61 2019	Isolated Iron Age complex	25° 44' 49.4 28° 23' 39.3"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIIC Local Resource

ZK32 2019	Large number of stone wall units forming a cluster or complex. Stone walling varies in height from 300 mm to 800 mm. Some later occupation also present.	25° 45' 06.4 28° 23' 27.3"	Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK33 2019		25° 45' 02.0 28° 23' 36.3"	
ZK34 2019		25° 44' 58.2 28° 23' 33.0"	
ZK35 2019		25° 45' 00.4 28° 23' 30.4"	
ZK36 2019		25° 44' 59.4 28° 23' 24.8"	
ZK37 2019		25° 45' 00.6 28° 23' 20.5"	
ZK38 2019		25° 45' 03.6 28° 23' 24.2"	
ZK39 2019		25° 45' 01.3 28° 23' 27.0"	
ZK40 2019		25° 45' 03.4 28° 23' 29.9"	
ZK41 2019		25° 45' 01.7 28° 23' 32.2"	

The following images illustrate sites in Cluster 3 (Figs 40-44).



Figure 40. Typical site at ZK40 2019.



Figure 41. *General view of low-level stonewalling in this Cluster 3.*



Figure 42. *Detail of site ZK34 2019.*



Figure 43. *Site at ZK34 2019 as viewed from the ground.*



Figure 44. *Site ZK34 2019 in Fig. 44 recorded from a low-level drone image.*

12.1.4 Cluster 4

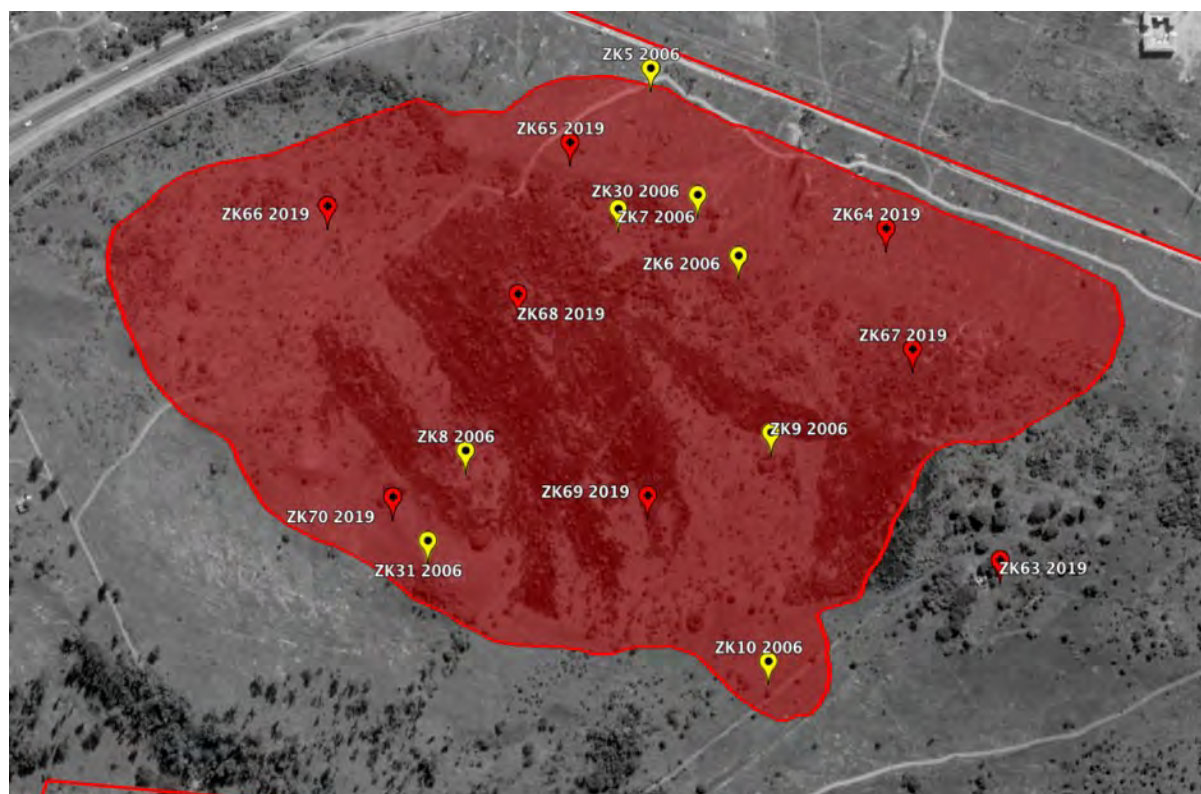


Figure 45. Cluster 4 along the north-west boundary.

Note that ZK30, ZK31, ZK63 and ZK70 in Fig. 45 above are historical sites.

Site name	Brief description	Coordinates	Significance and recommendations
ZK5 2006	Large number of units scattered over a large area. Variable walling. Rand Water servitude impacts this area. Previously several LIA stonewalled sites were recorded during a Phase 2 (PGS 2014).	25° 44' 29.0 28° 22' 57.5"	These sites are collectively assigned a Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK6 2006		25° 44' 34.2 28° 23' 00.2"	
ZK7 2006		25° 44' 32.9 28° 22' 56.5"	
ZK8 2006		25° 44' 39.6 28° 22' 51.8"	
ZK9 2006		25° 44' 39.1 28° 23' 01.2"	
ZK10 2006		25° 44' 45.4 28° 23' 01.1"	
ZK64 2019		25° 44' 33.4 28° 23' 04.7"	
ZK65 2019		25° 44' 31.1 28° 22' 55.0"	
ZK66 2019		25° 44' 32.8 28° 22' 47.6"	
ZK67 2019		25° 44' 36.8 28° 23' 05.6"	
ZK68 2019		25° 44' 35.3 28° 22' 53.4"	
ZK69 2019		25° 44' 40.8 28° 22' 57.4"	

Note that this area was also previously impacted by a Rand Water (see PGS 2014).

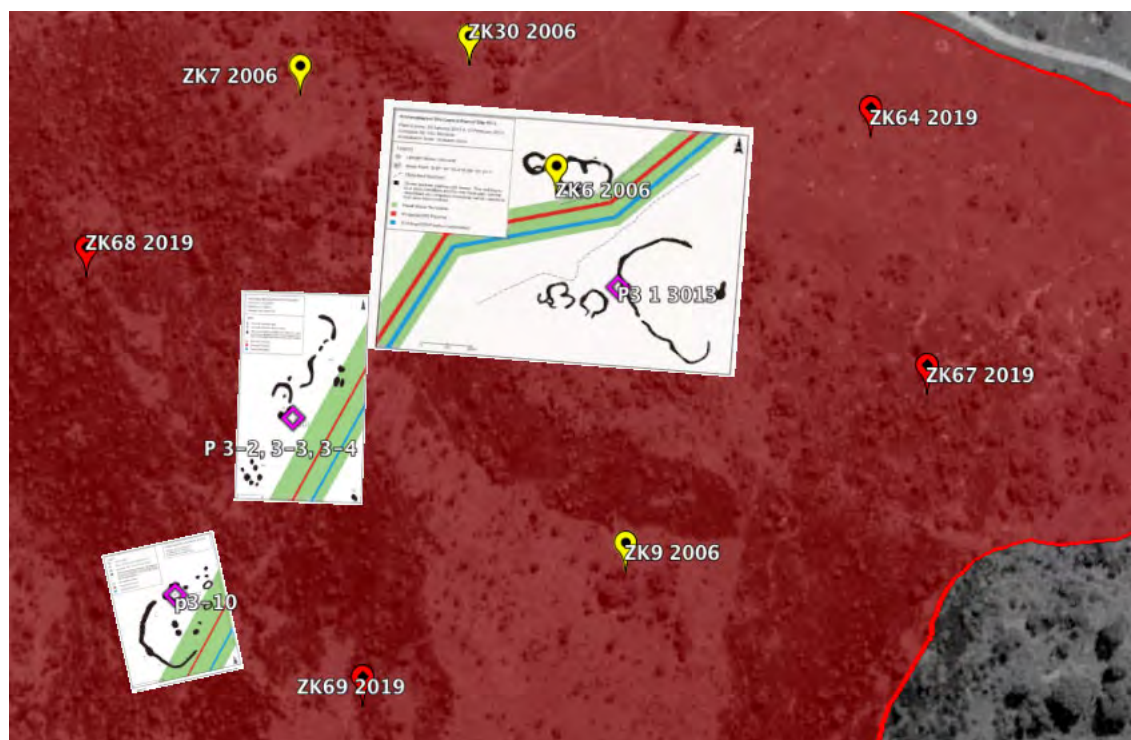


Figure 46. Some of the sites mitigated by PGS in 2014.

The following images illustrate sites from Cluster 4 (Fig. 47-48).



Figure 47. ZK5 2006.



Figure 48. ZK68 2019.

12.2 Potential informal grave

A potential grave feature was recorded. The feature shows a large central stone with smaller stones on the periphery (Fig. 49).



Figure 49. Potential grave at $25^{\circ}44'40.19''S$ $28^{\circ}22'54.57''E$.

The Iron Age stonewalled complexes comprise of a number of circular features and include cattle, domestic and production spaces. In some cases, the stone walling has been robbed (see also Küsel 2005; PGS 2014). Some of the lower stone walls may also represent foundations to wooden palisade enclosures. Evidence for local reoccupation of the sites in historical times are also evident. The sites on Zwartkoppies are most likely associated with the Manala Ndebele.

Collectively the Iron Age settlements and their distribution across the landscape is regarded as important heritage features. As a result of increased urban development many of stonewalled settlements associated with the Manala has been destroyed. The sites on this farm are not regarded as unique and similar, sites are found in the wider area or district, many with more significant walling and other features (see also van der Walt 2017). Collectively these sites are deemed to be of Medium significance, requiring a representative sample to be documented, recorded and investigated as part of a Phase 2 assessment in terms of the archaeological component of Section 35 of the NHRA with the aim of identifying the most significant sites for preservation and appropriate incorporation into the proposed development as Open Space Resources.

12.3 Re-use of stones from archaeological features

Stones from the stone-walled settlements have been robbed to build features such as garden walls (Fig. 9). It has been observed that severe robbing in several structures removed most of the stones, leaving merely the foundation stones intact. This has been commented upon by various other heritage practitioners (see Küsel 2005, 2006; PGS 2014). In the example below the extensive kraal at Zwartkoppies Hall was built with stones removed from Iron Age sites (Fig. 50).



Figure 50. Stone kraal built with stones collected from archaeological sites (robbed).

12.4 Historic sites

12.4.1 Houses of farm labourers, cemeteries and graves

Several houses of labourers and associated cemeteries or graves were recorded in 2006 and revisited during the August 2019 field survey.

Site name	Brief description	Coordinates	Significance and recommendations
ZK12 2006	Pienaarsrivier weirs. A canal channelled water to a dam, boathouse and power station. Excess water was channelled to a dam south of the homestead. Water released from this dam and the hydro power station was used for the irrigation of the fields between the homestead and the river.	25° 45' 58.2 28° 24' 09.6"	The proposed development will not directly impact the areas below the flood line. The canal system has not functioned since the 1940s. It is recommended to retain these landscape elements where possible. Proposed Field Rating/Grade IIIC Local Resource
ZK13 2006		25° 45' 10.7 28° 22' 39.3"	
ZK14 2006	Hoffmann dams The dams collected rainwater, with canals to the gardens and fields.	25° 44' 50.0 28° 23' 20.5"	The proposed development will not directly impact the areas below the flood line. The area has been set aside in the proposed development plan and will be retained Proposed Field Rating/Grade IIIC Local Resource
ZK15 2006		25° 44' 47.9 28° 23' 22.4"	
ZK16 2006	Labourer house remains Family resident since 1902 (pers. comm. 2006 Juanitha Molefi, and that the family moved to another dwelling). Dwelling has been abandoned for some time	25° 45' 38.1 28° 24' 38.0"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK17 2006	Cemetery with 13 graves of the Molefi family	25° 45' 37.7 28° 24' 15.0"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource

ZK18 2006	Labourers houses Bobo family, resident for 23 years in 2006	25° 46' 36.9 28° 24' 31.4"	Medium significance. The sites must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK19 2006	Labourer house Masangane family, resident for 15 years in 2006	25° 46' 18.0 28° 24' 32.6"	
ZK20 2006	Labourer house Lodi family, resident since early 20 th century	25° 45' 41.2 28° 24' 45.9"	
ZK21 2006	Labourer cemetery, 41 graves, earliest headstone with a date, 1942	25° 45' 41.3 28° 24' 43.7"	Medium significance. The sites must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK22 2006	Labourer cemetery, 12 graves, earliest headstone with a date, 1934	25° 45' 43.7 28° 24' 44.8"	
ZK23 2006	Two houses Manyake family, resident since 1921	25° 44' 39.0 28° 22' 35.4"	Medium significance. The sites must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK24 2006	Ruins of labourer house	25° 46' 31.5 28° 24' 33.2"	
ZK25 2006	Ruins of labourer house	25° 46' 28.2 28° 24' 32.2"	
ZK26 2006	Ruins of labourer house	25° 46' 25.9 28° 24' 31.3"	
ZK27 2006	Ruins of labourer house plus 1 grave	25° 46' 27.4 28° 24' 34.2"	Medium significance. The site must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK28 2006	Ruins of labourer house plus 1 grave	25° 45' 34.2 28° 24' 36.7"	
ZK29 2006	Ruins of labourer house plus cemetery with 33 graves, earliest headstone with inscription that of Salome Nolola 1946.	25° 46' 42.6 28° 24' 29.2"	
ZK30 2006	Trench on the eastern and northern sides of a low hill. Just north of this koppie in the new township of Nellmapius is another koppie with trenches. The Zwartkoppies farm formed part of the Diamond Hill Battlefield during the Anglo Boer War. This was the last conventional battle between the Boers and British soldiers before the Boers turned to guerrilla warfare.	25° 44' 32.5 28° 22' 58.9"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK31 2006	Shale quarry. The foundation stones for the buildings on Sammy Marks were probably quarried at this locality.	25° 44' 42.1 28° 22' 50.6"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK70 2019	Smaller shale quarry.	25° 44' 40.9 28° 22' 49.6"	
ZK62 2019	Horse cart racetrack and associated tree avenue	25° 44' 53.3 28° 23' 02.9"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK63 2019	Clay pigeon shooting range dating from after the 1940s very little remains	25° 44' 42.6 28° 23' 08.2"	Low to no significance. Proposed Field Rating/Grade IIIC Local Resource

			Resource
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The following images illustrate the spatial distribution of the house localities and their associated cemeteries and isolated graves (Figs 51-52).

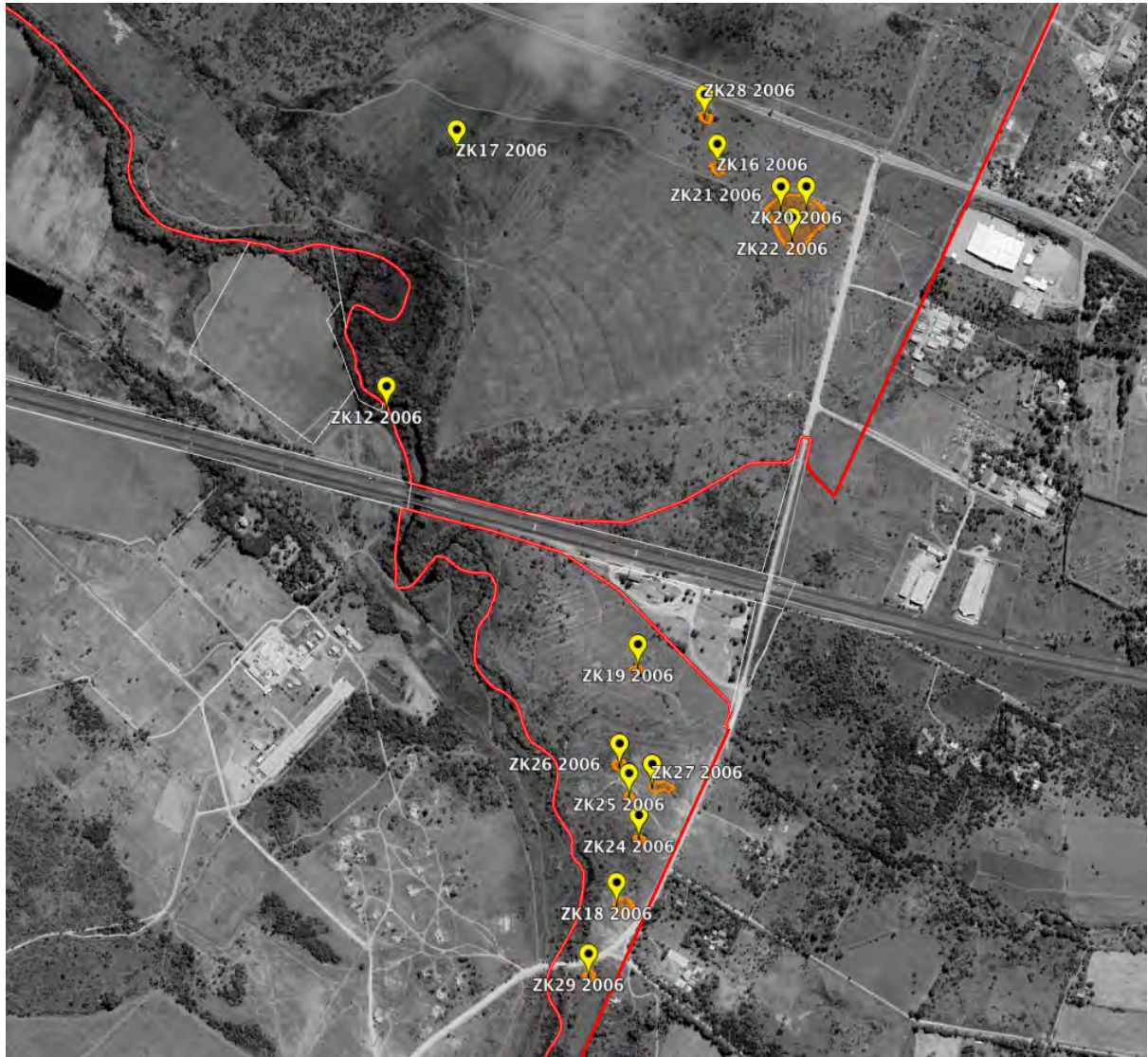


Figure 51. Houses of farm workers, cemeteries and graves clustered on the south-west of the farm.



Figure 52. *Site ZK23 2006 the Manyaka family homestead is the only workers house on the eastern side of the farm.*

The following images illustrate some of the houses and cemeteries associated with families who resided on Zwartkoppies (Figs 53-60).



Figure 53. *House of the Manyaka family who lived on the farm since the beginning of the 20th century ZK23 2019.*



Figure 54. *Abandoned Manyaka family houses ZK23/2019.*



Figure 55. *Room in abandoned Manyaka family house at ZK23/2019.*



Figure 56. ZK22 2006 graves at the Manyaka family cemetery with 19 graves of which the oldest dates to 1934.



Figure 57. Lodi family cemetery with some 30 graves ZK21 2006.



Figure 58. *Lodi family home at ZK20 2006.*



Figure 59. *Matjila cemetery with 22 graves at ZK29 2006.*



Figure 60. ZK18 2006 houses of the Sibande family who lived here since 1947.

The workers' cottages on the farm are also of historical interest, particularly those of the Lodi and Manyaka families. Of these the Manyaka home is the best example of an early farm worker's house. The large cemeteries are also of importance and need a careful approach, as graves are a sensitive issue.

12.4.2 Shale quarries

Two shale quarries were recorded where the foundation stones for the Zwartkoppies structures were probably extracted (Figs 61-62).

Site name	Brief description	Coordinates	Significance and recommendations
ZK31 2006	Shale quarry. The foundation stones for the buildings on Sammy Marks were probably quarried at this locality.	25° 44' 42.1 28° 22' 50.6"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK70 2019	Smaller Shale quarry.	25° 44' 40.9 28° 22' 49.6"	



Figure 61. *Large shale quarry ZK31 2006.*



Figure 62. *Smaller shale quarry ZK70 2019.*

12.5 Other historical features

12.5.1 Irrigation features

Several features relating to farming on Zwartkoppies have been recorded.(see Figs 22-26).

These date from early 1900 to the 1940s.

Site name	Brief description	Coordinates	Significance and recommendations
ZK12 2006	Pienaarsrivier weirs Canal channelled water to dam, boathouse and power station. Excess water channelled to a dam south of the homestead. Water released from this dam and the hydro power station was used for the irrigation of the fields between the homestead and the river.	25° 45' 58.2 28° 24' 09.6"	The proposed development will not directly impact the areas below the flood line. The canal system has not functioned since the 1940s. It is recommended to retain these landscape elements where possible. Proposed Field Rating/Grade IIIC Local Resource
ZK13 2006		25° 45' 10.7 28° 22' 39.3"	
ZK14 2006	Hoffmann dams The dams collected rainwater, with canals to the gardens and fields.	25° 44' 50.0 28° 23' 20.5"	The proposed development will not directly impact the areas below the flood line. The area has been set aside in the proposed development plan and will be retained Proposed Field Rating/Grade IIIC Local Resource
ZK15 2006		25° 44' 47.9 28° 23' 22.4"	

12.5.2 Possible Anglo Boer War trenches

Site name	Brief description	Coordinates	Significance and recommendations
ZK30 2006	Trenches on the eastern and northern sides of a low hill. Just north of this koppie in the new township of Nellmapius is another koppie with trenches. The Zwartkoppies farm formed part of the Diamond Hill Battlefield during the Anglo Boer War. This was the last conventional battle between the Boers and British soldiers before the Boers turned to guerrilla warfare.	25° 44' 32.5 28° 22' 58.9"	Medium significance. These features must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource

Trenches on the eastern and northern sides of a low hill were recorded. The trenches are like the features constructed during the Anglo Boer War. Just north of this koppie in the new township of Nellmapius is another koppie with trenches. The Zwartkoppies farm formed part of the Diamond Hill Battlefield during the Anglo Boer War. This was the last conventional battle between the Boers and British soldiers before the Boers turned to guerrilla warfare.

The koppie with the possible remains of the Anglo Boer War trenches needs further

investigation. If it turns out that these trenches are indeed Anglo Boer War trenches the site would be worth preserving.

12.5.3 Horse cart racetrack and avenue of trees: ZK62 2019

Site name	Brief description	Coordinates	Significance and recommendations
ZK62 2019	Horse cart racetrack and associated tree	25° 44' 53.3 28° 23' 02.9"	Low significance. Proposed Field Rating/Grade IIIC Local Resource

The remains of a horse cart racetrack are extant (Fig. 63). It consists only of a circular planting of trees. To the south is also an avenue of pine trees that leads towards the Hoffmann dams and possibly linked the estate with the railway line. Although still clearly visible on the 1940s aerial photograph, it was seemingly abandoned on the 1920s. Currently only a section of the avenue remains, and the feature is not deemed to be of any significance.



Figure 63. 1940 photograph of the horse cart racetrack and avenue of trees leading to the Hoffman dams.

12.5.4 Clay pigeon shooting range:

Site name	Brief description	Coordinates	Significance and recommendations
ZK63 2019	Clay pigeon shooting range dating from after the 1940s very little remains	25° 44' 42.6 28° 23' 08.2"	Low to no significance. Proposed Field Rating/Grade IIIC Local Resource

A dedicated clay pigeon shooting range with associated buildings and structures were constructed sometime after 1940 as these are not visible on the aerial photograph of this date. Today the only remains are several mature *Jacaranda mimosifolia* trees. Most of the former buildings have been recycled by adjacent informal settlements. This site is on no heritage significance.

12.6 Chance finds, potential risks and limitations

All field surveys are limited to a degree by the available time budget. It is the opinion of the authors that based on the scope of the brief, sufficient time and efforts were allocated during the survey to obtain a thorough understanding of the archaeological and historical contexts as well as the distribution of heritage resources that include archaeological sites and artefacts over the landscape.

- Several burial grounds or graves older than 60 years have been recorded during the HIA.

It should be noted that unidentified graves often occur within the general area. For example, PGS acquired a permit (No. 80/07/04/003/51) for Hatherley Farm 331JR. Nienaber and Steyn too requested a permit (No. 80/05/10/01/51) in 2005 for the exhumation of seven unidentified graves from the farm Zwartkoppies 364 JR, which were subsequently relocated to Mamelodi cemetery.

- If any sub-surface heritage resources or graves are unearthed all work must stop until an assessment as to the significance of the site (or material) in question has been made by a heritage practitioner. Note that no archaeological material that has been uncovered may be removed. This applies to graves and cemeteries as well. Should any graves or burial places be located during the development, the procedures and requirements pertaining to graves and burials will apply. If human remains are uncovered, or previously unknown graves are discovered, a qualified archaeologist needs to be contacted and an evaluation of the finds made. If the remains are to be exhumed and relocated, the relocation procedures as accepted by SAHRA need to be

followed. This includes an extensive social consultation process in conjunction with the mitigation of cemeteries and burials.

- If any archaeological material is uncovered during development then work in the immediate area should cease. The find will need to be reported to SAHRA or an archaeologist.
- If any area that contains stone artefacts in reasonable numbers (e.g. more than 10 within a few metres of one another) or in high concentrations are noted during the proposed developments this should be inspected by an archaeologist prior to any disturbance.

13 Conclusions and recommendations

Numerous heritage sites have been recorded for the remaining extent of the farm Zwartkoppies 364 JR. Stonewalled settlements from the LIA and sites dating to the historical period make up the bulk of the sites. Throughout the farm unmarked graves of informal cemeteries have a high probability of occurrence and a number of these have been recorded from the locality. The tangible and intangible features from the Anglo-Boer War and the recent colonial history should also be considered in any future development. It is therefore recommended that the mitigation as set out in the following table be adhered to:

Table 1: Iron Age and Historical sites recorded at Zwartkoppies			
Site name	Brief description	Coordinates	Significance and recommendations
Stonewalled Iron Age sites			
ZK1 2006	Large Iron Age complex/cluster Low stone walling part of complex 1	25° 45' 11.0 28° 24' 50.8"	The complex is regarded as having a medium significance. There is much variation in the unit regarding size and wall heights. These sites must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK2 2006	Small Iron Age complex/cluster 30 m in diameter with low stonewalling	25° 45' 07.0 28° 24' 09.0"	Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource

ZK3 2006	Part of a large Iron Age complex/cluster, ± 300 m from east to west	25° 45' 03.1 28° 24' 12.1"	Part of Cluster 2. Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK4 2006	A smaller site that seems to have been impacted by robbing	25° 45' 02.5 28° 24' 27.1"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK5 2006	Large number of units, variable walling and scattered over a large area. Rand Water servitude impacts this area. Previously several settlements were investigated in a Phase 2(PGS 2014).	25° 44' 29.0 28° 22' 57.5"	Part of Cluster 4. These sites are collectively assigned a Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK6 2006		25° 44' 34.2 28° 23' 00.2"	
ZK7 2006		25° 44' 32.9 28° 22' 56.5"	
ZK8 2006		25° 44' 39.6 28° 22' 51.8"	
ZK9 2006		25° 44' 39.1 28° 23' 01.2"	
ZK10 2006		25° 44' 45.4 28° 23' 01.1"	
ZK11 2006	Small site with poor visibility	25° 45' 04.6 28° 23' 43.3"	Low to no significance, no further action required Proposed Field Rating/Grade IIIC Local Resource
ZK12 to ZK 31 are historical sites			
ZK32 2019	Large number of stone wall units forming a cluster or complex. Stone walling varied from 300mm to 800mm. Some later occupation also present.	25° 45' 06.4 28° 23' 27.3"	Part of Cluster 3. Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK33 2019		25° 45' 02.0 28° 23' 36.3"	
ZK34 2019		25° 44' 58.2 28° 23' 33.0"	
ZK35 2019		25° 45' 00.4 28° 23' 30.4"	
ZK36 2019		25° 44' 59.4 28° 23' 24.8"	
ZK37 2019		25° 45' 00.6 28° 23' 20.5"	
ZK38 2019		25° 45' 03.6 28° 23' 24.2"	
ZK39 2019		25° 45' 01.3 28° 23' 27.0"	
ZK40 2019		25° 45' 03.4 28° 23' 29.9"	
ZK41 2019		25° 45' 01.7 28° 23' 32.2"	
ZK42 2019		Small site, transformed	
ZK43 2019	Small site, possibly extensively robbed	25° 45' 05.3 28° 23' 50.1"	
ZK44 2019	At least three smaller units forming a complex/cluster	25° 45' 13.1 28° 24' 01.5"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK45 2019		25° 45' 11.9 28° 23' 58.4"	
ZK46 2019		25° 45' 15.2 28° 24' 02.1"	
ZK47 2019	Several Iron Age stone wall units forming a cluster or complex. Most of the stonewalling is low > 500mm. Several instances of later occupation were also observed	25° 45' 12.9 28° 24' 56.9"	Part of Cluster 1 The complex is regarded as having a medium significance. There is much variation in the unit regarding size and wall heights. These sites must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK48 2019		25° 45' 11.7 28° 24' 53.3"	
ZK49 2019		25° 45' 12.90 28° 24' 51.17"	
ZK50 2019		25° 45' 09.5 28° 24' 48.1"	
ZK51 2019		25° 45' 15.3 28° 24' 51.6"	
ZK52 2019		25° 45' 17.0 28° 24' 47.6"	
ZK53 2019		25° 45' 13.8 28° 24' 48.0"	
ZK54 2019		25° 45' 11.0 28° 24' 46.4"	
ZK55 2019		25° 45' 08.5 28° 24' 45.3"	

ZK56 2019	Form Large Iron Age complex/cluster, ± 300 m from east to west	25° 45' 01.8 28° 24' 17.5"	Part of Cluster 2 Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK57 2019		25° 45' 04.5 28° 24' 15.8"	
ZK58 2019		25° 45' 05.5 28° 24' 13.1"	
ZK59 2019		25° 45' 05.1 28° 24' 10.5"	
ZK60 2019		25° 45' 05.7 28° 24' 07.7"	
ZK61 2019	Isolated Iron Age complex	25° 44' 49.4 28° 23' 39.3"	Medium to low significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIC Local Resource
ZK62 to ZK63 are historical sites			
ZK64 2019	Large number of units, variable walling and scattered over a large area. Rand water servitude impacts this area. Previously number of graves were relocated from here.	25° 44' 33.4 28° 23' 04.7"	Part of Cluster 4. These sites are collectively assigned a Medium significance. This site must be recorded, and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK65 2019		25° 44' 31.1 28° 22' 55.0"	
ZK66 2019		25° 44' 32.8 28° 22' 47.6"	
ZK67 2019		25° 44' 36.8 28° 23' 05.6"	
ZK68 2019		25° 44' 35.3 28° 22' 53.4"	
ZK69 2019		25° 44' 40.8 28° 22' 57.4"	
ZK70 is a historical site			
Historical sites:			
Irrigation features			
ZK12 2006	Pienaarsrivier weirs Canal channelled water to dam, boathouse and power station. Excess water channelled to a dam south of the homestead. Water released from this dam and the hydro power station was used for the irrigation of the fields between the homestead and the river.	25° 45' 58.2 28° 24' 09.6"	The proposed development will not directly impact the areas below the flood line. The canal system has not functioned since the 1940s. It is recommended to retain these landscape elements where possible. Proposed Field Rating/Grade IIIC Local Resource
ZK13 2006		25° 45' 10.7 28° 22' 39.3"	
ZK14 2006	Hoffmann dams The dams collected rainwater, with canals to the gardens and fields.	25° 44' 50.0 28° 23' 20.5"	The proposed development will not directly impact the areas below the flood line. The area has been set aside in the proposed development plan and will be retained Proposed Field Rating/Grade IIIC Local Resource
ZK15 2006		25° 44' 47.9 28° 23' 22.4"	
Labourer housing, formal cemeteries and graves			
ZK16 2006	Labourer house remains and cemetery of the Molefi family. Family resident since 1902 (pers. comm. 2006 Juanitha Molefi, and that the family moved to another dwelling).	25° 45' 38.1 28° 24' 38.0"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK17 2006	Cemetery with 13 graves of the Molefi family	25° 45' 37.7 28° 24' 15.0"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed. Proposed Field Rating/Grade IIIB Local Resource
ZK18 2006	Labourers houses Bobo family, resident for 23 years in 2006	25° 46' 36.9 28° 24' 31.4"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK19 2006	Labourer house Masangane family, resident for 15 years in 2006	25° 46' 18.0 28° 24' 32.6"	

ZK20 2006	Labourer house Lodi family, resident since early 20 th century	25° 45' 41.2 28° 24' 45.9"	
ZK21 2006	Labourer cemetery, 41 graves, earliest headstone with a date, 1942	25° 45' 41.3 28° 24' 43.7"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed.
ZK22 2006	Labourer cemetery, 12 graves, earliest headstone with a date, 1934	25° 45' 43.7 28° 24' 44.8"	Proposed Field Rating/Grade IIIB Local Resource
ZK23 2006	Two houses Manyake family, resident since 1921	25° 44' 39.0 28° 22' 35.4"	Medium significance. This site must be documented/recorded prior to destruction.
ZK24 2006	Ruins of labourer house	25° 46' 31.5 28° 24' 33.2"	Proposed Field Rating/Grade IIIC Local Resource
ZK25 2006	Ruins of labourer house	25° 46' 28.2 28° 24' 32.2"	
ZK26 2006	Ruins of labourer house	25° 46' 25.9 28° 24' 31.3"	
ZK27 2006	Ruins of labourer house plus 1 grave	25° 46' 27.4 28° 24' 34.2"	Medium significance. This site must be documented/recorded and appropriate mitigation proposed.
ZK28 2006	Ruins of labourer house plus 1 grave	25° 45' 34.2 28° 24' 36.7"	Proposed Field Rating/Grade IIIB Local Resource
ZK29 2006	Ruins of labourer house plus cemetery with 33 graves, earliest headstone with inscription that of Salome Nolola 1946.	25° 46' 42.6 28° 24' 29.2"	
Other historical features			
ZK30 2006	Anglo Boer War trench on the eastern and northern sides of a low hill. Just north of this koppie in the new township of Nellmapius is another koppie with trenches. The Zwartkoppies farm formed part of the Diamond Hill Battlefield during the Anglo Boer War. This was the last conventional battle between the Boers and British soldiers before the Boers turned to guerrilla warfare.	25° 44' 32.5 28° 22' 58.9"	Medium significance. This site must be documented/recorded prior to destruction. Proposed Field Rating/Grade IIIC Local Resource
ZK31 2006	Shale quarry. The foundation stones for the buildings on Sammy Marks were probably quarried at this locality.	25° 44' 42.1 28° 22' 50.6"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK62 2019	Horse cart racetrack and associated tree avenue	25° 44' 53.3 28° 23' 02.9"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK63 2019	Clay pigeon shooting range dating from after the 1940s very little remains	25° 44' 42.6 28° 23' 08.2"	Low significance. Proposed Field Rating/Grade IIIC Local Resource
ZK70 2019	Smaller shale quarry	25° 44' 40.9 28° 22' 49.6"	Low significance. Proposed Field Rating/Grade IIIC Local Resource

14 References

- AGES. 2008. Phase 1 Heritage Impact Assessment proposed pipeline between Vlakfontein and Mamelodi Tshwane, Kungwini & Ekurhuleni Municipalities, Gauteng Province. Compiled for: Africon (Pty) Ltd.
- AGES. 2011. Phase 1 AIA Report on Delf Sand (Pty) Ltd: Delf Cullinan Sand Mine, Brandbach 471 JR, Gauteng Province. For: Delf Sand (Pty) Ltd.
- Archaeology Africa CC. 2007. Phase 1 Heritage Impact Assessment proposed Pienaarspoort Residential Development on portions of the Farm Pienaarspoort 339 JR, Tshwane Metropolitan Municipality, Gauteng Province. Compiled for Kwezi V3 (Pty) Ltd).
- Archaeos Culture & Cultural Resource Consultants. 2008. A report on a Cultural Heritage Impact Assessment on portions 275 & 478 of the farm Zwaveloort 373 JR, near Pretoria, Gauteng. For: Eap Route 2 on behalf of Multidirect Investments (Pty) Ltd.
- Archaeos Culture & Cultural Resource Consultants. 2009. A final report on the archaeological investigation of a Late Iron Age (Ndebele) stone walled settlement on the remainder of Hatherley 331 JR, Near Mamelodi, Gauteng. Prepared for Dudula Environmental Consulting.
- Archaeos Culture & Cultural Resource Consultants. 2012. A Cultural Heritage Management Plan for the Moretele Resort, City of Tshwane. For the City of Tshwane, Department of Housing, City Planning and Environmental Management, Division Nature Conservation and Resorts.
- Australia ICOMOS. 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013*. Burwood, VIC: Australia ICOMOS.
- Brink, E. & Krige, S. 1999. Remapping and remembering the South African War in Johannesburg and Pretoria. *South African Historical Journal* 41(1): 404-421, DOI: 10.1080/02582479908671901.
- Bruwer, J. & Martinson, W. 2012. Heritage Impact Assessment. Proposed upgrade of the Solomon Mahlangu Precinct.
- Burra Charter. 1999. *The Australia ICOMOS Charter for Places of Cultural Significance with associated Guidelines and Code on the Ethics of Co-existence*. Australia ICOMOS Inc. International Council of Monuments and Sites.
- Burra Charter. 2013. *The Australia ICOMOS Charter for Places of Cultural Significance with associated Guidelines and Code on the Ethics of Co-existence*. Australia ICOMOS Inc. International Council of Monuments and Sites.
- Coetzee, F.P. 2008. Cultural Heritage Survey of the Proposed Residential Development on the Farm

Nooitgedacht 333 JR, Mamelodi. Prepared for Ages Environmental.

Deacon, J. 1984a. *The Later Stone Age of southernmost Africa*. Oxford: BAR International Series 213.

Deacon, J. 1984b. Later Stone Age people in southern Africa. In: Klein, R.G. (ed.) *Southern African prehistory and Paleoenvironments*. Rotterdam: AA Balkema, pp 221-328.

Dept of Environmental Affairs. 2016. Cultural heritage survey guidelines and assessment tools for protected areas in South Africa, pp. 1-40.

Definitions of intangible heritage. n.d. Accessed 11 January 2018 at <https://www.hsrcpublishers/.ac.za>.

Digby Wells Environmental. 2014. Heritage statement report for the Wilgespruit Bridge upgrade. For: Iiso Consulting (Pty) Ltd.

Farber, L.N. 2012. Representations of displacement in the exhibition. Dis-Location/Re-Location. Unpublished PhD, U.P.

Farber, L. & Dreyer, E. 2012. The diary of Bertha Marks as a heterotopia, as articulated in the artwork, *The futility of writing 24-page letters*. *Literator* 33(1), Art. #29, 11 pages.

Freund, B. 1987. Rural struggles and transformations. *South African Historical Journal* 19(1): 167-173, DOI: 10.1080/025824787086716.

Government Gazette. 1989. No.11728. Declaration of Sammy Marks and associated structures: as National Heritage Sites.

<https://www.artefacts.co.za/main/Buildings/bldgframes.php?bldgid=10357>.

https://www.artefacts.co.za/main/Buildings/style_det.php?styleid=1224.

https://www.gauteng.net/attractions/sammy_marks_museum.

<http://www.theheritageportal.co.za/article/sammy-marks-museum-survival-grand-century-old-estate>.

Huffman, T.N. 2005. Archaeological Impact Assessment for Zwartkoppies. Prepared for Seaton Thompson & Associates.

Huffman, T.N. 2007. *Handbook to the Iron Age*. Scotsville: University of KwaZulu-Natal Press.

Küsel, U.S. 2005. A Cultural-Heritage Resources Impact Assessment of the remainder of Portion 2 and Portions 8 and 9 of the farm Zwartkoppies 364 JR.

Küsel, U.S. 2006. A Cultural Heritage Resources Impact Assessment of the farm Zwartkoppies, Pretoria

East.

Küsel, U.S. 2008. Cultural Heritage Resources Impact Assessment of Holding 205 Swavelpoort Tshwane Gauteng.

Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M. Swart, J. & Mitchell, P. 2012. South African and Lesotho Stone Age sequence updated. *South African Archaeological Bulletin* 67: 123-144.

Marais-Botes, L. 2016. Phase 1 Heritage Impact Assessment for the proposed River Walk Development on Remainder Of Portion 6, Portion 241, Portion 138 Of The Farm Zwartkoppies 364-JR.

Marais-Botes, L. 2017. Phase 1 Heritage Impact Assessment for the proposed Bronberg Reservoir site, portion 18 of the farm Tweefontein 372-jr, City of Tshwane Metropolitan Municipality, Pretoria, Gauteng Province. Including a heritage scan of the adjacent area (remaining extent of Tweefontein farm 372-JR, agricultural holding number 76-JR of the Shere agricultural holdings, agricultural holding number 77-JR of the Shere agricultural holdings and erf 520 Bronberg) of the site earmarked for associated activities/infrastructure. For: Rand Water.

McCarthy, T. & Rubidge, B. 2005. *The story of earth and life. A southern African. perspective on a 4.6-billion-year journey*. Cape Town: Struik.

McNabb, J., Binyon, F. & Hazelwood, L. 2004. The Large Cutting Tools from the South African Acheulean and the question of social traditions. *Current Anthropology* 45(5): 653-677.

Mendelsohn, R. 1991. *Sammy Marks: the uncrowned king of the Transvaal*. Cape Town: David Philip.

Miller, S. 2013. Cultural Heritage Resources Impact Assessment for A proposed mining licence on the farm Nooitgedacht 436 JR Portion 25. Prepared for Ecca Holdings (Pty) Ltd.

Mitchell, P.J. 2002a. *The archaeology of southern Africa*. Cambridge: Cambridge University Press.

Mitchell, P.J. 2002b. *Catalogue of Stone Age artefacts from southern Africa in the British Museum*. The British Museum Occasional Paper 108. London: The British Museum.

National Cultural History Museum. 1995. REPORT: 95KH06. A survey of cultural resources in the proposed Pretoria East waste dump site. For van Wyk & Louw Consulting Engineers.

National Cultural History Museum. 1996. REPORT: 96KH07. An investigation of sites on a portion of the farm Hatherley 331JR, Pretoria District. For the City Council of Pretoria.

National Cultural History Museum. 1998. Archaeological Investigation of sites on a portion of the farm Hatherley 331JR, Pretoria District. For the City Council of Pretoria.

Naudé, M. 2003. Architectural significance of the 1886 homestead on the farm Zwartkoppies (Pretoria). *Research by the Cultural History Museum* 12: 140-166.

Naudé, M. & Harley, W. n.d. *Sammy Marks terreinontwikkeling. Voorgestelde ontwikkeling van die plaas Swartkoppies tot ontspaningssterrein deur die Nasionale Kultuurhistoriese Museum, Pretoria.*

National Cultural History Museum. N.d. *Sammy Marks Museum.*

Noomé, I. 2006. What the little Marks knew about Africa. *The English Academy Review* 23(1): 84-101, DOI: 10.1080/10131750608540427.

PGS. 2007. Permit: No. 80/07/04/003/51 Hatherley Farm 331 JR (Mamelodi) graves. SAHRIS accessed 5 February 2015.

PGS. 2016. Permit: Destruction. Permit ID:2231. Late Iron Age stonewalled site on the farm Zwartkoppies 364 JR (P3-1) SAHRIS accessed 2016.

PGS Heritage. 2014. Duplication of the Vlakfontein (Benoni) – Mamelodi water supply pipeline within the existing servitude: R5 Phase 2: from the southern boundary of the Rietvlei Nature Reserve to Mamelodi. Archaeological mitigation report in terms of eight Late Iron Age sites. For: Rand Water.

SAHRA. 1999. *National Heritage Resources Act No. 25 of 1999.* Cape Town: RSA Government Gazette.

SAHRA. 2005/2007. *Minimum standards for the archaeological and the palaeontological components of impact assessment reports.*

SAHRA 2016. *Minimum Standards for Heritage Specialist Studies in terms of Section 38 (1) and 38(8) National Heritage Resources Act (No. 25 of 1999),* pp 1-41. Cape Town: South African Heritage Resources Agency.

SAHRA 2017. *Minimum Standards for Heritage Specialist Studies in terms of Section 38 of the National Heritage Resources Act (No. 25 of 1999)),* pp 1-36. DRAFT. Cape Town: South African Heritage Resources Agency

SAHRA. 2018. Interim Comment. In terms of Section 38(3), 38(8) of the National Heritage Resources Act (Act 25 of 1999.) Unpublished letter dated 22 June 2018.

Van der Walt, J. 2017. Archaeological Impact Assessment for the proposed Sabis School, Gauteng Province. Client: LEAP.

Van Schalkwyk, J.A. 2010. Heritage impact assessment for the proposed development on portion 105 of the farm Zwavelpoort 373 JR, Gauteng Province. Prepared for Interdesign Landscape Architects.

Van Schalkwyk, J.A. 2011a. Heritage Impact Assessment for the proposed upgrade of road R104, Silverton to Bronkhorstspuit, Gauteng Province. Prepared for Chameleon Environmental.

Van Schalkwyk, J. 2011b. Heritage impact assessment for the proposed upgrade of the Baviaanspoort wastewater treatment works, north of Mamelodi, Gauteng Province. Prepared for ILISO Consulting.

Van Schalkwyk, J. 2014. Cultural heritage impact assessment for the Mahube Valley storm water management pipes, Mamelodi Township, Tshwane Municipality, Gauteng Province. For: Envirolution Consulting.

Van Schalkwyk, J.A. 2015. Bridging the country: a brief history of bridges In South Africa. *South African Archaeological Bulletin* 70(202): 193-200.

Van Schalkwyk, J.A., Pelsler, A., & Van Vuuren, C.J. 1996. Investigation of Late Iron Age sites on the farm Hatherley 331 JR, Pretoria district. *Research by the National Cultural History Museum* 5: 45-56.

Van Vuuren, C.J. 2006. Ndebele place names and settlement in Pretoria. *SA Journal of Cultural History* 20(1): 78-99.

Wits Heritage Contracts. 2009. Archaeological Impact Assessment Wildebees infeed station and associated power lines on the farm Hatherley 311 JT, Mamelodi, Gauteng Province. Prepared for City of Tshwane.

Other

Human Tissue Act, 1983 (Act No. 65 of 1983 as amended).

National Environmental Management Act, 1999 (Act No. 107 of 1999).

South African Heritage Resources Act, 1999 (Act No. 25 of 1999).

South African Heritage Resource Agency. 1999. Site Management Plans: Guideline for the development of plans for the management of heritage sites or places.