



AFRICAN HERITAGE CONSULTANTS CC

2001/077745/23

DR UDO S KÜSEL

Tel/Fax: (012) 567 6046

Cell: 082 498 0673

E-mail: udo.heritage@absamail.co.za

E-mail: udo@nconnect.co.za

P.O. Box 652

MAGALIESKRUIN

0150

Phase 1 Cultural Heritage Resources Impact Assessment for the Proposed Constantia Kloof Stormwater Silt and Litter Management Project (Project No. 508608), located in the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province



Issue date	30 March 2020
Sub-consultant	African Heritage Consultants CC
Consultant	Aurecon South Africa (Pty) Ltd
Client	Growthpoint Properties Limited

Declaration of independence

This report has been compiled by Dr U.S. Küsel and Siegwalt Küsel. 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.

Note that a copy of the report will be lodged with SAHRA as stipulated by the NHRA (Act No. 25 of 1999), Section 38 (particularly subsection 4).



Dr U.S. Küsel

African Heritage Consultants CC

Tel: (012) 567 6046; Fax: 086 594 9721; Cell: 082 498 0673

E-mail: udo@nconnect.co.za

Accredited Professional Archaeologist for the SADC Region Member No. 068

Principal Investigator Iron Age

Principal Investigator Colonial Period

Principal Investigator Industrial Archaeology

Field Director Stone Age

BA Archaeology, Anthropology and Indigenous Law, University of Pretoria 1966

MA Archaeology, University of Pretoria 1975

D. Phil, University of Pretoria 1988

Post-Graduate Diploma in Museum and Heritage Studies



Siegwalt U Küsel

Cell: 082 775 4803

E-mail: siegwalt@habitatdesign.co.za

Pr (LArch) SACLAP Reg. 20182

BL Landscape Architecture

BA (Hons) Archaeology (Cum laude)

MA (Archaeology) Candidate UNISA

Accredited Professional Archaeologist for the SADC Region Member No. 367

Contents

1	Executive summary	6
1.1	Purpose	6
1.2	Findings.....	6
1.3	Recommendations.....	7
1.4	Stakeholders.....	7
2	Terms of reference	7
3	Background information on the project	8
3.1	Project description.....	8
3.2	Type of development.....	9
3.3	Land use	10
3.4	Whether re-zoning and/or subdivision of land is involved	10
3.5	Developer and consultant contact detail.....	10
4	Scope and purpose of the report	11
5	Information on the authors	11
6	Legislative framework	12
6.1	National Heritage Resource Act (NHRA).....	12
6.2	Grading and field rating	14
6.3	International treaties, conventions and charters.....	16
7	Background to the Study Area	17
7.1	Palaeontological sensitivity	17
7.2	Palaeontology report.....	17
7.3	The southern African prehistory and historical period	22
7.4	The early history of the farm Roodepoort and associated gold-bearing localities.....	22
8	Description of the Property or Affected Environment	30
8.1	Locality map	31
8.2	Surveyed map area.....	32
8.3	Methodology.....	33
8.3.1	Sources of information	33
8.4	Constraints.....	34

9	Findings	34
9.1	Context and importance of identified heritage localities	34
10	Assumptions and limitations.....	35
11	Heritage context based on previous impact assessments in the general region.....	35
12	Conclusions and recommendations	39
12.1	Recommendations.....	39
12.2	Possible finds emanating from the development	40
13	References.....	41
14	Annexure A	47
14.1.1	Stone Age.....	48
14.1.2	Rock Art.....	50
14.1.3	Settlement by African farmers	50
14.1.4	Historical context.....	52
14.1.5	Provincial Heritage Resources: Roodepoort Magisterial District.....	52

List of acronyms

AIA	Archaeological Impact Assessment
ASAPA	Association of Southern African Professional Archaeologists
BAR	Basic Assessment Report
BIFs	Banded Ironstone Formations
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
ICOMOS	International Council on Monuments and Sites
LCTs	Large Cutting Tools
LIA	Late Iron Age
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 Executive summary¹

1.1 Purpose

This Phase I Cultural Heritage Resources Impact Assessment was conducted as part of the Sub-Consultancy Services on the Constantia Kloof Stormwater Silt and Litter Management Project (Project No. 508608).

The Consultant, Aurecon South Africa (Pty) Ltd (Registration No. 1977/003711/07), who appointed African Heritage Resources CC (Registration No. 2001/077745/23) as a Sub-consultant, was on their part appointed by Growthpoint Properties Ltd (the Client) to render the preliminary design of a stormwater system for litter and silt management on the Constantia Kloof Stormwater Silt and Litter Management Project (the Project). The upgrade will entail the augmentation and improvement of the existing system to reduce sediment deposition and deal with solid waste pollution that enter the site at the southern boundary. The proposed works is expected to include the adjustment of the existing channel profile within the existing channel footprint. In addition, a new litter trap at the upstream storm water inlet point as well as a silt trap on the downstream outlet end is proposed

1.2 Findings

The area of the proposed development was developed as a completely manicured landscape in the late 1980s to the early 1990s. The original works included the complete transformation and reshaping of the stream environment to create a series of ponds, cascades and water features as part of the landscaping around the commercial and office complex. Most of the exposed soils and boulders noted on site are anthropocentric in origin.

From both the desktop assessment and the field survey it is evident that this area has a low probability of containing heritage resources.

No heritage resources features, sites or artefacts of cultural significance were found during

¹ Note that the structure of this report is according to the Minimum Standards for the Archaeological & Palaeontological Components of Impact Assessment Reports as required by SAHRA (2007) and the Draft proposals (2016).

the survey conducted by the heritage practitioner on 28 February 2020.

No burial grounds or graves older than 60 years have been recorded during the HIA.

1.3 Recommendations

While no heritage features have been identified, the following should be noted:

- In the event that any sub-surface heritage resources or graves are unearthed all work has to be stopped 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. In the event that any graves or burial places are 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 the course of 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 is noted during the proposed developments this should be inspected by an archaeologist prior to any disturbance.

1.4 Stakeholders

This report forms part of the environmental process and water use licence application that will be subject to consultation.

2 Terms of reference

African Heritage Consultants CC have been appointed as sub-Consultant by Aurecon South Africa (Pty) Ltd (Registration No. 1977/003711/07), to conduct a Phase 1 Heritage Resources Impact Assessment for the proposed Constantia Kloof Stormwater Silt and Litter Management Project (Project No. 508608).

3 Background information on the project

3.1 Project description

This report details the results of the HIA study conducted on 28 February 2020 for the proposed Constantia Kloof Office Park Stormwater Silt and Litter Management Project (Project No. 508608) situated in the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province. The site under investigation is located in Constantia Kloof in Johannesburg, adjacent to the N1 Western Bypass and Hendrik Potgieter Avenue. To the south runs 14th Avenue/William Nicol Drive. The site is situated on the following properties:

Erf 4499 Weltevredenpark Ext 70, City of Johannesburg, Gauteng

Erf 4500 Weltevredenpark Ext 70, City of Johannesburg, Gauteng

The upgrade will entail the augmentation and improvement of the existing system to reduce sediment deposition and deal with solid waste pollution that enter the site at the southern boundary. The proposed works is expected to include the adjustment of the existing channel profile within the existing channel footprint. In addition, a new litter trap at the upstream storm water inlet point as well as a silt trap on the downstream outlet end is proposed.

Engineering options provided during the study are the following:

- Adjustment of the current flow regime through the existing dams;
- Increasing the flow velocity through the pond;
- Proposed construction of a silt trap;
- Construction of a new litter trap/ grid"
- Installation of a new silt trap /pond; and
- Dredging and removal of existing silt and litter.

3.2 Type of development

Project title	Constantia Kloof Stormwater Silt and Litter Management Project
1: 50 000 map sheet number	2627BB Roodepoort
Project location	Constantia Kloof Office Park 26° 8'50.62"S 27°55'34.34"E
Magisterial District	Roodepoort Magisterial District
Province	Gauteng Province



Figure 1. Google Earth map of the study area.

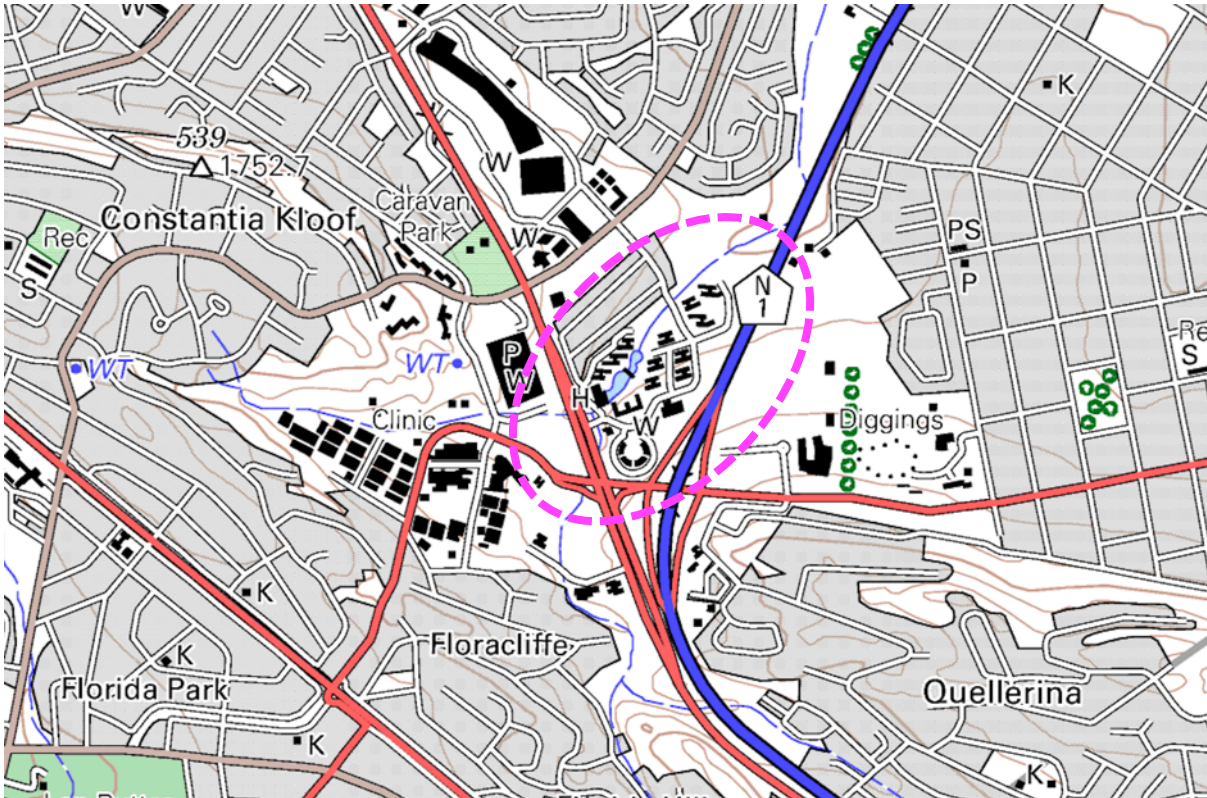


Figure 2. Excerpt from map sheet 2627BB Roodepoort 2002 sixth edition.

3.3 Land use

The proposed stormwater infrastructure will be located within the existing footprint. The area is surrounded by commercial and office use. The development will have no effect on the existing land use.

3.4 Whether re-zoning and/or subdivision of land is involved

No.

3.5 Developer and consultant contact detail

Consultant: Aurecon South Africa (Pty) Ltd (Registration No: 1977/003711/07)

Contact person: Francois Lategan in his capacity as Technical Director

E-mail: Francois.Lategan@aurecongroup.com

Cilliers.Blaauw@aurecongroup.com

Tel Office: +27 427 2000

Postal Address: PO Box 74381, Lynnwood Ridge, 0040

Physical Address: Aurecon Centre, Lynnwood Bridge Office Park, 4 Daventry Street,
Lynnwood Manor, 0081

Date of Report 12 March 2018

4 Scope and purpose of the report

This report outlines the results of an HIA study conducted for the proposed Constantia Kloof Stormwater Silt and Litter Management Project (Project No. 508608). The purpose of the HIA was to identify possible areas of heritage sensitivity and constraints that would affect the proposed development, and to provide assessments and recommendations of the mitigation and management of any documented heritage resources.

The report presents a general background to the project area with reference to historical mining developments. In addition, it sets out the methodologies that were applied during this particular heritage assessment. The findings of the HIA are discussed, potential impacts are reviewed, and recommendations with regard to mitigation are made. (Note that Annexure B provides an introduction to the southern African heritage with a brief outline of the chronological succession of the various phases of settlement and also provides context for the known heritage resources of the immediate region). A palaeontology report by Dr Heidi Fourie is also included (see 7.2).

5 Information on the authors

Dr Udo Küsel has more than 50 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 Datta Museum in Venda, the Tšate Site Museum in Sekhukhune and Thoko 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.

Siegwalt has been practicing for more than 20 years as both a Landscape Architect and an Archaeologist. He has broad experience in a diverse range of projects from the initial conceptualization through to implementation. He has an extensive working knowledge of the Government and Environmental sectors and development management processes. His in-depth experience in assessment, planning, development and management has led to his involvement in numerous strategic policy and planning formulations in both the public and the private sector. He has a strong bias towards heritage projects, large-scale planning, strategic and community projects. In addition, he has extensive experience as a field archaeologist having been involved in archaeological research, heritage surveys, sensitivity and probability mapping, site development, planning and management throughout his career.

6 Legislative framework

6.1 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 No. 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 living heritage;
 - (iii) ethnographic art and objects;

<ul style="list-style-type: none"> (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.

6.2 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; Orton 2016). 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):

- 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;
- 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;
- 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).

6.3 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. First adopted in 1979, with minor revisions made in 1981 and 1988 and more substantial changes in 1999, the Charter remains current with the latest version adopted in October 2013 custodians (Australian ICOMOS Burra Charter: 2013). The Charter is considered to be the international blueprint on the conservation of places of cultural significance (Patiwael *et al.*: 2018). 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 (Burra Charter: 2013).

7 Background to the Study Area

7.1 Palaeontological sensitivity

The project study is transitional between the following two zones:

BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required

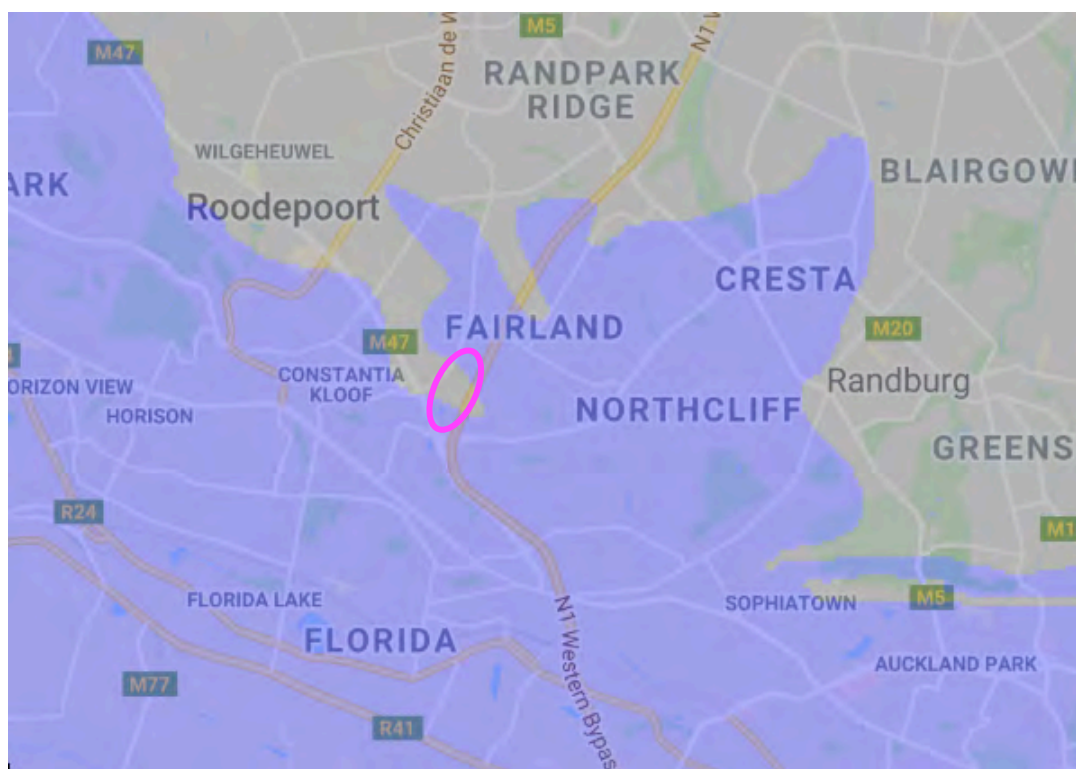


Figure 3. SAHRIS Paleontological Sensitivity Map.

7.2 Palaeontology report

Exemption Letter – Constantia Park

Heidi Fourie – Palaeontologist

City of Johannesburg Metropolitan Municipality, Gauteng Province.

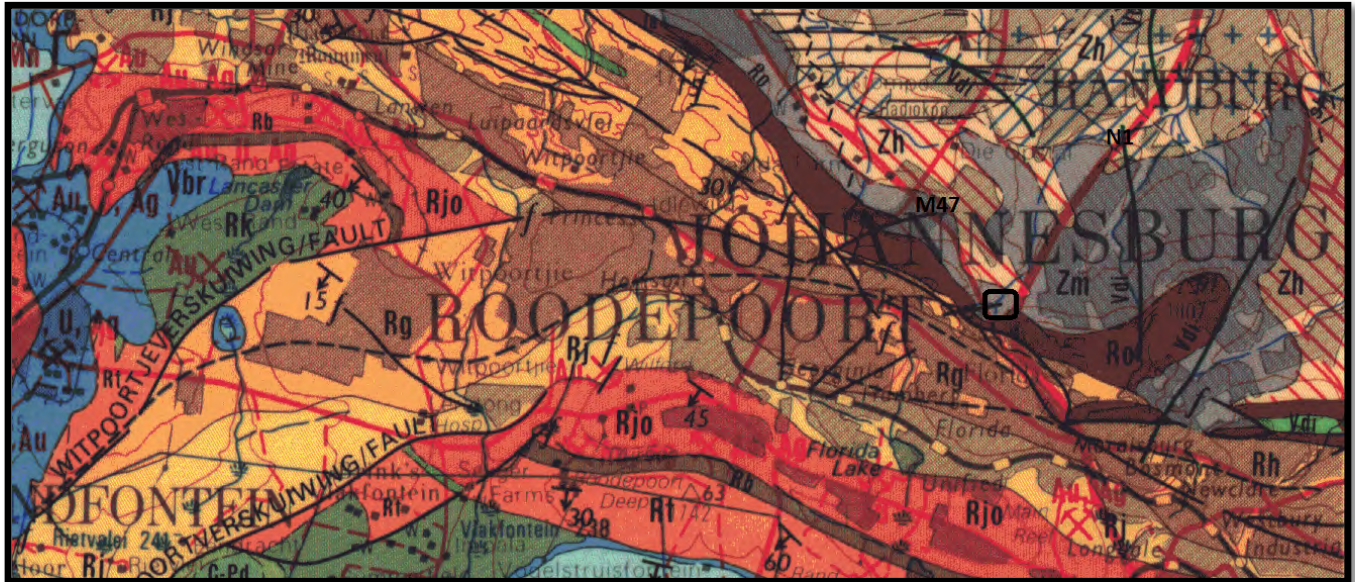
Protocol for a Chance Fossil Find is included.

The applicant, Growthpoint intends to rehabilitate the Constantia Kloof river area.

Recommendation

This letter serves as a Letter of Exemption. It is in compliance with The Minimum Standards for Palaeontological Components of Heritage Impact Assessment Reports, SAHRA APMHOB, Guidelines 2012. The development is underlain by the Mafic and Ultramafic rocks of Zwazian age with an Insignificant to Zero rating. It is overlain by the Witwatersrand Supergroup rocks with a VERY LOW Palaeontological Sensitivity, therefore there is a very low possibility that significant fossils will be present in the bedrock of these geological units (Groenewald and Groenewald 2014*).

Geology of area (1:125 000 Pretoria Keyser 1986)



Legend to Map and short Explanation:

Ro – Quartzite, shale (brown). Orange Grove Subgroup, West Rand Group, Witwatersrand Supergroup. Randian.

Zm – Mafic and Ultramafic rocks (Grey). Zwazian.

----- Concealed geological boundary.

---f--- Fault

⊥ - Strike and dip 60°

□ – Approximate position of development.

The Witwatersrand Supergroup is famous for its gold-bearing conglomerates and is divided into the

Central Rand Group and the West Rand Group (Kent 1980). This 7500 m thick lithostratigraphic unit consists of quartzite, shale and conglomerate (Snyman 1996). The Witwatersrand Supergroup is divided into two groups based on differing types and proportions of sedimentary strata. The basin is oval-shaped running from northeast to southwest. The lower West Rand Group containing shale, sandstone and minor conglomerate layers, the upper Central Rand Group containing quartzite and minor shale, as well as most of the gold-rich 'reefs' (Norman and Whitfield 2006).

The West Rand Group is subdivided into the Hospital Hill (Orange Grove), Government and Jeppestown Subgroups. The Government Subgroup (Rg) differs from the Hospital Hill Subgroup in that the quartzites are subgraywackes rather than orthoquartzites and in that the ferruginous shales are rather more magnetic. This Subgroup comprises the Promise Diamictite, the Coronation Shale, Tusschenin Quartzite, Palmiet shale and quartzite, Elandslaagte Quartzite, and Afrikander shale and quartzite Formations (Johnson 2006, Kent 1980, Visser 1989).

Ultramafic rocks are dark coloured igneous formations with low silica content, mainly the earth's crust and mafic rocks are igneous rocks rich in magnesium and iron.

The site is adjacent to the N1 Western Bypass and Hendrik Potgieter Avenue. To the south is 14th Avenue / William Nicol Drive. The scope of the project includes is expected to include the construction of a new litter trap to centralize the collection and removal of litter emanating from storm water. Furthermore the adjustment of the bottom profiles of ponds and the channel is suggested to improve silt collection for removal while the existing deposition of silt and litter are to be removed and discarded legally.

Google.earth image (Aurecon)



*Groenewald, G. and Groenewald, D., 2014. SAHRA Palaeotechnical Report: Palaeontological Heritage of the Gauteng Province (Pp 20), South African Heritage Resources Agency.

Palaeontological Sensitivity

WITWATERSRAND (Rw)	CENTRAL RAND	Turffontein (Rt)	Klerksdorp (Rkl) Elsburg (Re)		Mainly quartzites conglomerates (braided fluvial), pyritic sands, minor shales, volcanics, debris-flow diamictites	Thin layers of carbonaceous material (kerogen / bitumen) possibly represent ancient microbial mats, but this material probably has an abiogenic origin (e.g. precipitation of inorganic carbon due to irradiation by radioactive uranium minerals) Main source of Wits gold (beds of quartzose, pyritic fluvial conglomerates or "banket" that are known as "reefs"). Evidence for earliest known glaciations on Earth (Government Subgroup (Rg) c. 2.9-2.7 Ga Archaean / Radian
			Booyens (Rbo)		Shale	
		Johannesburg (Rjo)			Mainly quartzites conglomerates (braided fluvial), pyritic sands, minor shales, volcanics, debris-flow diamictites	
	WEST RAND	Rj; Rg; Rh	Rc; Ro		Marine shelf quartzites, shales, rare conglomerates, banded iron formation (BIF), volcanics, fluvial sediments, several diamictites	

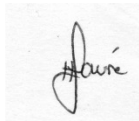
Declaration (disclaimer)

I, Heidi Fourie, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project for which I was appointed to do a palaeontological assessment. There are no circumstances that compromise the objectivity of me performing such work.

I accept no liability, and the client, by receiving this document, indemnifies me against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the use of the information contained in this document.

It may be possible that the Exemption Letter may have missed palaeontological resources in the project area as outcrops are not always present or visible on geological maps while others may lie below the overburden of earth and may only be present once development commences.

This report may not be altered in any way and any parts drawn from this report must make reference to this letter.



Heidi Fourie

2020/03/11

Protocol for Chance Finds and Management plan

This section covers the recommended protocol for a Phase 2 Mitigation process as well as for reports where the Palaeontological Sensitivity is **LOW**; this process guides the palaeontologist / palaeobotanist / ECO on site and should not be attempted by the layman / developer.

- As part of the Environmental Authorisation conditions, an Environmental Control Officer (ECO) will be appointed to oversee the construction/prospecting activities in line with the legally binding Environmental Management Programme (EMPr) so that when a fossil is unearthed they can notify the relevant department and specialist to further investigate.
- All fossil finds must be placed in a safe place for further investigation.
- The ECO should familiarise him- or herself with the applicable formations and its fossils.
- The Evolutionary Studies Institute, University of the Witwatersrand and Ditsong: National Museum of Natural History, Pretoria have good examples of fossils.

- The EMPr already covers the conservation of heritage and palaeontological material that may be exposed during construction/prospecting activities. For a chance fossil find, the protocol is to cease all construction activities, construct a 30 m no-go barrier, and contact SAHRA for further investigation.
- It is recommended that the EMPr be updated to include the involvement of a palaeontologist when necessary.

The palaeontological impact assessment process presents an opportunity for identification, access and possibly salvage of fossils and add to the few good localities. Mitigation can provide valuable onsite research that can benefit both the community and the palaeontological fraternity. A Phase 2 study is very often the last opportunity we will ever have to record the fossil heritage within the development area.

Fossils excavated will be stored at a National Repository.

7.3 The southern African prehistory and historical period

In this report we contextualize the recent mining history of the study area as background to the proposed Constantia Kloof Stormwater Silt and Litter Management Project located in the Roodepoort Magisterial District.

7.4 The early history of the farm Roodepoort and associated gold-bearing localities

Archaeological Impact Assessments (AIAs), Heritage Impact Assessments (HIAs) and academic publications on the prehistory and historical period generated a data base for the heritage resources of the Gauteng Province. These sources demonstrated a diverse cultural landscape with settlement and utilisation of the local resources starting from the deep past over a period of time that spans millions of years up to recent times. It documents the earliest occupations of hominins, Stone Age settlement, migrations of African farmers and subsequently the movement of white farmers into the region, mining, industrialization, urbanization, warfare and conflict.

Please refer to **Annexure A** for an overview of the southern African cultural succession and a brief synthesis of the archaeological and other heritage resources that could be present within the study region.

The discovery of the rich gold fields of the region resulted in conflict and transformation of traditional political and economic systems. The first white farms on the Witwatersrand, an area known then as the Overvaalsche (later the Transvaal), were established by the 1840s (Venter 1950). Localities and suburbs such as Doornfontein, Klipriviersberg, Langlaagte, Braamfontein and Turffontein reference some of these early farms.

South Africa has produced more than a third of the total gold mined throughout history (Viljoen 2009). The Witwatersrand Basin is known as 'The World's Greatest Goldfield' (Tucker *et al.* 2016). As early as 1855 a report was submitted to the government on gold discovered by P.J. Marais on the Witwatersrand, but there was no follow-up (Venter 1950). The story of gold on the Witwatersrand began shortly after the discovery of gold at various localities from

1884 onwards. The main reef was found on Langlaagte in the Kliprivier area in 1886 by George Harrison and George Walker (Venter 1950; Kruger 2018, PGS 2018a, 2018b). The farm Langlaagte (formerly Langeleegte) was originally owned by Johannes Matthys Smit in 1853 and comprised 2260 morgen (Venter 1950). Harry Struben put nine claims along the reef, which he named Crown Reef (Kruger 2018). Some excavations on the claims of the discoverers of the Main Reef Group of Conglomerates of the Witwatersrand can be seen in a memorial park adjoining the Main Reef Road (SAHRIS accessed 2 March 2020).



Figure 4. *The Witwatersrand, characterized by the Orange Grove quartzite at the base of the basin, and the Witpoortjie waterfall (Tucker et al. 2013: 106).*



Figure 5. *Discovery site of the Main Reef and Main Reef Leader reefs at Langlaagte, shortly after discovery in 1886, and a current view (Viljoen 2009: 132).*

The historical farm Roodepoort 237 IQ, associated with early prospecting and gold mining activities along the Witwatersrand, was originally owned by the brothers J.H. and A.S. du Plessis. The first discovery of a gold reef close to the farm was made by Fred Struben and Godfrey Lys. They identified a gold-bearing reef on the farm Wilgespruit, which they called the Confidence Reef, on 1 May 1884. Wilgespruit was approximately three miles north of the present-day Roodepoort. Wilgespruit was owned by Louw Geldenhuys. A section of the Confidence Reef can be seen in the Kloofendal Nature Reserve, Roodepoort (SAHRIS accessed 2 March 2020). The Strubens held a concession for Wilgespruit, and soon for Vogelstruisfontein as well where Fred Struben discovered an extension of the Main Reef. Jan Gerritze Bantjies owned the prospecting rights on Roodepoort (Van Schalkwyk 2018; <https://roodepoortrecord.co.za/2016/08/16/the-rich-history-of-roodepoort/>). In 1885 the Du Plessis brothers signed a contract with a group of prospectors (including Bantjies) that gave them prospecting rights. In return the brothers would receive a percentage of any profits

resulting from the discovery and mining of any minerals (PGS 2018a). Several reefs and extensions of the main reef were subsequently discovered on Roodepoort and neighbouring farms.

Based on these finds several petitions were addressed to President Kruger early in 1886 to the effect that the farms Vogelstruisfontein, Roodepoort, Langlaagte and the two portions comprising Paardekraal, should be declared public diggings. The amended gold laws of 4 August 1886 gave the government the authority to proclaim privately owned land as public diggings with or without the owner's approval (Venter 1950; PGS 2018a). The findings of a commission on the impacts of future gold mining activities pointed out various issues of concern, and also that the portions of land between Turffontein and Doornfontein should be reserved for the development of a town (PGS 2018a).

The first announcement on the gold fields between the Kliprivier and the Witwatersrand was published in *De Volkstem* of 28 June 1886 (Venter 1950). A notice in *De Staatscourant* of 18 August 1886 informed all interested parties of the discovery of gold reefs on the Witwatersrand in the district of Heidelberg. Roodepoort was one of the farms to be declared as public diggings. By 1886 various camps were established such as the Natal Camp on the farm Klipriviersberg and on the farm Turffontein abutting the Langlaagte gold fields (Venter 1950). Such a settlement developed on Roodepoort. By the end of 1886, there were approximately 150 persons residing on the farm Roodepoort (PGS 2018a).

<p>STAATS-COURANT. ZUID - AFRIKAAN - SCHE REPUBLIEK.</p> <p>Des VI. PRETORIA, S. A. REPUBLIEK, WOENSDAG, 8 SEPTEMBER 1886. No. 714</p> <p>PROCLAMATIE VAN ZHED. DEN STAATSPRESIDENT.</p> <p>NAARMAAL aan de Regering der Zuid-Afrikaansche Republiek gelukkig is, dat het wenschelijk is de plaatsen genaamd DRIEFONTEIN, ELANDSFONTEIN, Zandfontein, DOORNFONTEIN, TURFFONTEIN, GOUVERNEMENTSPLAATS RANTJESLAAGTE, LANGLAAGTE, PAARDEKRAAL, VOGELSTRUISFONTEIN en ROODEPOORT, allen gelegen in Witwatersrand, district Bechering, te verklaaren tot een publieke deling.</p> <p>In is het den H. STEPHANUS JOHANNES PAULUS KRUGER, Staatpresident der Zuid-Afrikaansche Republiek, met advies en consent van den Uitvoerenden Raad, in termen van art. 5 der gewijzigde Wet No. 8, 1885, de bevoegde geadviseerde plaatsen tot een PUBLIEKE DELING in de volgende volgorde en van af de volgende tijdstippen wenschelijk, te verklaaren:—</p> <p>De plaatsen DRIEFONTEIN en ELANDSFONTEIN, op Maandag 20 September 1886; Het zandfontein gedeelte der plaats DOORNFONTEIN en de plaats TURFFONTEIN, op Maandag 27 September 1886; Het stuk GOUVERNEMENTSPLAATS genaamd RANTJESLAAGTE en de plaats genaamd LANGLAAGTE, op Maandag 4 October 1886; De plaatsen genaamd PAARDEKRAAL, VOGELSTRUISFONTEIN en ROODEPOORT, op Maandag 11 October 1886;</p> <p>van een reeks niet door eigenaars of houders afgekocht van Mijnpachtbrieven of volgens de gewijzigde Wet No. 8, 1885, art. 20, uitgegroeide voor bevoegde partijen, teken, tekeningen en voorontwerpen in de volgende dooreen.</p> <p>OOD BEROEPE LAND EN VOLK.</p> <p>Gegruen onder mijn hand ten GOUVERNEMENTSPLAATS in Pretoria, op leden der twee dag van de maand September A.D. 1886.</p> <p>S. J. P. KRUGER, Staatpresident.</p> <p>W. EDUARD BOK, Staatssecretaris.</p>	<p>Proclamation by His Honour the State President</p> <p>WHEREAS it has become apparent to the Government of the South African Republic that is desirable to proclaim the farms named DRIEFONTEIN, ELANDSFONTEIN, Southern portion of DOORNFONTEIN, TURFFONTEIN, Government farm RANTJESLAAGTE, LANGLAAGTE, PAARDEKRAAL, VOGELSTRUISFONTEIN and ROODEPOORT, all situated in Witwatersrand, district Heidelberg, as public diggings.</p> <p>Therefore I, STEPHANUS JOHANNES PAULUS KRUGER, State President of the South African Republic, on the advice and with the consent of the Executive Council, in terms of section 5 of Law No. 8 of 1885, as amended, proclaim the above-named areas as a PUBLIC DIGGING in the following sequence and as from the following dates, respectively, to wit: -</p> <p>The farms DRIEFONTEIN and ELANDSFONTEIN, on Monday the 20th September, 1886;</p> <p>The southern portion of the farm DOORNFONTEIN and the farm TURFFONTEIN, on Monday the 27th September, 1886;</p> <p>The piece of Government ground named RANTJESLAAGTE and the farm named LANGLAAGTE, on Monday the 4th October 1886;</p> <p>The farms named PAARDEKRAAL, VOGELSTRUISFONTEIN and ROODEPOORT, on Monday the 11th October 1886;</p> <p>Insofar as they have not been beaoned off by owners or lessees for Mijnpachtbrieven, or, under Law No. 8 of 1885, as amended, reserved for cultivated areas, gardens, arable land and water furrows in the vicinity thereof.</p> <p>GOD SAVE LAND AND PEOPLE.</p> <p>Given under my hand at the Government Offices at Pretoria, this 8th day of the month, September, A.D. 1886.</p> <p>S.J.P. KRUGER State President</p> <p>W. EDUARD BOK State Secretary</p>
--	---

Figure 6. A copy of the Staatscourant dated 8 September 1886 announcing the proclamation of Roodepoort and other farms as public digging (PGS 2018a: 37) with a translation(Ball: 2015 <http://www.theheritageportal.co.za/article/when-johannesburgs-birthday>).



Figure 7. *View of Roodepoort c. 1900. Note the gold mines along the horizon (A Photographic Souvenir of the Transvaal, n.d.). (Friedel Hansen 2015: <https://web.facebook.com/photo.php?fbid=10207772217405748&set=pcb.10207772229606053&type=3&theater>).*

Within a few years there were considerable mining activities in the region. The mining towns Roodepoort, Florida, Hamberg and Maraisburg developed between 1886 and 1888 on several of the above gold-bearing farms.

After the surface loads were mined, the sinking of shafts to extract the deeper deposits and the associated infrastructure necessitated the formation of large mining houses with the ability and finances to establish industrialised mines (Digby Wells 2014a). Durban Roodepoort Deep Limited was founded as a public company in 1895 nine years after gold was discovered along the Witwatersrand and the proclamation of farms such as Roodepoort as public diggings. The company was formed to work the deep level claims to the south of the original outcrop properties in the Roodepoort area. In 1898 milling operations with batteries of stamp mills began with the extraction of the many tons of gold from these rich gold-bearing deposits (PGS 2018a). Other companies formed within the region, including the Anglo-Transvaal

Consolidated Investment Company Limited (with claims on Vogel Deep Mine, Vogelstruis Estate and the Bantjes Consolidated Mines). The new venture that became Rand Leases Gold Mine provided capital through public shareholding.



Figure 8. The Struben Stamp Mill (left) and another that were moved to the Kloofendal Reserve (<https://kloofendalfriends.yolasite.com/confidence-reef-mine.php>).

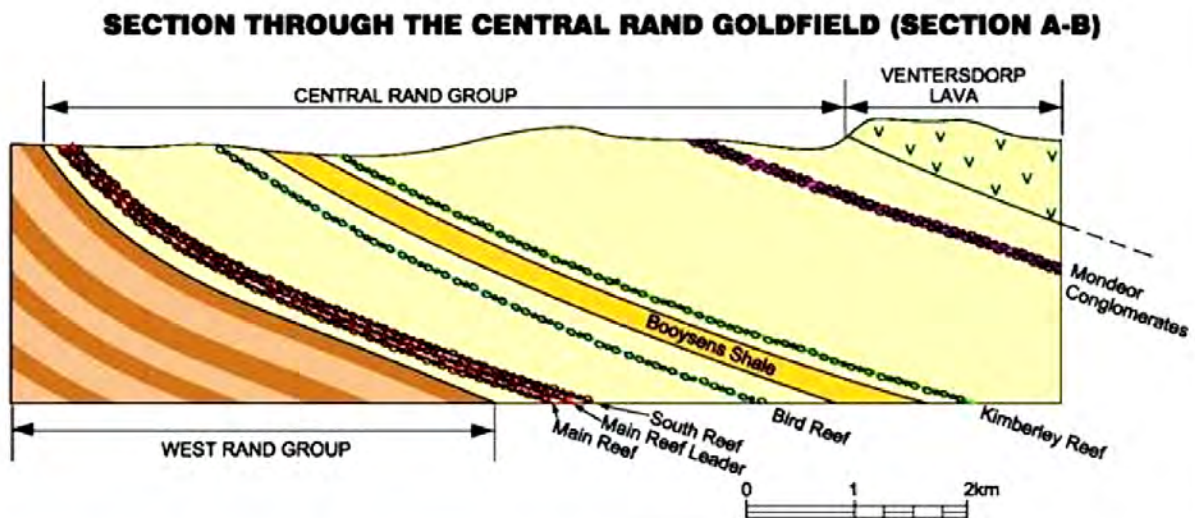


Figure 9. Geological section through the gold-bearing conglomerates of the Central Rand Group (Viljoen 2009: 132).

By the late 1940s mines such as Durban Roodepoort Deep Gold Mine, Rand Leases Gold Mine and Consolidated Main Reef Gold Mine reached depths of 2450 m. This allowed access to

reefs such as the Ventersdorp Contact and Carbon Leader. Eventually rising costs, lower ore yields, and difficult mining challenges forced many of the mines to finally close down by the early 1960s. The Durban Roodepoort Deep Mine lasted until 1994 (van Schalkwyk 2017; PGS 2018a).

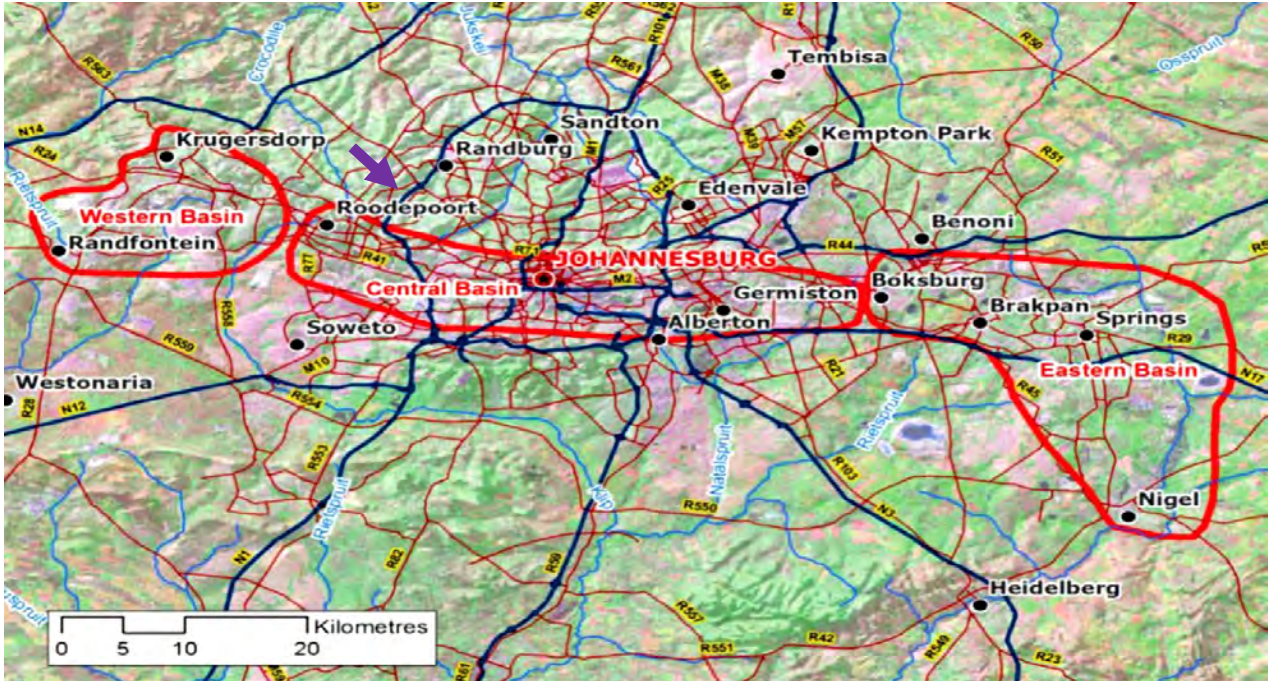


Figure 10. Location of the different gold-bearing Basins of the Witwatersrand (based on Digby Wells 2014: 2b). Note Roodepoort in the Central Basin.

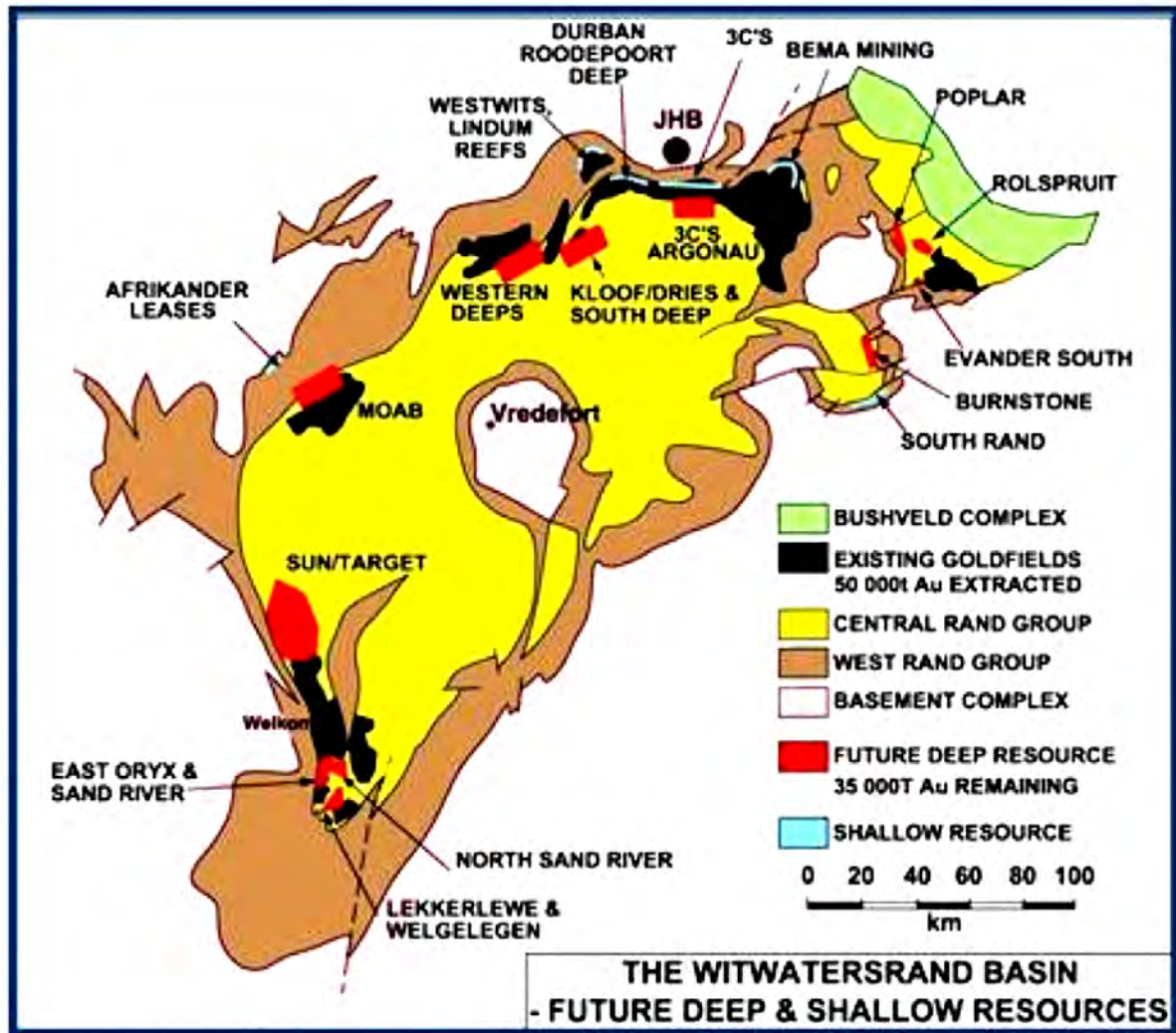


Figure 11. Major geological features of the Witwatersrand basin stripped of younger cover and showing major goldfields and main remaining deep and shallow gold resource (Viljoen 2009: 131).

8 Description of the Property or Affected Environment

The proposed Constantia Kloof Office Park Stormwater Silt and Litter Management Project (Project No. 508608) falls within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.

The upgrade will entail the augmentation and improvement of the existing system to reduce sediment deposition and deal with solid waste pollution that enter the site at the southern boundary. Except for the proposed new silt and litter trap, works will be limited to the existing footprint of existing constructed channel and concrete lined dams. Remedial work will be confined to the existing channel section.

8.1 Locality map

The site under investigation is located in Constantia Kloof in Johannesburg, adjacent to the N1 Western Bypass and Hendrik Potgieter Avenue. To the south runs 14th Avenue / William Nicol Drive. The site is located on the following properties:

Erf 4499 Weltevredenpark Ext 70, City of Johannesburg, Gauteng

Erf 4500 Weltevredenpark Ext 70, City of Johannesburg, Gauteng

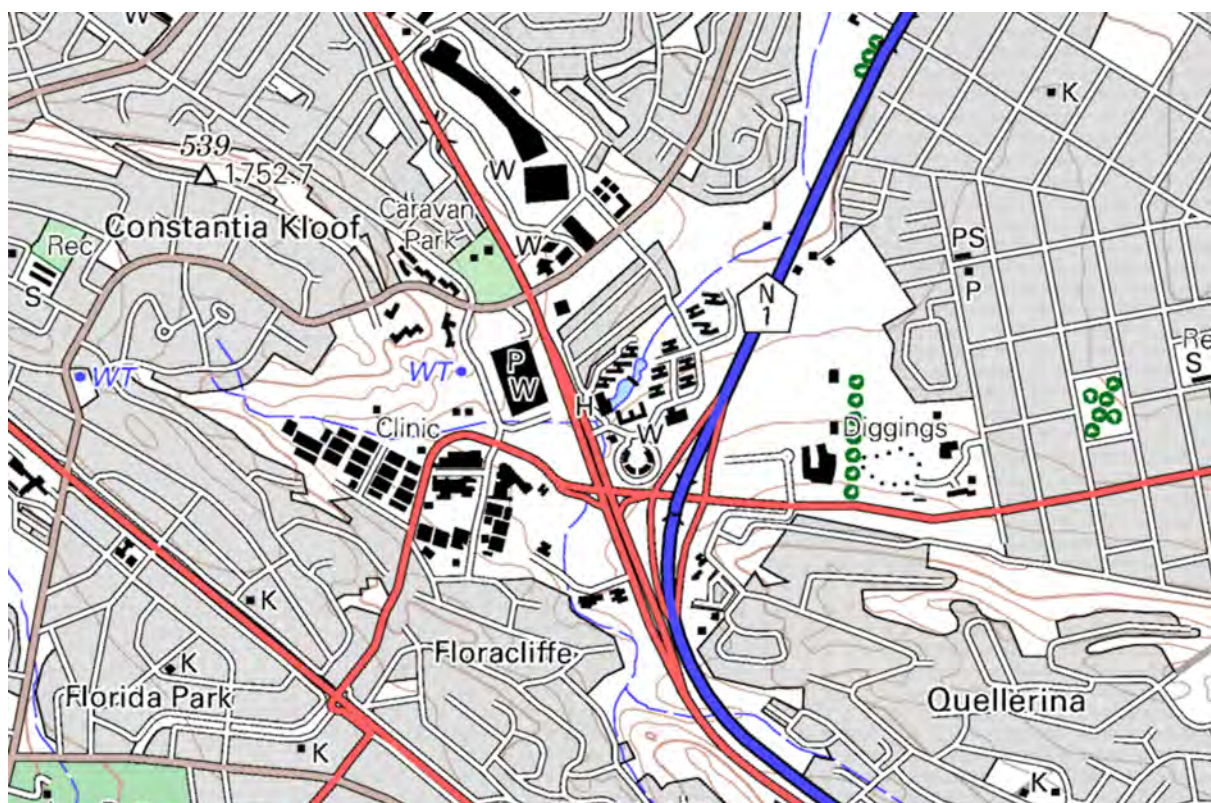


Figure 12. Extract from the 1:50 000 2627BB Roodepoort 2002 sixth edition..

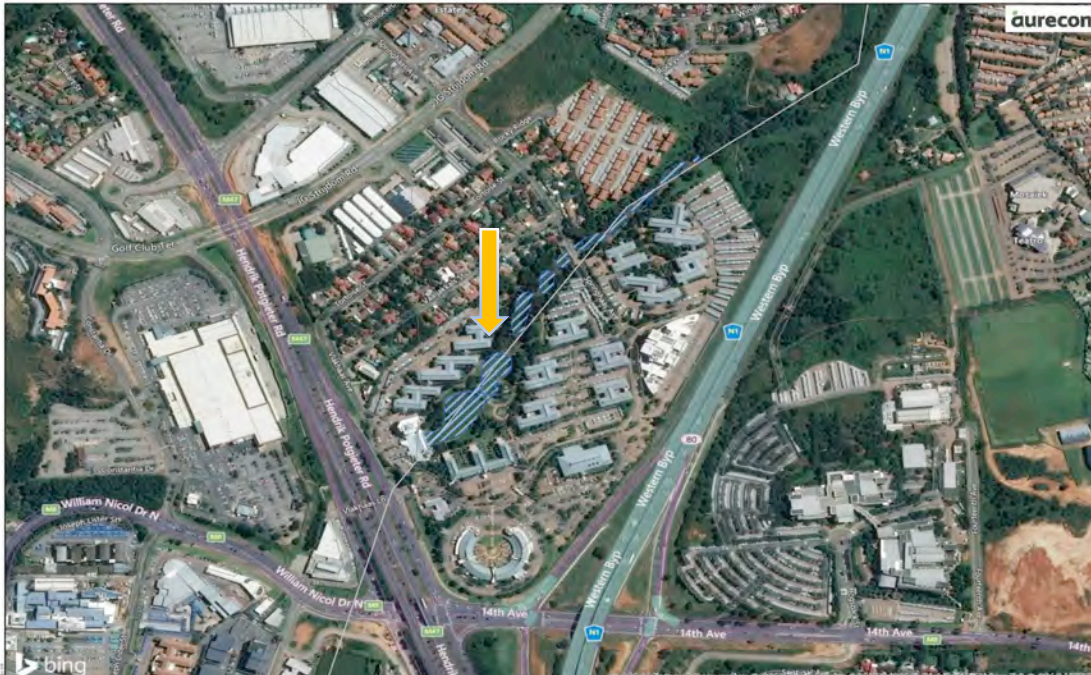


Figure 13. *Local context of the property (Constantia Park Screening Report 2019: 6).*

8.2 Surveyed map area

The project site was walked on both the east and the west bank along the stream where the proposed storm water project is situated.



Figure 14. *Track of surveyed area in purple.*

8.3 Methodology

The field survey was conducted on 28 February 2020.

8.3.1 Sources of information

8.3.1.1 Desktop study

Prior to conducting the site assessment, a desktop study of existing literature on the wider region was conducted to assess the heritage context. The relevant 1:50 000 topographical map sheet 2627BB Roodepoort was consulted for pointers to possible heritage resources. The available aerial photographs were scrutinised for any evidence of structural remains, likely areas for archaeological features and heritage resources.

The SAHRIS data base was also accessed for previous heritage reports that relate to the general region of the survey. The Catalogue of Stone Age artefacts from Southern Africa in the British Museum is a valuable source too since it lists early collections of stone tools with the localities where these were obtained from (Mitchell 2002b).

8.3.1.2 Historical imagery, maps and the survey

These sources of data were applied to assist the foot site survey. Historical imagery and maps were scrutinised to identify potential sites, areas of disturbance and vegetation anomalies. The available aerial photographs were scrutinised for any evidence of structural remains, likely areas for archaeological features and heritage resources.

Prior to the field work all maps and diagrams of the proposed development provided by the Client were mapped and plotted on Google Earth and high-resolution aerial imagery and converted to .gpx format. The data was 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 the locality under review was systematically surveyed on foot to ensure a high probability of site recording. No heritage resources were recorded.

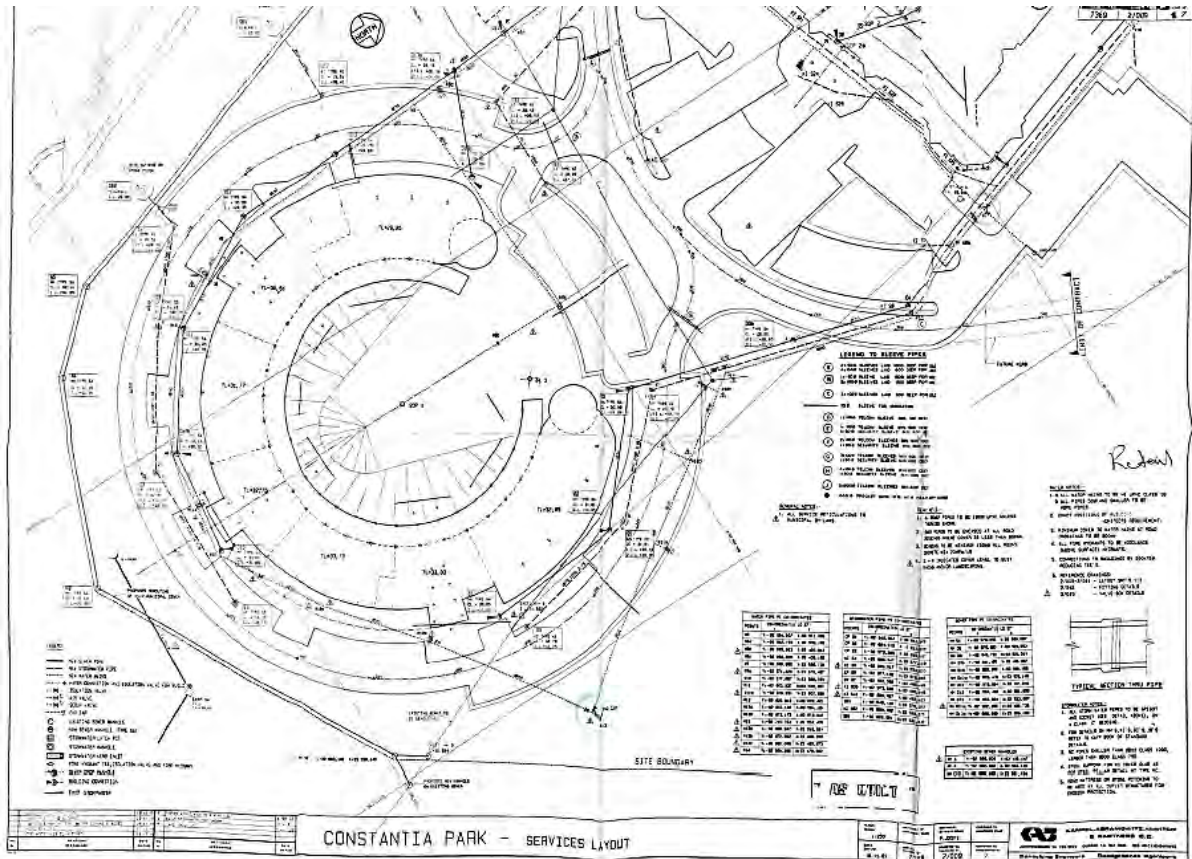


Figure 15. A built drawing of one of the stormwater structures from 1991.

8.4 Constraints

All field surveys are limited to a degree by the available time budget. It is the considered opinion of the authors that sufficient time and efforts were allocated during the current survey to document possible heritage resources within the study area.

9 Findings

9.1 Context and importance of identified heritage localities

The assessment recorded no sites, features or objects of archaeological within the area surveyed for the HIA.



Figure 16. *Typical examples of the manicured and transformed nature of the existing environment.*

10 Assumptions and limitations

The field study surveyed the surface only, a procedure that cannot locate buried archaeological and/or palaeontological sites. While not detracting by any means from the extensiveness of the fieldwork undertaken by the authors, it is necessary to point out that heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors may account for this, such as ephemeral indications of graves, dense vegetation cover in some parts of the surveyed area, and the subterranean nature of certain archaeological sites that are buried through sediment accumulations.

11 Heritage context based on previous impact assessments in the general region

Some of the more recent archaeological and heritage surveys previously conducted in the general region undertaken to record and mitigate heritage resources prior to development were consulted on the SAHRIS data base.

The majority of impact assessments pointed out that the absence of heritage resources can be ascribed to the extensive agricultural, mining and industrial activities that have been carried out within the general region.

The following is a synopsis of some of the more recent HIAs and AIAs conducted around the study area.

2019

PGS Heritage (2019) in an HIA for the West Wits Mining Project identified no heritage resources in the surveyed area.

No heritage resources were identified in a cultural significance assessment for the proposed replacement of water pipelines in the Hamberg Suburb, Roodepoort Region (Van Schalkwyk (2019).

2018

PGS (2018a) conducted a Phase 1 HIA for the proposed establishment of Goudrand Extensions 5–11 and Goudrand Extensions 14–19 located in the Roodepoort Magisterial District. The HIA was compiled in accordance with the NEMA Appendix 6 requirements for specialist reports. The project area is associated with historical gold mining activities from the 1880s onward. The footprint of the activities included the Durban Roodepoort Deep mine established on 16 February 1895 and that functioned until 1994. During the HIA 196 buildings, two cemeteries and two historical middens were recorded. Appropriate mitigation measures were proposed for the Built Heritage and the other historical features.

PGS (2018b) was appointed by Malan Scholes Consulting to undertake a HIA as part of the Basic Assessment Reporting process (BAR) for the mining permit application for the proposed opencast pit of Kimberley West. No heritage resources were identified. PGS pointed out that the area under review was severely impacted by historical and more recent mining activities. No mitigation measures were accordingly required.

Van Schalkwyk (2018) similarly noted an absence of sites, features or objects of cultural significance in the area earmarked for the construction of the Fleurhof Water Pipelines in the suburb of Fleurhof, Roodepoort.

2017

PGS (2017) in a HIA for the proposed establishment of Goudrand Ext. 12 and Goudrand Ext. 13, located within the Roodepoort Magisterial District, recorded the ruins of three built structures on which the proposed development would have no impact.

Van Schalkwyk (2017) in a Phase 1 Cultural HIA for the proposed development of the Vogelstruisfontein Photovoltaic Project on the farm Vogelstruisfontein 231-IQ, Portion 4, Robertville, Roodepoort, reported that no sites, features or objects of cultural heritage significance were identified on the SR PVP footprint and/or within the transmission line corridor.

2014

Digby Wells Environmental (2014a: ii) in their report on a Mining Right Application for Reclamation of the Soweto Cluster Dumps, Roodepoort, recorded several heritage resources associated with mining and the historical landscape in the context of the gold mining history of the Witwatersrand, and also burial grounds.

A HIA of the former Rand Leases mining hostel complex at Vogelstruisfontein, formerly known as 'Compound B' was made (CS Design CC t/a ARCON 2014). The Rand Leases (Vogelstruisfontein) Gold Mining Company associated with the residences, was established in the early 1900s. After various interventions and ownership changes, mining operations eventually stopped in the 1990s (PSG 2014). The mining hostel, which forms the main subject of this application, was one of two worker residential compounds that existed during mining operations and was built in the early 1940s. The property now forms part of a large-scale new housing initiative undertaken to extend Fleurhof in terms of a joint venture since 2011 between Calgro M3 Holdings Limited and the City of Johannesburg. PGS (2014) undertook a HIA for the proposed development.

Van der Walt (2014) undertook a Phase 1 HIA on Holding 117 Princess Agricultural Holdings in Roodepoort, Gauteng. No archaeological or grave sites were recorded within the study area.

2013

Pelser (2013) reported an absence of sites, features or objects of cultural heritage (archaeological or historical) significance in a basic HIA report for the Lakeview floodline confinement and water use licence application, Constantia Kloof, Roodepoort. Past and recent residential and commercial

buildings and infrastructure impacted on any probable heritage resources to the extent that nothing remains.

Van Vollenhoven (2013) in his report on a Cultural HIA related to the EMP for Simmer Deep gold minings reclaim operation at the existing Doornkop Mine reported that no sites of cultural heritage significance were located on account of major disturbances following on mining and infrastructural activities.

2012

Van der Walt (2012) undertook an archaeological Impact Assessment for the proposed Spitz Land residential development, Roodepoort. No archaeological sites, grave sites or structures older than 60 years were identified.

2009

Huffman (2009) in a Phase 1 HIA for the Roodepoort-Driefontein Project recorded several sites of archaeological, historical and heritage significance. These were: Earlier Stone Age (2 sites), Middle Stone Age (5 sites), Later Stone Age (2 sites), Pastoralist (2 sites) and Historical (2 complexes). In addition, two cemeteries were identified.

Following on Prins' (2008) report on Fleurhof, grave relocation was undertaken by PGS for graves discovered during construction.

2008

Coetzee (2008) undertook a Cultural Heritage Survey of the proposed Riverwalk Township Development on the Remainder of the Farm Roodepoort 504 JR. Whereas several house remains, and foundations were recorded in the survey area, none were estimated to be older than 60 years and therefore not protected under the NHRA.

Birkholz (2008) in a Phase 1 HIA for the development of Portions 407 and 408 of the farm Roodepoort IQ identified 16 heritage sites that included eight abandoned mine shafts, five historical mine buildings and infrastructure, a mine tram line, a cemetery and a historical ash midden.

2007

Only a railway bridge, still in use, was identified during a heritage impact survey for the development of a rail slip link at NASREC, Roodepoort Magisterial District (van Schalkwyk 2007).

Van Schalkwyk (2007) in a heritage survey of Holding 21, Alsef Agricultural Holdings in the Roodepoort Magisterial District found no obvious features, sites or artefacts of cultural significance that could be impacted on by the proposed development.

Matakoma (2007) conducted an eco-assessment at Groblerpark Ext 89 for the proposed new township development on Agricultural Holding 200, Princess AH: Roodepoort. No heritage resources were identified.

Huffman (2007a) undertook an archaeological assessment for the Wilgespruit Project, Roodepoort. No archaeological or historical sites were found within the project area.

2005

Pistorius (2005) in a Phase I HIA for portions 30 and 31 in the Little Falls suburb in Roodepoort noted an absence of heritage resources.

2004

Archaeologists of the National Cultural History Museum (now Ditsong) undertook a HIA for the proposed waste bending platform Project, Roodepoort District in 2004. The surveyed area is located within a heavily industrialized area associated with historical gold mining. No heritage resources were recorded.

12 Conclusions and recommendations

12.1 Recommendations

The proposed Constantia Kloof Office Park Stormwater Silt and Litter Management Project (Project No. 508608) located in the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province will have no impact from a heritage perspective. No features, sites or artefacts of cultural significance were found during the survey conducted by the heritage practitioner on 28 February 2020.

It is of note that the findings of the majority of previous Heritage Impact Assessments (see above) conducted within the Roodepoort area and that were sourced by the authors of this report from the SAHRIS data base, comply with our findings, namely that the industrialization and urbanization around Roodepoort resulted in the destruction/demolition of heritage resources. It is only in protected areas such as Kloofendal and around Klipriviersberg that

archaeological structures and features (stone-built settlements and Stone Age lithics) are generally preserved.

12.2 Possible finds emanating from the development

There is a low probability of finding/exposing heritage resources during the construction phase given the rich historical landscape of this context.

- In the event that any sub-surface heritage resources or graves are unearthed all work has to be stopped 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. In the event that any graves or burial places are 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.
- If any archaeological material is uncovered during the course of development, then work in the immediate area should cease. The find will need to be reported to SAHRA or an archaeologist.

13 References

African Heritage Consultants. 2016. Strategic Phase One Heritage Impact Assessment for “the Southern Farms”, City of Johannesburg Metropolitan Municipality (CoJ) Gauteng Olifantsvlei 316-IQ, Misgund 322-IQ, Eikenhof 323-IQ and Rietfontein 301-IQ.

Aurecon. 2019. Constantia Park Screening Report Screening report DRAFT. Growthpoint. 2019-09-13.

Barham, L. & Mitchell, P. 2008. *The first Africans. African archaeology from the earliest toolmakers to most recent foragers*. Cambridge: Cambridge University Press.

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

Birkholz, P.D. 2008. Phase 1 Heritage Impact Assessment for the proposed development of Portions 407 and 408 of the farm Roodepoort IQ, City of Johannesburg Metropolitan Municipality, Roodepoort, Gauteng Province. Compiled for Marsh (Pty) Ltd by Archaeology Africa CC.

Bobbins, K. 2015. *Acid mine drainage and its governance in the Gauteng City-region*. Occasional Paper 10. Researched and written for the GCRO.

Boeyens, J. & Hall, S. 2009. Tlokwa oral traditions and the interface between history and archaeology at Marothodi. *South African Historical Journal* 61(3): 457-481, DOI: 0.1080/02582470903189717.

Coetzee, F.P. 2008. Cultural Heritage Survey of the proposed Riverwalk Township Development on the Remainder of the Farm Roodepoort 504JR, Gauteng Province. For AGES Environmental. Unpublished report.

CS Design CC t/a ARCON Specialist Architectural & Heritage Consultants. 2014. Heritage Impact Assessment: Old Rand Leases Mining Compound B, Fleurhof 10, Roodepoort. Draft report.

Cousins, D., Faiola, J., & Vermaak, V. 2014. Klipriviersberg. Johannesburg’s green jewel of the south. *Veld & Flora* 100(2): 68-71.

Deacon, H.J. 1972. A review of the Post-Pleistocene in South Africa. *South African Archaeological Society Goodwin Series* 1: 26-45.

Deacon, H.J. & Deacon, J. 1999. *Human beginnings in South Africa*. Cape Town: David Phillips.

De Jager, F.S.J. 1986. The East Rand Goldfield. Chapter IV, pp 111-171. In: Antrobus, E.S.A. (ed.) *Witwatersrand Gold – 100 years*. Johannesburg: The Geological Society of South Africa.

Digby Wells Environmental. 2014a. Mining rights application for reclamation of the Soweto Cluster Dumps, Roodepoort, Gauteng Province. Heritage Impact Assessment. Unpublished report.

Digby Wells Environmental. 2014b. Environmental Impact Assessment for the construction of

the proposed sludge disposal facility and pipeline associated with the treatment of acid mine drainage in the Eastern Basin of the Witwatersrand, Gauteng Draft Scoping Report. Prepared for: AECOM South Africa (Pty) Ltd.

Durand, F. 2012. The impact of gold mining on the Witwatersrand on the rivers and karst system of Gauteng and North West Province, South Africa. *Journal of African Earth Sciences* 68: 24-43. <http://dx.doi.org/10.1016/j.jafrearsci.2012.03.013>

Hall, S.L. 2012. Identity and political centralisation in the western regions of Highveld, c.1770–c.1830: An archaeological perspective. *Journal of Southern African Studies* 38 (2): 301-308. Special issue: rethinking South Africa's Past. Essays on history and archaeology.

<http://angloboerwar.com/forum/11-research/10384-books-on-the-boer-war>.

<https://web.facebook.com/photo.php?fbid=10207772217405748&set=pcb.10207772229606053&type=3&theater>.

<https://www.jhbcityparks.com/index.php/list-of-parks-mainmenu-39/43-kloofendal-nature-reserve>.

http://www.joburghappenings.co.za/roodepoort_homepage.htm.

<https://kloofendalfriends.yolasite.com/confidence-reef-mine.php>.

<https://roodepoortrecord.co.za/2016/08/16/the-rich-history-of-roodepoort/>.

<https://www.sahistory.org.za/topic/black-concentration-camps-during-anglo-boer-war-2-1900-1902>.

<http://www.theheritageportal.co.za/thread/oldest-buildings-johannesburg>.

<http://www.theheritageportal.co.za/article/when-johannesburgs-birthday>.

<https://www.wits.ac.za/rockart/>.

Huffman, T.N. 2007a. Archaeological assessment for the Wilgespruit Project, Roodepoort. A Phase 1 report prepared for Seaton Thompson and Associates. Unpublished report.

Huffman, T.N. 2007b. *Handbook to the Iron Age: The archaeology of pre-colonial farming societies in Southern Africa*. University of KwaZulu-Natal Press, Scottsville.

Huffman, T.N. 2009. Heritage Assessment for the Roodepoort-Driefontein Project, Gauteng. A Phase I report prepared for Seaton Thompson and Associates. Unpublished report.

Jeppe, F. 1899. *Jeppe's Map of the Transvaal*. London: Edward Stanford.

Jurmain, R., Kilgore, L. & Trevathan, W. 2013. *Physical anthropology. The essentials*. 9thed. Wadsworth Cengage Learning.

- Kruger, R. 2018. Struben treasures 'rediscovered' at Kirstenbosch. *Veld & Flora* 15: 15-16.
- 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: 123-44.
- Mason, R. 1962. *Prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.
- Mason, R.J. 1968. Transvaal and Natal Iron Age settlement revealed by aerial photography and excavation. *African Studies* 27(4): 167-180, DOI: 10.1080/00020186808707294.
- Mason, R.J. 1986. *Origins of black people of Johannesburg and the southern western central Transvaal, AD 350 – 1880*. Johannesburg. University of the Witwatersrand Archaeological Research Unit, Occasional Paper 16.
- Mason R.J. 1988. *Kruger Cave Late Stone Age, Magaliesberg*. Johannesburg. University of the Witwatersrand Archaeological Research Unit, Occasional Paper 18.
- Matakoma – ARM. 2007. Eco-Assessment. Groblerpark Ext 89. Proposed new township development on Agricultural Holding 200, Princess AH: Roodepoort, Johannesburg. Unpublished report.
- McCarthy, T.S. 2006. The Witwatersrand Supergroup. In: Johnson M.R., Anhaeusser and Thomas R.J. (Eds) *The Geology of South Africa*. Geological Society of South Africa. Pretoria: Council for Geoscience.
- McCarthy, T.S., Arnold, V., Venter, J. & Ellery, W.N. 2007. The collapse of Johannesburg's Klip River Wetland. *South African Journal of Science* 103: 391-397.
- McCarthy, T.S. & Rubidge, B.S. 2005. *The story of earth and life – a southern African perspective on the 4.6 billion year journey*. Cape Town: Struik.
- 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.
- Mucina, L. & Rutherford, M.C. 2006. *The vegetation map of South Africa, Lesotho and Swaziland*. Pretoria: SANBI.
- Naicker, K., Cukrowska, E. & McCarthy, T.S. 2003. Acid mine drainage arising from gold mining activity in Johannesburg, South Africa and environs. *Environmental Pollution* 122: 29–40.
- NCHM (Ditsong). 2004. HIA for the proposed waste bending platform Project, Roodepoort District, Gauteng in 2004.
- Orton, J. 2016. Scoping Heritage Impact Assessment for the proposed Hotazel Solar Farm, Kuruman Magisterial District, Northern Cape. Unpublished report for: Aurecon South Africa (Pty) Ltd

Patiwael, P.R., Groote, P. & Vanlay, F. 2018. Improving heritage impact assessment: an analytical critique of the ICOMOS guidelines. *International Journal of Heritage Studies*, DOI: 10.1080/13527258.2018.1477057.

Pelser, A. 2013. A basic Heritage Impact Assessment report for the Lakeview floodline confinement and water use licence application, Constantia Kloof, Roodepoort. For: Strategic Environmental Focus. Unpublished report.

PGS Heritage. 2014. Background Information Document. Re-development of the Old Rand Leases Mine Hostel, Fleurhof Ext. 10, Roodepoort, Johannesburg, Gauteng.

PGS Heritage. 2017. Heritage Impact Assessment for the Proposed Establishment of Goudrand Ext. 12 and Goudrand Ext. 13, located within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province. For Hunter Theron Inc. Unpublished report.

PGS Heritage. 2018a. Heritage Impact Assessment for the Proposed Establishment of Goudrand Ext. 5, Goudrand Ext. 6, Goudrand Ext. 7, Goudrand Ext. 8, Goudrand Ext. 9, Goudrand Ext. 10, Goudrand Ext. 11, Goudrand Ext. 14, Goudrand Ext. 15, Goudrand Ext. 16, Goudrand Ext. 17, Goudrand Ext. 18 and Goudrand Ext. 19, located in the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province. Unpublished report.

PGS Heritage. 2018b. West Wits Mining MLI (Pty) Ltd, Roodepoort, Johannesburg Metropolitan Municipality, Gauteng Province. Mining Permit Application: Proposed Kimberley West Opencast Pit. Unpublished report.

PGS Heritage. 2019. West Wits Mining MLI (Pty) Ltd, Roodepoort, Johannesburg Metropolitan Municipality, Gauteng Province. Proposed West Wits Mining Project: Various portions of farms Vogelstruisontein 231 IQ & 233 IQ, Roodepoort 236 IQ, & 237 IQ,, Vlakfontein 2381 IQ,, Witpoortjie 245 IQ,, Uitval 677 IQ, Tshekiso 710 IQ, Roodepoort Magisterial District, Gauteng. Prepared for SLR Consulting. Unpublished report.

Pistorius, J.C.C. 2005. A Phase I Heritage Impact Assessment (HIA) study for portions 30 and 31 in the Little Falls suburb in Roodepoort in the Gauteng Province of South Africa. Prepared for: Landscape Dynamics. Unpublished report.

Prins, F.E. 2008. Cultural heritage impact assessment of the Fleurhof Ext. 2 development. Unpublished report.

Richardson, P. & van Helter, J-J. 1984. The development of the South African gold-mining industry, 1895-1918. *The Economic History Review, New Series* 37(3): 319-340.

Sadr, K. 2012. The origins and spread of dry laid, stone-walled architecture in pre-colonial Southern Africa. *Journal of Southern African Studies* 38(2): 257-263, DOI: 10.1080/03057070.2012.683697.

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 1-36. DRAFT. Cape Town: South African Heritage Resources Agency.

South African Heritage Resources Agency (SAHRA). *Report Mapping Project*. Version 1.0, 2009.

The Burra Charter. 2013. The Australia ICOMOS charter for places of cultural significance. Australia ICOMOS Incorporated International Council on Monuments and Sites.

Tucker, R.F., Viljoen, R.P. & Viljoen, M.J. 2016. a review of the Witwatersrand Basin - The World's Greatest Goldfield. *Episodes* 39(2): 105-133.

Van der Walt, J. 2012. Archaeological Impact Assessment for the proposed Spitz Land residential development, Roodepoort, Gauteng. Prepared for: Marsh Environmental Services. Unpublished report.

Van der Walt, J. 2014. Phase 1 Heritage Impact Assessment on Holding 117 Princess Agricultural Holdings in Roodepoort, Gauteng. Prepared for Hunter Theron Inc Town and Regional Planners. Unpublished report.

Van Schalkwyk, J.A. 2007. Heritage survey of Holding 21, Alsef Agricultural Holdings, Roodepoort Magisterial District, Gauteng Province. Prepared for: Exigent Environmental. Unpublished report.

Van Schalkwyk, J.A. 2008. Heritage impact survey report for the development of a rail slip link at NASREC, Roodepoort Magisterial District, Gauteng Province. Prepared for: Exigent Environmental. Unpublished report.

Van Schalkwyk, J.A. 2017. Phase 1 Cultural Heritage Impact Assessment: the proposed development of the Vogelstruisfontein Photovoltaic project on the farm Vogelstruisfontein 231-IQ, Portion 4, Robertville, Roodepoort, Gauteng Province. Unpublished report.

Van Schalkwyk, J.A. 2018. Phase 1 Cultural Heritage Impact Assessment: the replacement of water pipelines in the Fleurhof Suburb, Roodepoort Region, City of Johannesburg Metropolitan Municipality, Gauteng Province. Prepared for: Envirolution Consulting. Unpublished report.

Van Schalkwyk, J.A. 2019. Phase 1 Cultural Heritage Impact Assessment. The replacement of water pipelines in Hamberg Suburb, Roodepoort Region, City of Johannesburg Metropolitan Municipality, Gauteng Province. Prepared for: Envirolution Consulting. Unpublished report.

Van Vollenhoven. A. 2013. A report on a Cultural Heritage Impact Assessment related to the EMP for Simmer Deep gold minings reclaim operation at the existing Doornkop Mine, Gauteng Province. For: Hydrosience. Unpublished report.

Venter, P. 1950. Die groei van onderwysaangeleenthede in Johannesburg. 1885-192. Unpublished PhD dissertation, Potchefstroomse Universiteitskollege vir C.H.O.

Viljoen, M. 2009. The life, death and revival of the central Rand Goldfield. World Gold Conference 2009. *The Southern African Institute of Mining and Metallurgy*: 131-138.

Wadley, L. 2013a. Recognizing complex cognition through innovative technology in Stone Age and Palaeolithic sites. *Cambridge Archaeological Journal* 23:163-183 DOI:10.1017/S0959774313000309.

Wadley, L. 2013b. Theoretical frameworks for understanding African hunter-gatherers. In: Mitchell, P. & Lane, P. (Eds). *Papers from the Pre-Colonial Catalytic Project*, edited by *The Oxford handbook of African archaeology*. Oxford: Oxford University Press, pp. 355–66.

Wadley, L. 2015. Those marvellous millennia: the Middle Stone Age of Southern Africa, *AZANIA: Archaeological Research in Africa* 50(2):155–226. DOI: 10.1080/0067270X.2015.1039236.

Wadley, L. 2016. Technological transformations imply cultural transformations and complex cognition. In: *The Nature of Culture*. Springer Netherlands, pp. 57–63.

Wiltshire, N. 2013. The use of SAHRIS as a state sponsored digital heritage repository and management system in South Africa. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, Volume II-5/W1: 325–330.

www.sahra.org.za/sahris.

14 Annexure A

The following table provides an overview of the southern African chronological sequence, the main attributes associated with a particular period, and cultural groups associated with each of the periods.

The southern African chronological sequence		
Cultural period and approximate ages	Cultural groups	Technological attributes and tool types
Earlier Stone Age >2 m—>200 000 ya ²	Early hominins Australopithecines <i>Homo habilis</i> <i>Homo erectus</i> archaic <i>Homo sapiens</i>	Large cutting tools (LCTs), scrapers and flaked forms. Some use of flaked bone as tools.
Middle Stone Age <300 000 —>20 000 ya	Archaic and fully modern <i>Homo sapiens</i>	A reduction in tool size. Blades, convergent points and awls made on prepared core types to produce uniform tool forms, also scrapers and other tool types. Flaked products were often further shaped through secondary retouch to produce a range of formal tool types. Decorative items, body ornaments and ochre use become apparent. Rare engravings and rock art.
Later Stone Age <40/20 000 ya up to historical times	<i>Homo sapiens</i> San hunter-gatherers Khoekhoe herders	An extended range of microlithic tool types, often used as inserts for bow-and-arrow hunting. Characteristic tools include scrapers, borers, and arrow heads. Ostrich eggshell (OES) beads and flasks — sometimes decorated— are prolific. Trade/barter items include glass, iron and copper beads, and pigments. Leather working, basketry, bone implements and armatures for arrows are common. Bow-and-arrow hunting and snaring. San and herder ceramics. Domestic animals: sheep, goats, cattle and dogs. Rock art. Polished stone tools and grooved stones used to shape different bone implements.
Early Iron Age c. AD 200—c. AD 900	Bantu-speaking African farming communities	Distinct pottery styles for the various pottery expressions, metal working, subsistence agriculture, domestic animals, trade and barter. Upper and lower grinding stones.
Middle Iron Age	Bantu-speaking	Distinct pottery for the various ethnic

² Ya = years ago

c. AD 900—c. AD 1300	African farming communities	groups, metal working, subsistence agriculture, domestic animals, trade and barter.
Late Iron Age c. AD 1300 – c. AD 1840 (Stone-walled sites: c. AD 1640—c. AD 1840)	Bantu-speaking African farming groups and Europeans	Characteristic pottery traditions associated with each of the main divisions, metal working, subsistence agriculture, domestic animals, trade and barter. Upper and lower grinding stones and other stone implements. Farmer rock art. Stone-walled settlements.
Colonial Period c. 1650	Bantu-speaking African farming groups and Europeans	Historical structures, industrial metals, glass, porcelain and ceramics.
Historical Period c. 1850	Various African groups, groups of mixed origin and Europeans	Historical structures, industrial metals, glass, porcelain and ceramics.

The following section provides a synthesis of the cultural succession of settlements within the southern African archaeological context.

14.1.1 Stone Age

Archaeological traces in the form of mostly stone tools suggest a widespread presence for tool-producing Plio-Pleistocene hominins in southern Africa. The South African Stone Age sequence is chronologically divided into the Earlier Stone Age (ESA), the Middle Stone Age (MSA) and the Later Stone Age (LSA) based on the concept of techno- or industrial complexes. Each of the subdivisions is formed by a group of industries where the assemblages share attributes or common traditions (Deacon 1972; Deacon & Deacon 1999; Lombard *et al.* 2012).

The australopithecines were gradually displaced by *Homo habilis*, a genus that evolved into the more advanced *Homo ergaster/erectus* by 1.8 million years BP. The large stone cutting tools (LCTs) associated with these hominins form part of the Oldowan and Acheulean industries of the ESA. Most ESA localities with stone tools in South Africa are associated with the hominin species known as *Homo erectus*, and the more recent ESA assemblages with archaic *Homo sapiens* (Barham & Mitchell 2008).³

³ ESA stone tools were found in the Kloofendal Nature Reserve.

By >250 000 years BP, the large cleavers and handaxes of the ESA were discontinued and replaced by a larger variety of smaller tools and weapons of diverse shapes and sizes and made by using different techniques. The MSA typologies following on the ESA represent greater specialization in the production of stone tools, in particular flake, blade and scraper tools and also in a more extended range of specialized, formal lithic tool types. These changes in technology mark the beginning of the MSA.

The MSA is known for typically prepared centripetal cores that delivered specific convergent/pointed flakes and a range of flake blades. Flaked products often retain the characteristic faceted striking platform that derives from this technique. Several other core types were also used to produce blank forms. Many of these were shaped by secondary trimming to produce a range of formal tool types. This period is moreover characterized by regional lithic variability, evidence for symbolic signalling, polished bone tools, portable art and decorative items.

The main developments during the MSA are cognitive, cultural and physical modernity (Wadley 2013a, 2013b, 2015, 2016). The MSA, which lasted almost half a million years, is associated with early modern humans with complex cognition, novel behaviours and transformative technologies. During the MSA early humans still settled in the open near water sources but also in caves and shelter localities. The MSA marks the transition from the more archaic *Homo* species to anatomically modern humans, *Homo sapiens sapiens* (Jurmain *et al.* 2013).

It is now generally accepted that the MSA was fully replaced by a mostly microlithic LSA marked by a series of new technological developments and cultural innovations (Wadley 2013a, 2013b). The LSA is marked by a series of technological innovations, social transformations and also noticeable demographic changes (Mitchell 2002a). The transition from the MSA to the LSA is vague. Dates proposed for the transitional period range from around 60/40 000 – 20 000 years ago based on a series of dates obtained through diverse dating methods, palaeoclimatic inferences as well as lithic technologies and diagnostic tool types as artefactual markers of a particular period.

The major changes comprise the replacement of MSA lithic technologies by LSA microlithic stone-working traditions and more widespread signs of symbolic and ritual activity in the form of art and decorative items, specifically objects made for personal adornment, such as pendants and the ubiquitous ostrich (*Struthio camelus*) eggshell (OES) beads (Mitchell 2002a). During the LSA small (microlithic) tools, bone tools and weapon armatures and a range of decorative items as well as rock art were produced.

Hunter-gatherer societies (and the later San) relied to a large extent on bow-and-arrow hunting with poisoned tips, and also snaring. Veld foods and medicinal plants were gathered. Ceramics were used and/or produced by hunter-gatherers and Khoekhoe herders towards the terminal phases of the LSA over a period of around 2000 years. Many of these stone tools and other material cultural items were still manufactured and used when the first Europeans settled in southern Africa in the 17th century AD. Information recorded about the lifestyles of the Khoekhoe herders and the San (Bushmen) at the time of the arrival of Europeans provides some insight into the immediate past history of these indigenous people.

Evidence for Stone Age communities on the Highveld comprises the complete sequence of the southern African Stone Age (Mason 1962, 1988).

14.1.2 Rock Art

Thousands of painted and engraved sites dating from the LSA have been recorded throughout Southern Africa and many more are still being found every year. Paintings and engravings were also executed on loose slabs of stone and some were used as markers for storage pits and in burials. Rock art in the form of paintings, but in particular the many and diverse categories of engravings on the highveld, are well-documented, for example at Maanhaarrand and Olifantspoort in the Rustenburg region (Mason 1986; RARI Wits Database).

14.1.3 Settlement by African farmers

The migrations into southern Africa and the expansion of Early Iron Age (EIA) African farming societies are apparent from AD 400 onwards. Pioneer Sotho-Tswana and other ethnic groups settled in semi-permanent villages, cultivated a range of crops, raised livestock, made ceramic

containers, mined ore and smelted metals and engaged in trade or barter. The Late Iron Age (LIA) was accompanied by aggregations of large numbers of communities that were often marked by extensive stonewalled settlements, or enclosures demarcated with poles and brushwood.

It was only during the second millennium at around AD 1600 that African communities settled the study region more densely, and these were mainly Tswana groups. The Highveld in general contains a great many Sotho-Tswana stone-walled structures from settlements that date to the Iron Age and the historical period (Mason 1986; Huffman 2007; African Heritage Consultants 2016). The more recent histories of groups such as the Tlokwa, Kgatla, Fokeng, Kwena, Po and others have been documented through ethnographic reports and oral histories (Boeyens & Hall 2009; Boeyens 2012; Hall 2012).

The greater Klipriviersberg area is located within the municipal areas of Johannesburg, Ekurhuleni and Midvaal. The prehistory of the Klipriviersberg begins with the Stone Age (Cousins *et al.* 2014). The area contains numerous stone-walled Iron Age Tswana settlements that date from c. 1500 (Mason 1968; Sadr 2012). The African farmer ceramics at most of the Klipriviersberg settlements of the study region are representative of the Uitkomst facies — a merger of Ntsuanatsatsi and Olifantspoort ceramics (Huffman 2007: 431). Klipriviersberg walling and the Uitkomst facies pottery that characterise most of the Highveld sites, date from the 17th to the 19th centuries. Huffman (2007: 433) puts a final date to Klipriviersberg walling at around 1823 with the arrival of Mzilikazi and his Nguni people in the area. The subsequent unrest in the interior resulted in clashes between the different Sotho-Tswana and the incoming Nguni that caused widespread displacements during the so-called the *difaqane* (Bergh 1999).



Figure 17. *Klipriviersberg-type settlements (after Huffman 2007: African Heritage 2016: 21).*

14.1.4 Historical context

The first white settlers to move into the region from the early 18th century onwards were frontiersmen, hunters, traders, missionaries and farmers. White hunters explored the general region from the 1800s (Bergh 1999; Pelsler 2011). The area was settled in the early 1900s by white farming colonists. Whereas pockets of agricultural land still remain, the bulk of these farms were subsequently industrialized through mining activities or rezoned for towns and residential suburbs.

The discovery of mineral resources and the associated developments contributed significantly to the struggle for supremacy that culminated in the Anglo Boer War of 1899-1902. The research area was the scene for several battles and skirmishes during this war (<http://angloboerwar.com/forum/11-research/10384-books-on-the-boer-war>). The war cemetery from World War II is also an attraction. Several coloured soldiers have been buried at this locality (<http://www.sahistory.org.za/places/springs>).

14.1.5 Provincial Heritage Resources: Roodepoort Magisterial District

- The mineshafts of F.P.T. and H.W. Struben (Confidence Reef) Kloofendal Roodepoort (Government Gazette 29 July May 1983 No. 8827).
- The historic pumphouse on Portion 15 of the farm Zuurbekom 9, District Roodepoort (Government Gazette 23 May 1975 No. 4714).