PHASE 1 HERITAGE IMPACT ASSESSMENT

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

Issue Date:	20 June 2018
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Client:	Hunter Theron Incorporated

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DECLARATION OF INDEPENDENCE

The report has been compiled by PGS Heritage, an appointed Heritage Specialist for Hunter Theron Inc. The views stipulated in this report are purely objective and no other interests are displayed in the findings and recommendations of this Heritage Impact Assessment.

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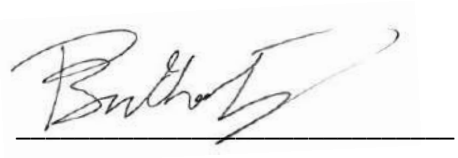
SIGNATURE: 

ACKNOWLEDGEMENT OF RECEIPT

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Report Title	Phase 1 Heritage Impact Assessment for Proposed Establishment of Goudrand Extensions 5 – 11 and Goudrand Extensions 14 - 19, located in the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.		
Control	**Name**	**Signature**	**Designation**
Author	**Polke Birkholtz**		**Project Manager / Heritage Specialist & Archaeologist**
Co-Author	**Mauritz Naudé**		**Architectural Historian**

As indicated in the table below, this Heritage Impact Assessment report was compiled in accordance with the NEMA Appendix 6 requirements for specialist reports.

NEMA REGS (2014) - APPENDIX 6	RELEVANT PAGES AND SECTIONS
Details of the specialist who prepared the report.	Pages i, ii, iii, 2 & 3. Also Appendix B.
The expertise of that person to compile a specialist report including a curriculum vitae.	Pages i, ii, iii, 2 & 3. Also Appendix B.
A declaration that the person is independent in a form as may be specified by the competent authority.	Page ii
An indication of the scope of, and the purpose for which, the report was prepared.	Page 1 (Section 1.1)
The date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 3.1
A description of the methodology adopted in preparing the report or carrying out the specialised process.	Section 3.1
The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure.	Sections 5 to 8 & Appendix C
An identification of any areas to be avoided, including buffers.	Sections 5 to 8 & Appendix C
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers.	Figure 136 & Appendix C
A description of any assumptions made and any uncertainties or gaps in knowledge.	Page 3 (Section 1.3)
A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment.	Section 7. Please note that no development alternatives were assessed.
Any mitigation measures for inclusion in the EMPr.	See Sections 8 & 9
Any conditions for inclusion in the environmental authorization.	See Sections 8 & 9
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Executive Summary & Section 9
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised and	Executive Summary & Section 9
If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	
A description of any consultation process that was undertaken during the course of carrying out the study	Apart from informal meetings with landowners, no public participation took place as part of this study.
A summary and copies if any comments that were received during any consultation process	Not applicable.
Any other information requested by the competent authority.	Not applicable.

EXECUTIVE SUMMARY

Introduction

PGS Heritage (Pty) Ltd was appointed by Hunter Theron Incorporated to undertake a Heritage Impact Assessment (HIA) 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 within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.

Desktop Study

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is situated is associated with historic gold mining activities from the 1880s onward. The desktop study also revealed the association of a historic mine and mine village with the study area. The mine in question was the well-known Durban Roodepoort Deep, which was established on 16 February 1895 and existed until 1994.

Heritage Fieldwork

The desktop study work was followed by fieldwork, which comprised intensive pedestrian and vehicle surveys of the study area. As a result of this fieldwork, a total of 196 buildings were identified and included in the inventory of sites. Furthermore, four non-built heritage sites were also identified within the cemetery, namely two cemeteries (DRD 1 & DRD 4) and two historic middens of archaeological age (DRD 2 & DRD 3). The heritage significance for all these sites were provided in the report.

Heritage Impact Assessments

Heritage impact risk assessments for the impact of the proposed development on both the identified built heritage and non-built heritage sites were undertaken. These impact risk assessments revealed that mitigation measures would be required.

Required Mitigation Measures for Built Heritage

General

This project went through various phases that resulted from a change in the physical scenario and manmade landscape on the ground. The brief remained the same: identify and assess places of heritage significance that would guide the town planning and spatial development framework the heritage team was appointed by a town planning firm).

According to the initial brief the Heritage Impact Assessment focused on the identification of individual properties and buildings that need to be retained in the historic DRD village. No spatial development framework or town planning scheme existed for the proposed development area. The brief resulted in an assessment of the entire area and mining village to identify places of heritage significance that need to be protected and included in any future development. This was completed and a spatial development framework was drafted and discussed.

During a lapse of time (a few years) the entire site was invaded by vandals and the buildings, some of the identified buildings were looted and eventually totally destroyed by informal miners and other agencies. This resulted in the loss of sites identified for protection and reuse. The proposed spatial development framework was altered and discussed.

The objective of the spatial development framework was to indicate how the land of the former mining village, will be subdivided into properties, where certain functional zones will be located and how they will be serviced by roads and streets. In essence the completion of this spatial development framework and town planning model concluded the Heritage Impact Assessment process as no further detail could be presented by the Town Planners and developers. No further detail regarding the proposed reuse of the retained buildings and no architectural drawings of how the buildings will be altered existed and none was proposed.

Town planning - spatial development framework

The heritage legislation is not clear on the specification and procedures for the approval of town planning schemes and spatial development frameworks as these design schemes do not address the detail aspects of extensions and alterations to individual buildings.

Individual sites

The individual sites identified by the heritage team were identified based on a selection of heritage criteria with no relation, association or objective to serve any future or proposed land uses, spatial orientation respect regarding set-backs or streetscape and visual and aesthetic sympathy towards the streets.

Buildings

The general principal is that no mitigation measures or guidelines can be drafted for any of the buildings until a new purpose for each building or a new use is determined and the design architect and the heritage architect has determined to what extent renovation and modernization would be possible in relation to preservation, restoration or reconstruction. At no stage of this project did this aspect form part of the brief.

Recommendations

- The HIA can only be submitted to the PHRA-Gauteng and SAHRA for approval as a town planning scheme and spatial development framework.

- The HIA indicates which areas are available for development without legal obligation determined under the NHRA. Development may commence in these areas after approval from the PHRA-Gauteng and SAHRA.

- The HIA identifies which sites and buildings need to be retained and reused. Work may commence around these properties after approval by the PHRA-Gauteng and SAHRA.

- The brief does not specify how the individual identified properties and buildings should be reused and how they should be rehabilitated and this aspect is excluded from the HIA. Work on these sites can only commence once this aspect has been defined and a design architect has been appointed for each site. This must be done in collaboration with the heritage specialist for buildings.

- From a heritage (and conservation) point of view, the only recommendation that can be proposed by this HIA regarding the buildings older than 60 years are as follows: (a) they

need to be protected against demolition in the period prior to receipt of permits; (b) each building to be recorded photographically; (c) as-built architectural drawings to be drafted of the floor plan and elevations of each building and (d) these be compiled into a permit application to the heritage authorities. Such buildings may only be demolished once the necessary permits from these heritage authorities are received.

- From a heritage (and conservation) point of view, the only recommendation that can be proposed by this HIA regarding the selected buildings (to be retained and reused) is that (a) they need to be protected against demolition in the period prior to development; (b) each building be recorded photographically; (c) as-built architectural drawings be drafted of the floor plan and elevations of each building and (d) these be retained and passed onto the project design architect to be used as base documents when the design process commences for each of the selected sites.

- When the architectural design process commences for the sites and buildings identified for protection and reuse, the design architect must submit the proposed designs to the PHRA-Gauteng as Section 34 applications, for approval.

Required Mitigation Measures for Archaeological and Non-Built Heritage

General

A total of four non-built heritage sites were identified during the fieldwork. These sites comprise two cemeteries (DRD 1 & DRD 4) and two archaeological sites comprising historic middens (DRD 2 & DRD 3). In the subsequent section, the required mitigation measures for these sites will be provided. General mitigation measures for archaeological and non-built heritage sites will be provided in the section after that.

Cemeteries at DRD 1 and DRD 4

The following recommendations are required for the two cemeteries identified at DRD 1 and DRD 4.

- These two cemeteries must be preserved *in situ*.

- A 50m buffer area around each of these cemeteries must be kept clear of any development or associated activities.

- During the construction phase, an archaeological monitoring procedure must be implemented to allow for the archaeological monitoring of any construction activities proposed within 200m from these two cemeteries. This would ensure that such construction activities do not pose any threat to the graves, and secondly that any unmarked graves which may be located in the surroundings of these cemeteries can be identified at an early stage. Should human remains be identified during the archaeological monitoring process, the responsible archaeologist will provide suitable mitigation measures.

Historic Middens at DRD 2 and DRD 3

The following recommendations are required for the two historic middens identified at DRD 2 and DRD 3. A suitably experienced archaeologist must be appointed to undertake the mitigation measures outlined below.

- An archaeological excavation permit must be applied for from SAHRA.

- Once the above-mentioned permit is received, archaeological test excavations can be undertaken at the two sites.

- Laboratory analysis, classification and recording of the excavated archaeological materials must be undertaken once the excavations are concluded.

- An archaeological excavations report must be compiled and submitted to SAHRA with a permit application allowing the two sites to be destroyed. Only once the destruction permit is received from the heritage authority can these sites be destroyed.

General Mitigation Measures in terms of Archaeology and Non-Built Heritage Sites

The following general mitigation measures are required:

- Development activities in the surroundings of the present study area have shown that unmarked graves and cemeteries, as well as subterranean archaeological sites may very

well be a characteristic of this historic gold mining landscape. As a result, and archaeological watching brief will be required during the construction phase.

On the condition that the mitigation measures recommended in this report are adhered to, and in cognisance of the assumptions and limitations, no heritage reasons can be given for the proposed town planning scheme not to continue.

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LIST OF APPENDICES

1 INTRODUCTION

PGS Heritage (Pty) Ltd was appointed by Hunter Theron Incorporated to undertake a Heritage Impact Assessment (HIA) 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 within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed development area and to assess the impact of the proposed development on these identified heritage sites. The HIA aims to inform the environmental assessments in the development of a comprehensive EMP to manage the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This HIA was compiled by PGS Heritage (Pty) Ltd. The staff at PGS Heritage (Pty) Ltd. has a combined experience of nearly 70 years in the heritage consulting industry and have extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where the staff has the relevant expertise and experience to undertake that work competently.

- Polke Birkholtz, the Project Manager and author, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited with the CRM Section of ASAPA. He has 19 years' experience in the heritage assessment and management field and holds a B.A. (cum laude) from the University of Pretoria specialising in Archaeology, Anthropology and History as well as a B.A. (Hons.) in Archaeology (cum laude) from the same institution.

- Mauritz Naude is an architectural historian and conservationist. He assists heritage practitioners as private consultant in the assessment of historic buildings and sites, is a contract lecturer at the Departments of Architecture, Visual Arts and Building Sciences (University of Pretoria) and is a research fellow at the Department of Architecture (Tshwane University of Technology). He is also a contract lecturer for the course on Environmental Law at the Centre for Environmental Management (CEM – University of the Northwest). He has more than 35 years' experience in the curation and conservation of historic buildings. He holds degrees in Archaeology, Art History (Hons), a post graduate diploma in Museology, a MA-

Architecture in conservation (WITS) and is currently completing his PHd at the Department of Architecture and Landscape Architecture (University of Pretoria). He is the author of 42 peer reviewed articles and an equal number of popular papers on various topics relating to architectural history, vernacular architecture and building technology.

1.3 Assumptions and Limitations

The following assumptions and limitations to this study exist:

- Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites, as well as the density of vegetation cover found in some areas. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way, until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. 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 as set out below.

1.4 Legislative Context

The identification, evaluation and assessment of any cultural heritage site, artefact or finds in the South African context is required and governed by the following legislation:

i. National Environmental Management Act (NEMA) Act 107 of 1998
ii. National Heritage Resources Act (NHRA) Act 25 of 1999
iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
iv. Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

i. GNR 982 (Government Gazette 38282, 14 December 2014) promulgated under the National Environmental Management Act (NEMA) Act 107 of 1998
    a. Basic Assessment Report(BAR) – Regulations 19 and 23

b. Environmental Scoping Report (ESR) – Regulation 21
c. Environmental Impacts Assessment (EIA) – Regulation 23
d. Environmental Management Programme (EMPr) – Regulations 19 and 23

ii. National Heritage Resources Act (NHRA) Act 25 of 1999
a. Protection of Heritage Resources – Sections 34 to 36; and
b. Heritage Resources Management – Section 38

iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
a. Section 39(3)

The NHRA stipulates that cultural heritage resources may not be disturbed without authorisation from the relevant heritage authority. Section 34(1) of the NHRA states that "*no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority*…". The NEMA (No 107 of 1998) states that an integrated EMP should (23:2 (b)) "…*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage*". In accordance with legislative requirements and EIA rating criteria, the regulations of SAHRA and ASAPA have also been incorporated to ensure that a comprehensive and legally compatible HIA report is compiled.

1.5 Terminology and Abbreviations

Archaeological resources

i. material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
ii. rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
iii. wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Development

Any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

i. construction, alteration, demolition, removal or change in use of a place or a structure at a place;
ii. carrying out any works on or over or under a place;
iii. subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
iv. constructing or putting up for display signs or boards;
v. any change to the natural or existing condition or topography of land; and
vi. any removal or destruction of trees, or removal of vegetation or topsoil

Early Stone Age

The archaeology of the Stone Age, dating to between roughly 700 000 and 2 500 000 years ago.

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, and fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance

Holocene

The most recent geological time period, which commenced 10 000 years ago.

Later Stone Age

The archaeology of the last 20 000 years, associated with fully modern people.

Late Iron Age

The archaeology of the last 1000 years up to the 1800s, associated with ironworking and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age, dating to between 20 000-300 000 years ago, associated with early modern humans.

Palaeontology

The study of fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and of any site which contains such fossilised remains or trace.

Study Area

For the purposes of this report, the term study area refers to the area that is defined in Section 2.1 of this report. This portion of land forms the area that was assessed for the purposes of this report.

Table 1- Abbreviations

ABBREVIATION	*DESCRIPTION*
AIA	**Archaeological Impact Assessment**
ASAPA	**Association of South African Professional Archaeologists**
CRM	**Cultural Resources Management**
DEA	**Department of Environmental Affairs**
DMR	**Department of Mineral Resources**
EAP	**Environmental Assessment Practitioner**
ECO	**Environmental Control Officer**
EIA	**Environmental Impact Assessment**
EMPr	**Environmental Management Programme Report**
ESA	**Early Stone Age**
GPS	**Global Positioning System**
HIA	**Heritage Impact Assessment**
HIR	**Heritage Impact Report**
HSR	**Heritage Scoping Report**
I&AP	**Interested & Affected Party**
LSA	**Later Stone Age**
LIA	**Late Iron Age**
MIA	**Middle Iron Age**
MSA	**Middle Stone Age**
NEMA	**National Environmental Management Act**
NHRA	**National Heritage Resources Act**
PHRA	**Provincial Heritage Resources Authority**
PIA	**Palaeontological Impact Assessment**
PSSA	**Palaeontological Society of South Africa**
SAHRA	**South African Heritage Resources Agency**
SAHRIS	**South African Heritage Resources Information System**

Refer to **Appendix A** for further discussion on heritage management and legislative matters.

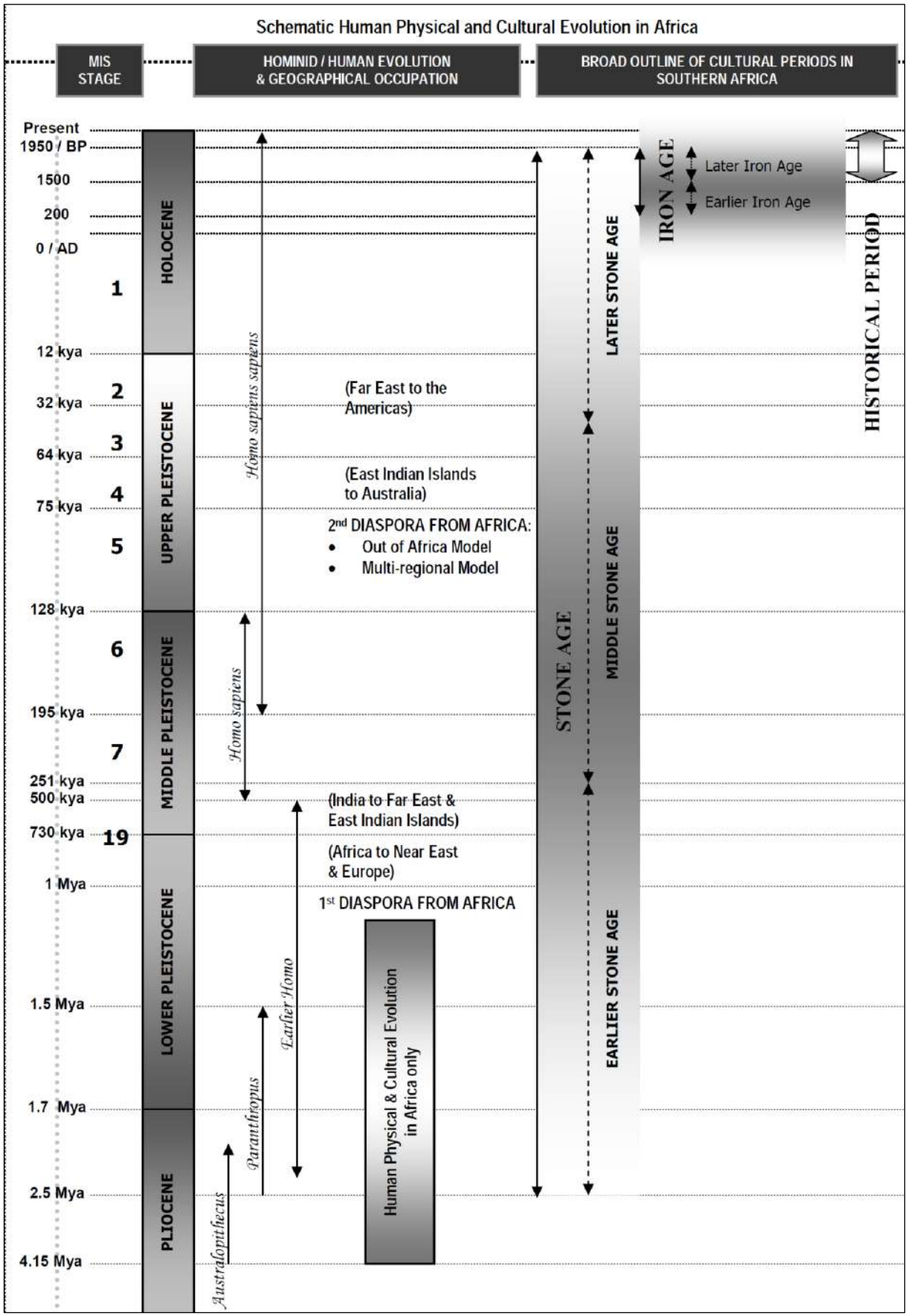


Figure 1–Human and Cultural Time line in Africa (Morris, 2008).

2 TECHNICAL DETAILS OF THE PROJECT

2.1 Site Location

Coordinates	Approximate Centre Point for Section comprising Proposed Goudrand Extension 17.	S 26.172278	E 27.876296
	Approximate Centre Point for Section comprising Proposed Goudrand Extensions 5 – 11, Goudrand Ext. 16 as well as Goudrand Extensions 18 & 19.	S 26.173282	E 27.868240
	Approximate Centre Point for Section comprising Proposed Goudrand Extensions 14 & 15.	S 26.185295	E 27.867314
Location	The study area is located between Bram Fisherville and Roodepoort. The southern component of the proposed development is located directly north of Bram Fisherville whereas its northern component is located roughly 800m south of the Roodepoort Railway Station. The largest component of the study area is associated with the old Durban Roodepoort Deep gold mine.		
Property	Portions of the Remainder of Portions 1 & 5 as well as Portion 404 of the farm Roodepoort 237 IQ.		
Map Sheet	2627BB		
Extent	The study area is approximately 201 hectares in extent.		

Figure 2 – Google Earth image depicting the regional context of the study area.

Figure 3 – Google Earth image depicting a closer view of the study area.

2.2 Technical Project Description

The proposed activity is the 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 within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.

As can be seen on the development layout plan included on the next page, the proposed development as a whole comprises a number of components. These overall components are listed below and include those associated with Goudrand Ext. 12 and Goudrand Ext. 13, which are excluded from this study, as they formed part of a separate HIA study and report.

Table 2- Components of the Proposed Development

Proposed Land Use	No. of Stands	Area Ha	% Study Area
Residential 1: Bonded	1198	33.3404	14.19%
Residential 1: Credit Linked	1074	23.4503	9.98%
Residential 3	20	44.8380	19.09%
Business 1	3	9.09	3.87%
Industrial 1	4	2.31	0.98%
Education	5	14.01	5.96%
Church	6	1.42	0.60%
Crèche	6	2.56	1.09%
Cemetery	1	3.67	1.56%
Hospital / Clinic	1	3.26	1.38%
Municipal	2	3.0936	1.32%
S.A.R.	3	1.81	0.77%
Institutional	1	1.16	0.49%
Special for Sub-Station	1	2.7038	1.15%
Private Open Space	5	18.52	7.88%
Public Open Space	60	28.4419	12.11%
Street		41.2160	17.58%
TOTAL	2390	234.8940	100%

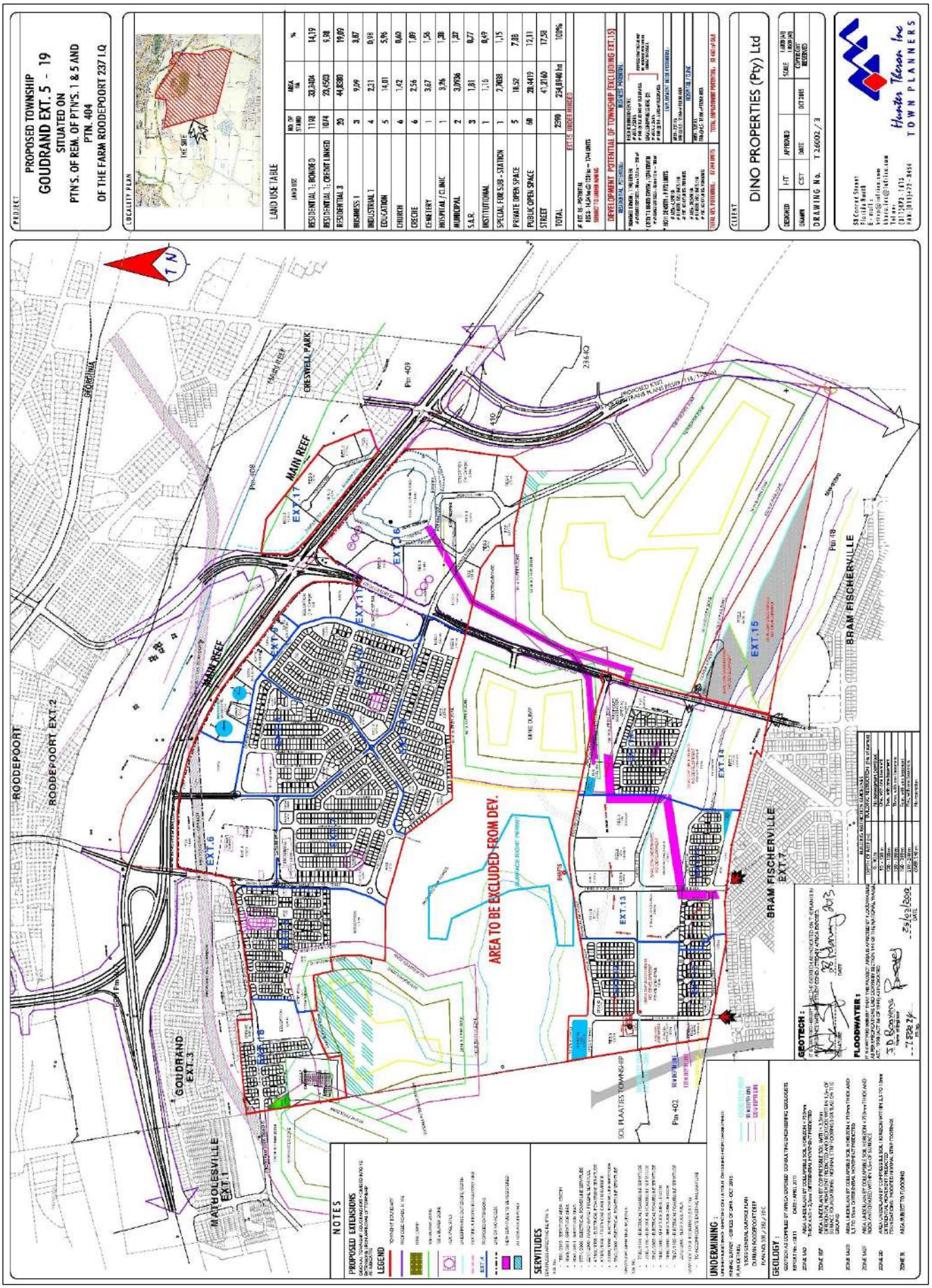


Figure 4 – Development layout plan as provided by the client.

3 ASSESSMENT METHODOLOGY

3.1 Methodology for Assessing Heritage Site Significance

The Heritage Impact Assessment process consisted of three steps:

Step I – Desktop Study: An archaeological and historical background study was undertaken using available literature and sources. This was augmented by an assessment of available archival and historic maps, which allowed for the historic layering of the study area. Previous archaeological and heritage studies from the study area and surroundings were also accessed using the South African Heritage Resources Information System (SAHRIS) of the South African Heritage Resources Agency (SAHRA). Finally, an assessment of available historic photographs and historic aerial photographs was also undertaken as a means of providing estimated dates for buildings.

Step II – Physical Survey: The methodology utilised during the fieldwork was to undertake pedestrian and vehicle surveys of the study area. GPS coordinates were taken of identified heritage sites and such sites were recorded photographically. A total of 196 buildings were identified during the fieldwork, with four archaeological sites comprising two historic middens and two cemeteries, also identified.

Step III – The final step involved the recording and documentation of relevant heritage resources, as well as the assessment of resources in terms of the heritage impact assessment criteria and report writing, as well as mapping and recommendations.

The significance of heritage sites was based on five main criteria:

- site integrity (i.e. primary vs. secondary context),
- amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
    - Low - <10/50m²
    - Medium - 10-50/50m²
    - High - >50/50m²
- uniqueness and
- the potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

A - No further action necessary;

B - Mapping of the site and controlled sampling required;

C - No-go or relocate development position

D - Preserve site, or extensive data collection and mapping of the site; and

E - Preserve site

Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report (see **Table 3**).

Table 3: Site significance classification standards as prescribed by SAHRA

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

3.2 Methodology for Impact Assessment

In order to ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the aforementioned assessment criteria. A summary of each of the qualitative descriptors, along with the equivalent quantitative rating scale for each of the aforementioned criteria, is given in **Table 4.**

Table 4: Quantitative rating and equivalent descriptors for the impact assessment criteria

RATING	SIGNIFICANCE	EXTENT SCALE	TEMPORAL SCALE
1	VERY LOW	*Isolated site/ proposed corridor*	Incidental
2	LOW	*Study area*	Short-term
3	MODERATE	*Local*	Medium-term
4	HIGH	*Regional / Provincial*	Long-term
5	VERY HIGH	*Global / National*	Permanent

Significance Assessment

The Significance rating (importance) of the associated impacts embraces the notion of extent and magnitude, but does not always clearly define these, since their importance in the rating scale is very relative. For example, the magnitude (i.e. the size) of an area affected by atmospheric pollution may be extremely large (1000 km^2) but the significance of this effect is dependent on the concentration or level of pollution. If the concentration is great, the significance of the impact would be HIGH or VERY HIGH, but if it is diluted it would be VERY LOW or LOW. Similarly, if 60 ha of a grassland type are destroyed, the impact would be VERY HIGH if only 100 ha of that grassland type were known. The impact would be VERY LOW if the grassland type was common. A more detailed description of the impact significance rating scale is given in **Table 5** below.

Table 5: Description of the significance rating scale

RATING		DESCRIPTION
5	VERY HIGH	Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.
4	HIGH	Impact is of substantial order within the bounds of impacts which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive, time-consuming or some combination of these.
3	MODERATE	Impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both feasible and fairly easily possible. In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.
2	LOW	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.

1	VERY LOW	Impact is negligible within the bounds of impacts which could occur. In the case of adverse impacts, almost no mitigation and/or remedial activity are needed, and any minor steps which might be needed are easy, cheap, and simple. In the case of beneficial impacts, alternative means are almost all likely to be better, in one or a number of ways, than this means of achieving the benefit. Three additional categories must also be used where relevant. They are in addition to the category represented on the scale, and if used, will replace the scale.
0	NO IMPACT	There is no impact at all - not even a very low impact on a party or system.

Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale. The spatial assessment scale is described in more detail in the table below.

Table 6: Description of the Spatial significance rating scale

RATING		DESCRIPTION
5	Global/National	The maximum extent of any impact.
4	Regional/Provincial	The spatial scale is moderate within the bounds of possible impacts, and will be felt at a regional scale (District Municipality to Provincial Level). The impact will affect an area up to 50 km from the proposed site.
3	Local	The impact will affect an area up to 5 km from the proposed site.
2	Study Area	The impact will affect an area not exceeding the boundary of the study area.
1	Isolated Sites / proposed site	The impact will affect an area no bigger than the site.

Temporal/Duration Scale

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact in the environment. The temporal or duration scale is rated according to criteria set out in **Table 7.**

Table 7: Description of the temporal rating scale

RATING		DESCRIPTION
1	Incidental	The impact will be limited to isolated incidences that are expected to occur very sporadically.
2	Short-term	The environmental impact identified will operate for the duration of the construction phase or a period of less than 5 years, whichever is the greater.
3	Medium-term	The environmental impact identified will operate for the duration of life of the project.

4	Long-term	The environmental impact identified will operate beyond the life of operation of the project.
5	Permanent	The environmental impact will be permanent.

Degree of Probability

The probability, or likelihood, of an impact occurring will be described as shown in **Table 8** below.

Table 8: Description of the degree of probability of an impact occurring

RATING	DESCRIPTION
1	Practically impossible
2	Unlikely
3	Could happen
4	Very likely
5	It's going to happen / has occurred

Degree of Certainty

As with all studies, it is not possible to be 100% certain of all facts, and for this reason a standard "degree of certainty" scale is used, as discussed in **Table 9.** The level of detail for specialist studies is determined according to the degree of certainty required for decision-making. The impacts are discussed in terms of affected parties or environmental components.

Table 9: Description of the degree of certainty rating scale

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact.
Probable	Between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Between 40 and 70% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact or the likelihood of an impact occurring.
Can't know	The consultant believes an assessment is not possible even with additional research.

Quantitative Description of Impacts

To allow for impacts to be described in a quantitative manner, in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale, as described below:

$$\textit{Impact Risk} = \frac{(\text{SIGNIFICANCE} + \textit{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

An example of how this rating scale is applied is shown below:

Table 10: Example of Rating Scale

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	LOW	Local	Medium Term	Could Happen	**LOW**
Impact on heritage sites	2	3	3	3	1.6

Note: The significance, spatial and temporal scales are added to give a total of 8, which is divided by 3 to give a criterion rating of 2.67. The probability (3) is divided by 5 to give a probability rating of 0.6. The criteria rating of 2.67 is then multiplied by the probability rating (0,6) to give the final rating of 1,6.

The impact risk is classified according to 5 classes as described in the table below.

Table 11: Impact Risk Classes

RATING	IMPACT CLASS	DESCRIPTION
0.1 – 1.0	1	Very Low
1.1 – 2.0	2	Low
2.1 – 3.0	3	Moderate
3.1 – 4.0	4	High
4.1 – 5.0	5	Very High

Therefore, with reference to the example used for air quality above, an impact rating of 1.6 will fall in the Impact Class 2, which will be considered to be a low impact.

4 CURRENT STATUS QUO

The proposed development comprises the 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 within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.

The study area is topographically flat and can be described as primarily disturbed. This is largely due to the study area having been used as a mining village and mining area by Durban Roodepoort Deep for a very long time.

While sections of the study area comprise houses set upon individual stands, the north-western end of the study area was used for a compound complex where black mineworkers from all over Southern Africa were housed. Other sections of the study area were also historically used for the establishment of tailings dams associated with the gold mining activities, with most of these tailings dams having undergone gold reclamation activities in recent years. Components of the study area were also used for the recreational and sport facilities associated with the mine village, such as soccer and cricket fields, tennis courts, bowling courts, a swimming pool and so forth. More recently, an 18-hole golf course was also built across a relatively extensive section of the study area. The study area is also characterised by planted vegetation associated with the roads and houses located here.

The current condition of the historic mine village is poor due to vandalism, demolition and general neglect. According to the client, the area is also characterised by significantly high levels of crime.

Figure 5 – General view of a section of the study area showing the residential character of large components of the study area. These semi-detached dwellings are located within the north-eastern section of the study area.

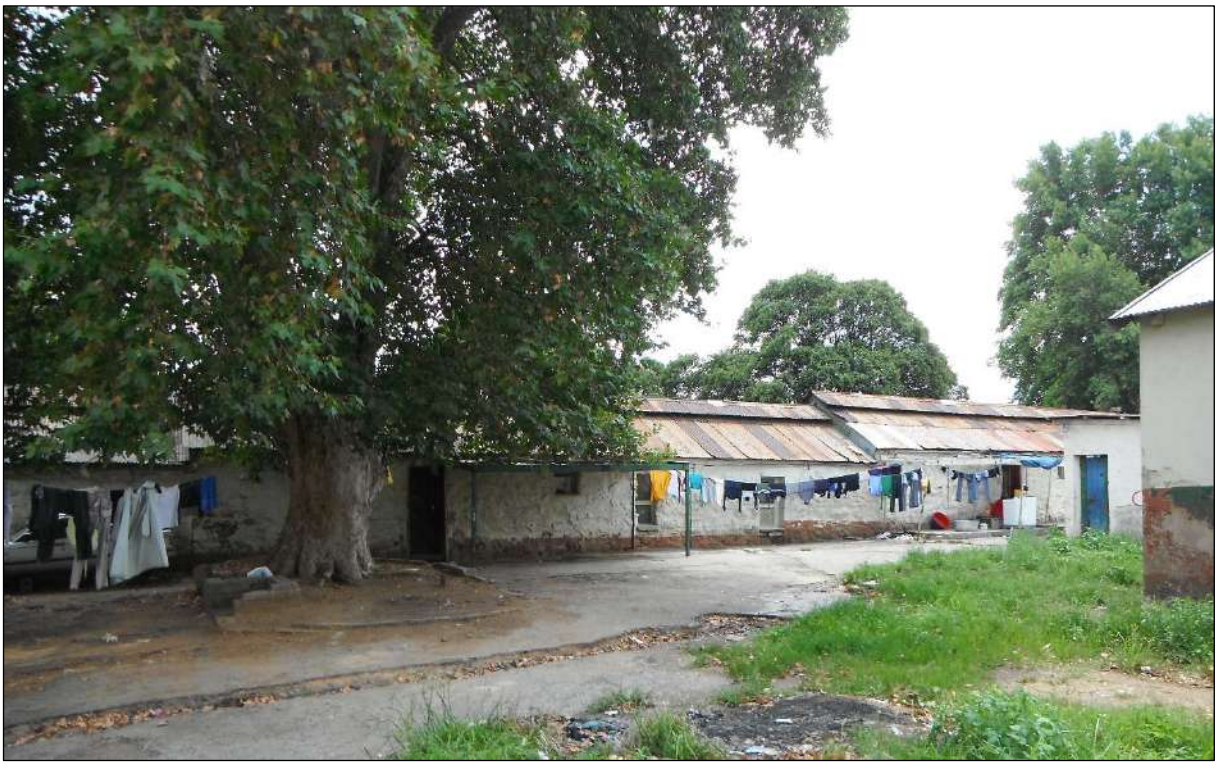


Figure 6 – General view of a section of the study area showing a section of the historic compound located near the north-western end of the study area. An extensive cemetery is associated with this compound.

Figure 7 – General view of a section of the study area showing the remains of tennis courts in the foreground. These tennis courts would have been associated with the historic mine village.

Figure 8 – Planted trees and vegetation still characterise sections of the study area. This lane of oak trees is located near the old mine offices for Durban Roodepoort Deep.

Figure 9 – The current condition of the mine village and buildings is very poor, with a number of buildings currently only consist of ruined structures.

5 DESKTOP STUDY FINDINGS

5.1 Introduction

In this chapter the history of the study area will be presented. Aspects that will be briefly discussed include the archaeology of the study area and surrounding landscape, the history of gold mining in this area as well as the history of the Durban Roodepoort Deep Gold Mine.

5.2 Overview of the Prehistory of the Study Area and Surrounding Landscape

DATE	DESCRIPTION
2.5 million to 250 000 years ago	The Earlier Stone Age is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earliest of these is known as Oldowan and is associated with crude flakes and hammer stones. It dates to approximately 2 million years ago. The second technological phase is the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial hand axe. The Acheulian dates back to approximately 1.5 million years ago. A number of Early Stone Age sites are known from the general vicinity. One of these is situated roughly 655m south-west of the study area (Birkholtz, 2001).
250 000 to 40 000 years ago	The Middle Stone Age (MSA) is the second oldest phase identified in South Africa's archaeological history. This phase is associated with flakes, points and blades manufactured by means of the so-called 'prepared core' technique. No known Middle Stone Age sites are known from the study area or its surroundings.
40 000 years ago to the historic past	The Later Stone Age is the third archaeological phase identified and is associated with an abundance of very small artefacts known as microliths. No known Later Stone Age sites are known from the study area or its surroundings.
AD 450 – AD 750	The Mzonjani facies of the Kwale Branch of the Urewe Ceramic Tradition represents the earliest known Iron Age period within the surroundings of the study area. The decoration on the ceramics from this facies is characterised by punctates on the rim as well as spaced motifs on the shoulder (Huffman, 2007). No sites associated with Mzonjani pottery are known from within the study area or its immediate surroundings.
AD 1450 – AD 1650	The Ntsuanatsatsi facies of the Blackburn Branch of the Urewe Ceramic Tradition represents the second known Iron Age period within the surroundings of the study area. The decoration on the ceramics from this facies is characterised by a broad band of stamping in the neck, stamped arcades on the shoulder and appliqué (Huffman, 2007). Huffman (2007) suggests that the Ntsuanatsatsi facies can be directly linked to the early Bafokeng who regarding this theory were the first Mbo Nguni people to leave present-day KwaZulu-Natal. No sites associated with Ntsuanatsatsi pottery are known from within the study area or its immediate surroundings.

AD 1500 - AD 1700	The Olifantspoort facies of the Moloko Branch of the Urewe Ceramic Tradition is the third Iron Age facies to be identified within the surroundings of the study area. The Olifantspoort facies can likely be dated to between AD 1500 and AD 1700. The key features of the decoration used on the ceramics from this facies include multiple bands of fine stamping or narrow incision separated by colour (Huffman, 2007). The type site for this facies is located on the farm Olfantspoort 328 JQ, which is situated near Rustenburg in the North West Province. The Olifantspoort facies holds an important position in the sequence of the Moloko or Sotho-Tswana group. The earliest facies to be associated with the Moloko is the Icon facies (AD 1300 – 1500), with sites found across large sections of what is today the Limpopo Province. The Icon facies resulted in three different and parallel Iron Age facies, namely the Madikwe facies (AD 1500 – 1700) (which in turn led to the Buispoort facies between AD 1700 and 1850), the Letsibogo facies (AD 1500 – 1700) and thirdly the Olifantspoort facies. The Olfantspoort facies developed into the Thabeng facies (AD 1700 – 1850) (Huffman, 2007). It is therefore evident that the Olifantspoort facies represents a key pillar in our understanding of the origins and sequence of the Sotho-Tswana people of today (Huffman, 2007). No sites associated with Olifantspoort pottery are known from within the study area or its immediate surroundings.
AD 1650 – AD 1850	*The Uitkomst facies of the Blackburn Branch of the Urewe Ceramic Tradition represents the third Iron Age period to be identified for the surroundings of the study area. This facies can likely be dated to between AD 1650 and AD 1820. The decoration on the ceramics associated with this facies is characterised by stamped arcades, appliqué of parallel incisions, stamping and cord impressions and is described as a mixture of the characteristics of both Ntsuanatsatsi (Nguni) and Olifantspoort (Sotho) (Huffman, 2007).* The type-site is Uitkomst Cave, which is situated approximately 30.4km north-west of the study area. The site was excavated by Professor R.J. Mason of the University of the Witwatersrand as part of a project to excavate five cave sites in the Witwatersrand-Magaliesberg area. These five sites are Glenferness, Hennops River, Pietkloof, Zwartkops and Uitkomst. Uitkomst was chosen as the type site for the particular Iron Age material excavated at these sites as the Uitkomst deposit was found to be well stratified and the site "...*illustrates the combination of a certain kind of pottery with evidence for metal and food production and stone wall building found at the open sites*..." (Mason, 1962:385). The Uitkomst pottery is viewed as a combination of Ntsuanatsatsi and Olifantspoort, and with the Makgwareng facies is seen as the successors to the Ntsuanatsatsi facies. The Ntsuanatsatsi facies is closely related to the oral histories of the Early Fokeng people and represents the earliest known movement of Nguni people out of Kwazulu-Natal into the inland areas of South Africa. Regarding this theory, the Bafokeng settled at Ntsuanatsatsi Hill in the present-day Free State Province. Subsequently, the BaKwena lineage had broken away from the Bahurutshe cluster and crossed southward over the Vaal River to come in contact with the Bafokeng. As a result of this contact a Bafokeng-Bakwena cluster was formed, which moved northward and became further 'Sotho-ised' by coming into increasing contact with other Sotho-Tswana groups. According to this theory, this eventually resulted in the appearance of Uitkomst facies type pottery which contained elements of both Nguni and Sotho-Tswana speakers (Huffman, 2007). Huffman states that that the Uitkomst facies is directly associated with the Bafokeng (Huffman, 2007). However, it worth noting that not all researchers agree with this preposition of the Bafokeng origins. In their book on the history of the Bafokeng, Bernard Mbenga and Andrew Mason indicate that the research of Prof. R.J. Mason and Dr. J.C.C. Pistorius

	"...would indicate that the Bafokeng originated from the Bahurutshe-Bakwena-Bakgatla lineage cluster. Tom Huffman holds a different view..." (Mbenga & Mason, 2010). No sites associated with Uitkomst pottery are known from within the study area or its immediate surroundings.
AD 1700 – AD 1840	*The Buispoort facies of the Moloko branch of the Urewe Ceramic Tradition is the next phase to be identified within the study area's surroundings. It is most likely dated to between AD 1700 and AD 1840. The key features on the decorated ceramics include rim notching, broadly incised chevrons and white bands, all with red ochre (Huffman, 2007). It is believed that the Madikwe facies developed into the Buispoort facies. The Buispoort facies is associated with sites such as Boschhoek, Buffelshoek, Kaditshwene, Molokwane and Olifantspoort (Huffman, 2007).* No sites associated with Buispoort pottery are known from within the study area or its immediate surroundings.

5.3 Brief Markers from the More Recent History of the Study Area and Surrounding Landscape

DATE	DESCRIPTION
11 October 1886	After the discovery of gold on the farm Roodepoort and surrounding farms during 1886, these properties were declared public prospecting areas (Roux, 1955).
February 1887	With the expansion of gold prospecting activities in the vicinity of the farm Roodepoort, the need for a town quickly developed. By February 1887, the first residential stands of what would become Roodepoort were sold (Erasmus, 2004).
August 1891	An assessment of a map compiled in August 1891 and published in C.S. Goldmann's *The Witwatersrand Gold Fields* which appeared in 1892, only the eastern section of the present study area was associated with a particular mining company. The mine in question was the Kimberley-Roodepoort Gold Mining Company.
1895 - 1896	The second map of note for this discussion was published in the third volume of C.S. Goldmann and J. Kitchin's *South African Mines: Their Position, Results and Development*. The book was published between 1895 and 1896. As assessment of this map shows that the study area was primarily associated with three gold mining companies. These three companies are the Kimberley-Roodepoort Gold Mining Company, the Roodepoort Deep Level Gold Mining Company as well as the Durban Roodepoort Deep Gold Mining Company. The latter mining company extended over significant components of the present study area at the time.
1904	Roodepoort-Maraisburg was given municipal status (Erasmus, 2004).
26 November 1948	On the evening of this day a cyclone struck Roodepoort and resulted in extensive damage to buildings and houses with a number of people also killed as a result of the metrological attack. The Durban Roodepoort Deep area was also badly hit and at least one person was killed here (Rand Daily Mail, 27 November 1948).

5.4 History of Gold Mining within the Study Area and Surrounding Landscape

5.4.1 Early History of the farm Roodepoort and Gold Mining

The early history of the farm Roodepoort, as well as gold mining activities located here, is associated with significant historic figures associated with early gold mining activities along the Witwatersrand as well as with some of the foremost politicians of the time.

On 1 May 1884, Fred Struben and Godfrey Lys discovered a gold-bearing reef on the farm Wilgespruit, and named it Confidence Reef. Their discovery was located approximately three miles north of present-day Roodepoort, and represents the first discovery of a gold-bearing reef in proximity to the farm Roodepoort.

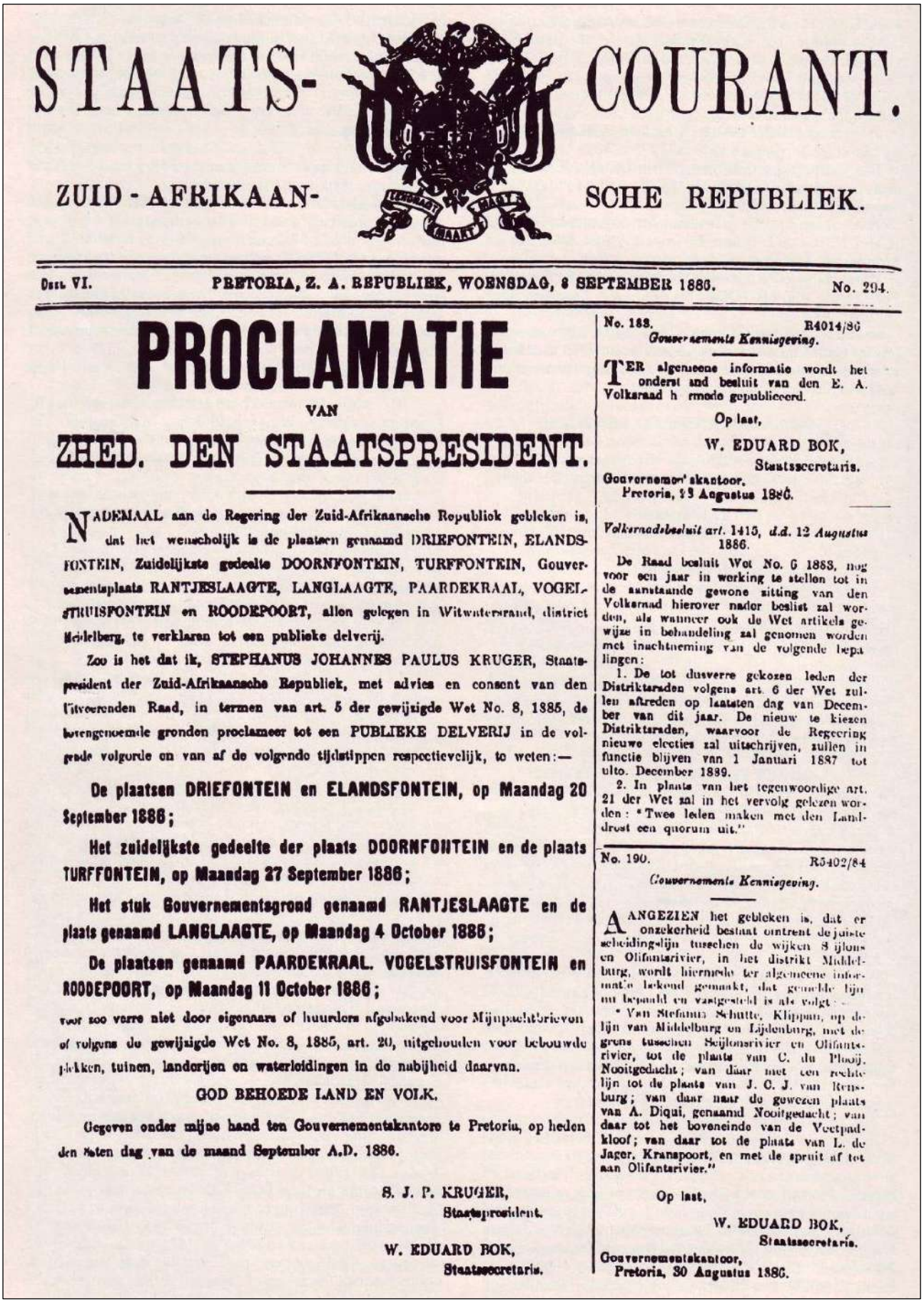
The farm Roodepoort 237 IQ, located on the southern ridge of the Witwatersrand, originally belonged to the brothers J.H. and A.S. du Plessis. On 14 November 1885, the brothers signed a contract in Potchefstroom with a group of prospectors namely C.M. Douthwaite, J.G. Bantjies, George Jacobson, Adolf Kauffmann, H.G.C. van der Hoven and S. Hammerschlag. These men were all at one time or another in business with each other. The contract stipulated that the prospectors would be given the right to prospect on the farm Roodepoort in return for a percentage of the profits gained from the discovery and mining of any minerals found there.

It is evident that prospecting activities commenced almost immediately as only four months after the signing of the contract, J.G. Bantjies discovered the so-called Bird Reef in March 1886 on the farm Roodepoort. During the same time, the Main Reef was discovered accidentally by George Harrison and George Walker on the farm Langlaagte. Fred Struben subsequently discovered the same reef on the western boundary of the farm Vogelstruisfontein, and before long it was located on a number of the neighbouring farms, including Roodepoort.

In April of 1886, President Kruger received three petitions signed by 121 persons requesting that the farms Vogelstruisfontein, Roodepoort, Langlaagte and the two portions comprising Paardekraal, be declared public diggings. The amended gold laws of 4 August 1886 meant that the government was now rightly allowed to proclaim privately owned land as public diggings with or without the owner's approval. On 5 August 1886 a meeting was held for all interested and affected parties in Turffontein. Present at the meeting was C.M Douthwaite and Adolf Kauffmann, owners and renters of the farm Roodepoort as well as J. van Wijk, another owner of a portion of the farm Roodepoort.

On 12 August 1886, the commission put forth their report with the findings of the meeting. Issues highlighted in the report included water shortages, the expensive price of machinery needed to mine on the Witwatersrand, the possibility of an increase in crime, the current contracts as well as rental and ownership rights that needed to be safeguarded in order to keep the peace. Subsequently, it was suggested that both the landowners and tenants were to be given first option to purchase the gold bearing land they owned or rented. It was felt that such a measure would lead to an influx of capital and ensure general stability. It was also suggested that the land between Turffontein and Doornfontein be earmarked for the development of a town. On 18 August 1886, a notice in the "*De Staatscourant"* informed all interested parties that the government had located yielding gold reefs on the Witwatersrand in the district of Heidelberg and that Roodepoort was one of these farms. The notice stated that these areas were to be declared as public diggings and that all interested and affected parties would be given one month in which to secure their interest in the land. The farm Roodepoort was to be declared a public prospecting area on the 11 October 1886 as long as the owners or tenants did not have the land cordoned off as workable areas, gardens, arable land and water furrows. By the end of 1886, there were approximately 150 persons residing on the farm Roodepoort (Roux, 1955).

Figure 10 – Historic view of Roodepoort c. 1900. The photograph is believed to have been taken in a southern direction with the town in the foreground and a number of gold mines visible along the horizon in the back (A Photographic Souvenir of the Transvaal, n.d.).



STAATS-COURANT.

ZUID-AFRIKAANSCHE REPUBLIEK.

Deel VI. PRETORIA, Z. A. REPUBLIEK, WOENSDAG, 8 SEPTEMBER 1886. No. 294.

PROCLAMATIE

VAN

ZHED. DEN STAATSPRESIDENT.

NADEMAAL aan de Regering der Zuid-Afrikaansche Republiek gebleken is, dat het wenschelijk is de plaatsen genaamd DRIEFONTEIN, ELANDSFONTEIN, Zuidelijkste gedeelte DOORNFONTEIN, TURFFONTEIN, Gouvernementsplaats RANTJESLAAGTE, LANGLAAGTE, PAARDEKRAAL, VOGELSTRUISFONTEIN en ROODEPOORT, allen gelegen in Witwatersrand, district Heidelberg, te verklaren tot een publieke delverij.

Zoo is het dat ik, STEPHANUS JOHANNES PAULUS KRUGER, Staatspresident der Zuid-Afrikaansche Republiek, met advies en consent van den Uitvoerenden Raad, in termen van art. 5 der gewijzigde Wet No. 8, 1885, de bovengenoemde gronden proclameer tot een PUBLIEKE DELVERIJ in de volgende volgorde en van af de volgende tijdstippen respectievelijk, te weten:—

De plaatsen DRIEFONTEIN en ELANDSFONTEIN, op Maandag 20 September 1886;

Het zuidelijkste gedeelte der plaats DOORNFONTEIN en de plaats TURFFONTEIN, op Maandag 27 September 1886;

Het stuk Gouvernementsgrond genaamd RANTJESLAAGTE en de plaats genaamd LANGLAAGTE, op Maandag 4 October 1886;

De plaatsen genaamd PAARDEKRAAL, VOGELSTRUISFONTEIN en ROODEPOORT, op Maandag 11 October 1886;

voor zoo verre niet door eigenaars of huurders afgelaakend voor Mijnpachtbrieven of volgens de gewijzigde Wet No. 8, 1885, art. 20, uitgehouden voor bebouwde plekken, tuinen, landerijen en waterleidingen in de nabijheid daarvan.

GOD BEHOEDE LAND EN VOLK.

Gegeven onder mijne hand ten Gouvernementskantore te Pretoria, op heden den 8sten dag van de maand September A.D. 1886.

S. J. P. KRUGER,
Staatspresident.

W. EDUARD BOK,
Staatssecretaris.

No. 188. R4014/86

Gouvernements Kennisgeving.

TER algemeene informatie wordt het onderstaand besluit van den E. A. Volksraad hiermede gepubliceerd.

Op last,

W. EDUARD BOK,
Staatssecretaris.

Gouvernementskantoor,
Pretoria, 28 Augustus 1886.

Volksraadsbesluit art. 1415, *d.d.* 12 *Augustus* 1886.

De Raad besluit Wet No. 6 1883, nog voor een jaar in werking te stellen tot in de aanstaande gewone zitting van den Volksraad hierover nader beslist zal worden, als wanneer ook de Wet artikels gewijze in behandeling zal genomen worden met inachtneming van de volgende bepalingen:

1. De tot dusverre gekozen leden der Distrikteraden volgens art. 6 der Wet zullen aftreden op laatsten dag van December van dit jaar. De nieuw te kiezen Distrikteraden, waarvoor de Regeering nieuwe electies zal uitschrijven, zullen in functie blijven van 1 Januari 1887 tot ulto. December 1889.

2. In plaats van het tegenwoordige art. 21 der Wet zal in het vervolg gelezen worden: "Twee leden maken met den Landdrost een quorum uit."

No. 190. R5402/84

Gouvernements Kennisgeving.

AANGEZIEN het gebleken is, dat er onzekerheid bestaat omtrent de juiste scheidingslijn tusschen de wijken Steilonsrivier en Olifantsrivier, in het distrikt Middelburg, wordt hiermede ter algemeene informatie bekend gemaakt, dat gemelde lijn nu bepaald en vastgesteld is als volgt:—

"Van Stefanus Schutte, Klippan, op de lijn van Middelburg en Lijdenburg, met de grens tusschen Seijlonsrivier en Olifantsrivier, tot de plaats van C. du Plooij, Nooitgedacht; van daar met een rechte lijn tot de plaats van J. C. J. van Rensburg; van daar naar de gewezen plaats van A. Diqui, genaamd Nooitgedacht; van daar tot het boveneinde van de Veetpadkloof; van daar tot de plaats van L. de Jager, Kranspoort, en met de spruit af tot aan Olifantsrivier."

Op last,

W. EDUARD BOK,
Staatssecretaris.

Gouvernementskantoor,
Pretoria, 30 Augustus 1886.

Figure 11 – A copy of the Staatscourant dated 8 September 1886. The section depicted here contains the proclamation of Roodepoort and other farms as public diggings (Antrobus, 1986).

5.4.2 Historic Overview of the Durban Roodepoort Deep Mine

<u>The Early Years</u>

The history of the Durban Roodepoort Deep mine commences with the mining company that went before it. A possible precursor to the Durban Roodepoort Deep Limited company was the Durban Roodepoort Deep Level Gold Mining Company Limited. This mine was located approximately one mile from Roodepoort Station and registered on 27 November 1889. Originally consisting of eight claims, a further 16 were added shortly afterwards to the south of the original claims. The 24 claims were amalgamated in February 1889, before the registration in November 1889. In September 1890, a further 43 claims were acquired, bringing the company's total claims to 67. The original directors of the Durban Roodepoort Deep Level Gold Mining Company Limited were P.W. Tracey, H. Molyneux, W.J. Quin, F.A. English, W. Dettelbach, T.Y. Sherwell and J.W. Bell.

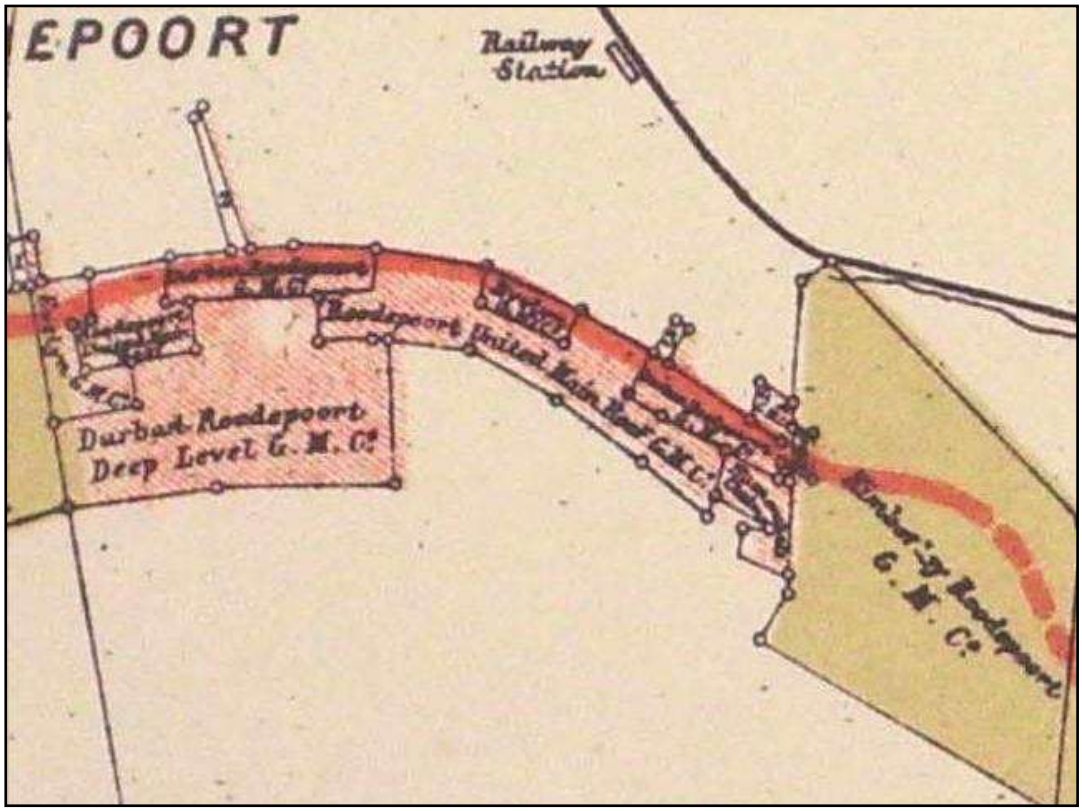


Figure 12 - Enlarged section of a map dated to August 1891, which shows the position of mining properties on the farm Roodepoort at the time. The Durban Roodepoort Deep Level Gold Mining Company's property is also shown.

The works of the Durban Roodepoort Deep Level company consisted of one main hauling shaft, sunk with the objective of striking the reefs located below its claims. The first reef of any significance was struck at 210 feet. A second reef was struck at a depth of 297 feet and it was found to be divided into two reefs of two feet separated by a layer of quartz. A drive was started at the 297 feet level and its quality improved towards the east. Further reefs were struck at 316, 325, 344 and 350 feet respectively, thereby intersecting the entire Main Reef series. The

shaft was finally concluded at a depth of 356 feet. The assets of the mining company at this early stage included one small vertical engine, spare boiler, pump piping, head gear with necessary plant, manager and workmen quarters, compound, stables, outhouses and store rooms (Birkholtz, 2008).

The shaft sinking activities of Durban Roodepoort Deep Level continued to a depth of 675 feet. The South African Mining Journal announced in one of its issues during 1893 that "*…the Roodepoort Deep Level company has scored a further success…in cutting the main Reef proper in its shaft at a vertical depth of 675 feet. To this company belongs the credit of having put down the deepest vertical shaft to be at present met with on the Rand*" (Payne, 1948).

The Establishment of Durban Roodepoort Deep Limited

Durban Roodepoort Deep Limited was founded as a public company on 16 February 1895, merely nine years after the discovery of gold along the Witwatersrand and the proclamation of farms such as Roodepoort as public diggings. The company's shares were listed on the Johannesburg Stock Exchange that same year (Durban Roodepoort Deep Limited Annual Report, 2004). The first directors of Durban Roodepoort Deep were Lionel Phillips, H Freeman Cohen, Frederick Eckstein and JG Currey (Goldman & Kitchin, 1896).

Durban Roodepoort Deep Limited was formed to acquire 281 claims on the dip of the Durban-Roodepoort Company's property on the farm Roodepoort, Western Witwatersrand (Skinner, 1916). It was one of several new companies formed to work the deep level claims lying to the south of the original outcrop properties in the Roodepoort area. With almost all the surface and shallow gold-bearing outcrops targeted and mined out during the initial decade or so of gold mining on the Witwatersrand, the change of focus to deeper lying reefs became an absolute necessity for the future sustainability of gold mining along the Witwatersrand. The mining group controlling Durban Roodepoort Deep Limited was Rand Mines Limited, which since its establishment on 17 February 1893, had been the pioneer of deep level mining along the Witwatersrand.

Gold mining activities appear to have commenced within a relatively short amount of time. The company poured its first gold in 1897. The company's first annual report for this year listed assets such as two horses, two mules, two Scotch carts and one Cape cart and reflected a profit for the year of just over £50 000 – most of which came from a sale of equity in the company. The first consignment of gold – 1 009 ounces – was sent to London in 1898, fetching for the mine the sum of £3 650 pounds (Mining Mirror, 2013).

In 1898, milling operations began at the mine with a battery of 30 stamp mills. In the first year after milling began, 38 728 tons of ore were treated which produced 22 958 ounces of gold. The operations were focused on the West Witwatersrand basin, an area which ended up being a gold production region for more than 100 years.

Figure 13 – An early photograph of the Durban Roodepoort Deep Gold Mining Company Limited.

Figure 14 – Historic photograph taken in 1899 of the senior staff members of Durban Roodepoort Deep. In the front row, from left to right, are W. Law (Battery Manager), Mr Page (Mine Captain), H. McDonald (General Manager), P. Allen (Engineer) and H. Morrell (Cyamola Manager). In the back row, from left to right, are F. Stonestreet (Assayer), the Mine Surveyor, I. Meintjies (Secretary), F. Milligan (Storekeeper) and F. Coxon (Compound Manager). Obtained from the Barloworld Archives.

The Jameson Raid of 1895 and the South African War of 1899-1902

According to an article in the Mining Mirror about Durban Roodepoort Deep, it was in the Vlakfontein section of the mine that Dr Leander Starr Jameson's raiders halted on their way to invade the Witwatersrand in 1895 and finally surrendered to the Boer forces under General Piet Cronje, who were entrenched on the neighbouring farm, Doornkop (Mining Mirror, 2013; Payne, 1948). Both these farms are located south-west of the study area.

The aftermath of the Jameson raid was that since most of the leaders of the Reform Committee were also directors and/or chairmen of the larger mining companies, the administrative work of many of the mining companies was extremely restricted. Furthermore, the start of the South African War in 1899 resulted in the mines in the Roodepoort area not being worked for several months and subsequently filling with water.

When the South African War erupted on 11 October 1899, a massive exodus of British subjects from the Witwatersrand had already started. The exodus also included large numbers of black employees of the mines who returned back to their homes. Even though the mine owners tried to keep their qualified employees at the mines by offering them attractive bonuses and salary increases, this had little effect on stemming the flood. Before long, all the gold mines across the Witwatersrand were forced to close down.

The government of the Transvaal Republic stepped in and appointed a State Board to run the industry. Its members included B.J. Kleynhans (a former Boksburg Mining Commissioner), J.H. Munnik (the Acting State Mining Engineer), E. Boucher (of the Chamber of Mines) as well as W.D. Gordon (the American Consol). By November 1899, the State Board managed to get nine of the richest gold mines in the vicinity of Johannesburg operational again. When the shortage in manpower forced the government to send the *Zuid-Afrikaansche Republiek Politie* (the Transvaal Police) to the front, they filled the gap by creating a Mines Police Force to protect the gold mines.

As the tide of war started to turn against the Boers, State Secretary Reitz indicated to the world that the government's intention was for the gold mines to be destroyed rather than allowing them to fall into British hands. This caused a great furore in international stock exchanges and the story was carried by newspapers across the world. During March 1900, the commander of the Mines Police Force, Commandant L.E. van Diggelen, learnt of plans to blow up the mines. General Louis Botha, the commander of the forces of the Transvaal Republic, intervened and instructed DE Schutte, the Commandant of Johannesburg, that he would be held personally responsible for the safety of the mines. When Lord Roberts occupied Johannesburg, it was found that no damage had been done to the mines.

Although it was believed that the occupation of Johannesburg and Pretoria (which took place on 31 May 1900 and 5 June 1900 respectively) would result in the immediate surrender of the Boer forces, the Boer leadership rather

decided on a mobile strategy of warfare which became known as the guerrilla war. During this period, the New Kleinfontein gold mine to the north-east of the study area was attacked by the Boer commando under General Piet Viljoen. The manager of the mine, E.J. Way, was taken prisoner but released the same day. Another attack took place at the Modderfontein Mine. These attacks led to the establishment of a 1,500 strong Rand Rifles Mine Division whose members comprised former mine employees who were waiting to return to the Witwatersrand. The force repulsed a number of minor attacks along the Witwatersrand, and in November 1901, the mines were declared safe from attack and the Rand Rifles Mines Division disbanded.

On 4 May 1901, the Meyer and Charlton became the first gold mine to start working again. Within a short period of time another seven mines were operational and by the end of 1901 this figure had increased to 15. In January 1902, Lord Kitchener authorized the mining houses to accelerate the restarting of the mines. However, largely due to the lack of white and black labour at the end of hostilities, it was to take another three years before the production of the mines returned to its pre-war figures (Lang, 1986).

In terms of Durban Roodepoort Deep mine, crushing activities which had commenced the previous year, were suspended in October 1899 and were only restarted in May 1902 (Mabson, 1916). This delay of two and a half years can be ascribed to the South African War.

The Chinese Indentured Labourers

Before the outbreak of hostilities in 1899, the Witwatersrand gold mines employed in the region of 90 000 black mineworkers. During the war, most of these mineworkers returned home. When peace was declared in 1902, it soon became apparent that the numbers of black workers returning to the mines were not anywhere close to the pre-war figures. It was estimated at the time that during July 1903, only about 55 000 black mineworkers had returned to the mines after the cessation of hostilities. When the Chamber of Mines' decision to increase the wages of black workers to higher than the pre-war levels had no significant result, possible solutions to the problem were considered and debated. One suggestion that was raised was the temporary immigration of Chinese mineworkers. The Chamber was strongly divided on this issue and the debate spread into the public arena as well. The president of the Chamber of Mines at the time, Sir Percy Fitzpatrick, was strongly opposed to the use of Chinese workers. Other opponents of the proposal was FHP Cresswell, at that time manager of the Village Main Reef mine. He was of the opinion that the employment of unskilled European labour would be a better method of solving the problem of manual labour supply. Prior to the South African War, Mr Cresswell had been manager of the Durban Roodepoort Deep gold mine. He later became leader of the Labour Party in South Africa. He was also the Minister of Labour in General Hertzog's Pact cabinet (Letcher, 1936).

On 2 December 1903, the Chamber of Mines finally declared its support for the importation of Chinese mineworkers

and at a meeting on 28 December 1903, a motion tabled by its new president, Sir George Farrar, in support of the use of Chinese mineworkers was accepted by 24 votes to four.

Negotiations with the Chinese government proved successful and on 25 May 1904, the first group of 1 055 Chinese mineworkers set sail from Hong Kong aboard the S.S. Tweeddale, arriving in Durban on 18 June 1904. After staying in Durban for a while, they entrained for the Rand where they had been engaged by the New Comet Mine on the East Rand. On 22 June 1904, these workers arrived at the closest railway station to the mine where they were met by Lady Farrar and Harold Strange. As a result, the New Comet Mine was the first to start crushing again (Lang, 1986). By the end of 1904, as many as 21 000 Chinese workers were already employed on the gold mines of the Witwatersrand, a figure which increased to 47 000 the following year (Von Ketelhodt, 2007).

When Louis Botha's *Het Volk Party* came to power in 1907, steps were implemented to repatriate the Chinese labourers back home. The last of the Chinese mineworkers left South Africa during March 1910 (Chilvers, 1932).

The Durban Roodepoort Deep gold mine was one of the mines that used Chinese labour during the first decade of the twentieth century.

The Post - South African War Period

The journal, '*The South African Mines, Commerce and Industries*', dated 3 September 1904, provides details of the mines and mining difficulties in the Roodepoort-Maraisburg area at the time. With regard to the Durban Roodepoort Deep mine, the following information is provided:

"*The Durban Roodepoort Deep claim holding is a very large one, and the policy of the Board will in the near future be to favour a largely increased battery and reduction plant. This company deals with the deeper areas of Roodepoort, and it is a curious fact that, although Roodepoort Mines have presented such excellent records in the past, the Durban Deep represents the depth limit of development here at present day. On the more Central Rand there are deep deep shafts where reef has been penetrated in lower grade areas, yet the Durban Deep is the greatest effort of the deep level workers of the Western Central Rand*" (Payne, 1948).

The scale of operations of the Durban Roodepoort Deep at the time is indicated by the returns for the month of August 1904. A total of 55 stamps were working at the mine at the time, resulting in the production of 15 807 ounces of gold and a profit of £4 800 for the mine (Payne, 1948).

The Durban Roodepoort Deep mine continued to grow during the period between the South African War and the First World War (1914-1918). The entry in the publication '*Mines of Africa 1910-11'* notes that during the period

1907-1908, the mine added 40 stamps as well as a new five-compartment shaft. Additionally, two tube mills were completed in September 1908. The initial reef-bearing area was calculated to be 233 claims. An addition was made, late in 1909 and early in 1910, of about 41 claims, bringing the total number of claims to 274. The Durban Roodepoort Deep property at the time therefore comprised 274 claims below the Durban Roodepoort and Roodepoort United Main Reef Companies' areas. These claims covered the gold-bearing main reef for about 1¼ miles along the strike. Certain additions to the reduction plant had increased its capacity to 24 000 tons per month. To an existing battery of 60 stamps, further stamps were added, resulting in a mill capacity of 100 stamps at Durban Roodepoort Deep. An additional tube mill was also later added (Skinner, 1911).

The entry in '*Mines of Africa 1910-11*' states that the character of the Reefs of the Durban Roodepoort Deep mine was very similar to that of the Durban Roodepoort outcrop mine and comprised a thin and rich South Reef (4 to 7 inches thick) and a low-grade Main Reef (generally 20-30 inches thick) (Mabson, 1911). In 1911, the directors of Durban Roodepoort Deep were E.A Wallers (alternate H Eckstein) (Chairman), JG Currey (alternate JH Ryan), E Jacobs, HC Boyd and H O'K Webber. The mine's capital in 1911 was £450 000.

The Mining Magazine entry for the last quarter of 1911 for Durban Roodepoort Deep states that it was not until 1908 that any dividend was paid. The report for the year 1910 shows that a smaller profit was made than in 1908 and 1909, owing to higher costs. The cost of working at this mine was apparently always high compared with the average on the Witwatersrand. In 1909, it had been reduced to 22s. 9d. per ton milled, but for 1910 it had increased again to 24s. 6d. During 2010 – 2011, a total of 309 067 tons were raised and, after the removal of 22% waste, 240 530 tons went to the mill. The yield of gold by amalgamation was 61 894 oz. and by cyanide 23 416 oz., resulting in a yield of 85310 oz. in total. The revenue was £357,128, at 29s. 8d. per ton, and the total cost for the year was £295,407, leaving a profit of £61,721. During 2011, development has been hindered by lack of labour, and consequently the number of feet driven was smaller than expected, but the ore disclosed had been of better value. At the time, it was very positive for the mine management that for this mine, the content was increasing with depth (Rickard, 1911).

In 1916, the directors of Durban Roodepoort Deep were EA Wallers (Chairman), HC Boyd, JA Cohen, JG Currey and EJ Renaud. The mine manager at the time was AP Rouillard. The 1916 entry in the Mining Manual noted that the extent of the property was now 273.7 claims lying below the Durban Roodepoort and Roodepoort United Main Reef Companies' areas. The area contained the gold bearing reef for about 1¼ mile along the strike. At the time, three mine shafts had been sunk whereas a 100-stamp mill, three tube mills as well as a cyanide and slimes works had been erected. The plant was driven by electrical power (Skinner, 1916).

The Period after the First World War

The First World War, which broke out in 1914, started having a negative impact on the gold mines of South Africa. Apart from the rising costs of mine production coupled with the release of many trained white staff members to join the armed forces, one factor which had a profound negative impact on the financial position of the gold mines especially during the last couple of years of the war, was the agreement which the mining companies had signed with the Bank of England in 1914. According to this agreement, all gold produced in South Africa during the war was to be sold to the bank at a fixed price of £3 17s 9d. Although the agreement looked very attractive initially, as the war wearied on the rising costs of mining made the fixed price increasingly unprofitable.

In July 1919, the agreement with the Bank of England ended which allowed gold mines to sell their gold on the open market again. The price of gold sold in London rose to £4 19 an ounce in September 1919 and continued to rise so that in February 1920, it stood at £6 2 per ounce.

It is clear therefore, that the First World War (1914 – 1918) had resulted in the closure of several mines during the period between 1917 and 1928. The Durban Roodepoort Deep was one of only two mines along the Central Witwatersrand left working during this time.

In 1918, at the conclusion of the First World War, the inflation of the British currency, with coincident rise in living costs, led to frequent demands for increased wages on the mines. When the gold premium declined rapidly at the end of 1921, the leaders of the mining industry came to the conclusion that unless wages were reduced, half the mines on the Witwatersrand would be compelled to close. This conflict of interests between the mine managers and the mine workers resulted in the 1922 miner's strike. The Roodepoort-Maraisburg area remained comparatively quiet throughout the period of the strike, unlike various other areas such as Johannesburg and the East Rand. Nonetheless, Payne (1948) notes that there was an incident near the Durban Roodepoort Deep compound on the night of 8 March 1922, when a commando of strikers proceeded on a route march close to the compound. The African workers marched out of the compound gates, under the impression they were being attacked by the strikers. However, the Roodepoort police arrived on the scene and succeeded in inducing the workers to return to the compound (Payne, 1948).

The difficulties facing the mines are typified in the following report regarding Durban Roodepoort Deep, which appeared in an issue of the *SA Mining and Engineering Journal* in 1922:

"*The Durban Roodepoort Deep Ltd. is a mine which offers a most informative study to the Mining industry Board for the following reasons: (a) It is a running mine with good development prospects; (b) it has declared no dividend since 1918 ... ; (c) it is without sufficient cash to carry on from month to month, this being supplied by the controlling*

house; (d) working costs are abnormal owing to the small scale of operations; (e) further capital expenditure is necessary for the development and working of the deep level area and extension of the reduction plant; (f) it is the last existing mine with any future prospects in the neighbourhood, ... , so that the Roodepoort district is almost entirely dependent upon the future of this mine; (g) given a future condition of economic working, there is an opportunity for the inclusion of additional mining area, and extended scale of operations, and a successful future for the mine. The mine is working today on the same scale it has worked for the last twelve years, development level by level has proceeded normally with stoping operations, and the reserves have varied very little in tonnage or value from year to year. The margin of profit was never very great and the sole cause of the serious position in which the mine now finds itself is the considerable rise in working costs .... The rise in working costs put an end to the development programme for, in the face of an intervening period of monthly losses, it was impossible to raise the necessary further capital to complete the scheme." (Payne 1948).

Figure 15 – An early photograph of some of Durban Roodepoort Deep's early mine shafts. The headgear and plant associated with the Circular Shaft can be seen in the foreground. This historic mine shaft falls outside of the present study area (Museum Africa, Photograph Collection, PH2007_33268).

In 1925, on the occasion of the visit to South Africa of His Royal Highness The Prince of Wales, the Roodepoort-Maraisburg Municipality was the only one on the Witwatersrand not in possession of a Mayoral Chain. The Council

decided to have one specially made for the royal visit. On 11 May 1925, the three remaining gold mining companies still producing in the area, agreed to contribute 20 ozs of fine gold for a mayoral chain. The Durban Roodepoort Deep mine was one of these mining companies still producing. The contribution was divided between the three companies according to their output for April 1925, which worked out at 7 ounces for Durban Roodepoort Deep (Payne, 1948).

In 1923, Durban Roodepoort Deep purchased 129 claims from the Princess Estate. In 1934, the property and assets of the New Steyn Estate were taken over. These included the claims, plant and buildings of the old Roodepoort United. By 1948, Durban Roodepoort Deep owned 3,007 mining claims on the farms Roodepoort, Vogelstruisfontein, Vlakfontein and Witpoortjie. In addition, its freehold property measured 4 443 morgen (Payne, 1948).

Leaving the Gold Standard

On 28 December 1932, the Union of South Africa abandoned the gold standard (www.sahistory.org.za). This resulted in the price of gold shooting up by an incredible 66% to £7.10 per ounce (www.pamodzigold.co.za). A boom in gold mining shares was the result, with everyone buying shares in South Africa's gold mines. Cartwright (1968) compares the impact of the abandonment of the gold standard on gold mines such as Durban Roodepoort Deep with the biblical miracles in which a patient close to death suddenly stands up from bed and walks.

The high price paid for gold meant that vast areas which had low grade ore and had been deemed valueless could now be mined at a profit (Cartwright, 1968).

The two producing mines in the area, of which Durban Roodepoort Deep was one, expanded the scale of their operations enormously. Prior to the abandonment of the Gold Standard, the company was operating on a smaller scale than the other surviving mine in the Roodepoort area (Consolidated Main Reef). By 1948, its milling capacity had increased to 204 000 tons per month and the company was earning higher profits than Consolidated Main Reef (Payne, 1948).

From the date of commencement of operations in 1898, to the end of December 1946, the Durban Roodepoort Deep company produced a total of 7 654 674 ounces of gold valued at £48,936,000. During this period, the company earned a profit of £11,342,153 and distributed £4,988,096 in dividends. The grade of ore produced by Durban Roodepoort Deep over the years up to 1948, was slightly higher than that of Consolidated Main Reef, the other main producer in the area. The Durban Deep was also a steady dividend payer since 1908, and with the exception of the years 1919 to 1922 and 1925 to 1929, dividends were declared on an annual basis (Payne, 1948).

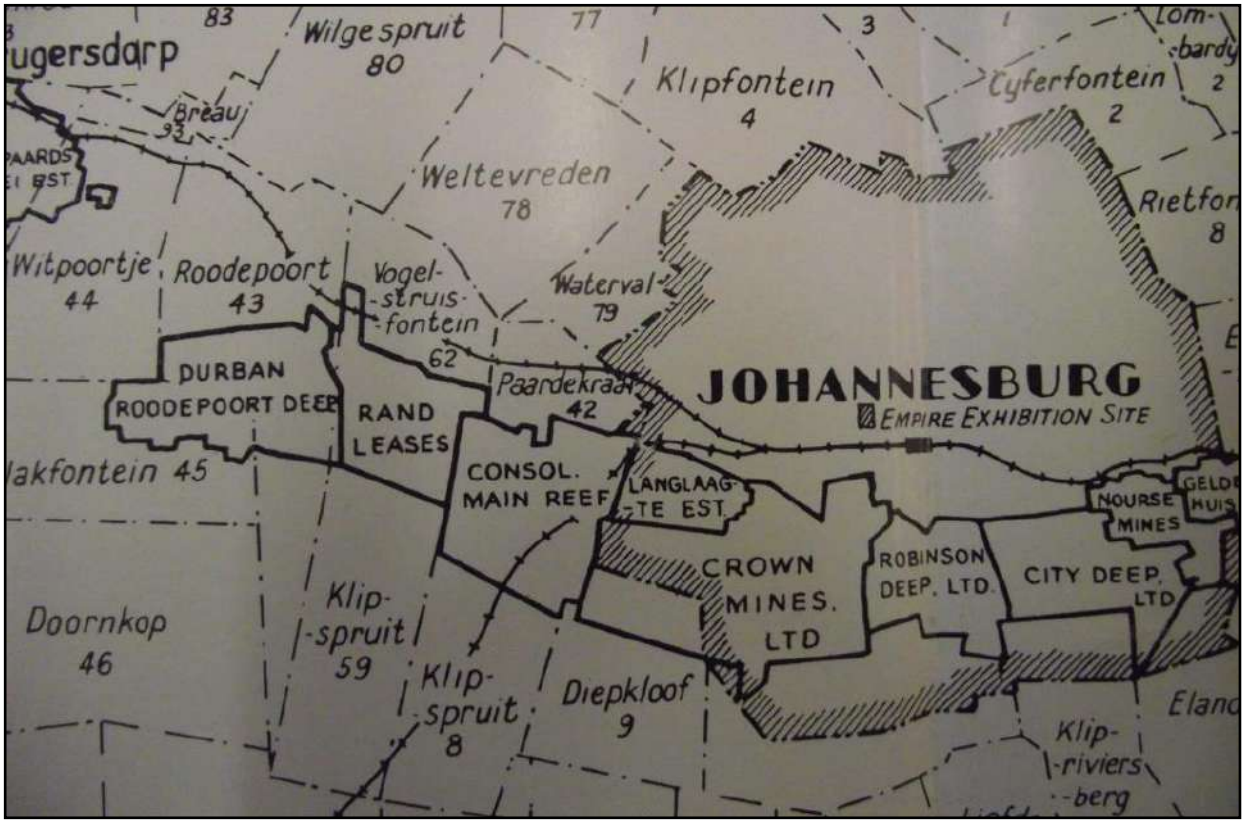


Figure 16 – General Plan Of The Witwatersrand Goldfields – Jubilee Year 1936, showing the location of the Durban Roodepoort Deep Mine property in relation to the entire Witwatersrand (Letcher, 1936).

1960s to Closure

By the early 1960s, Durban Roodepoort Deep was one of eight large operating mines in the Central Rand. Most of these mines ceased operation in the mid to late 1970s, with a substantial deep resource and relatively low grade shallow resource still in place (Viljoen, 2009).

Durban Roodepoort Deep was one of the oldest surviving mines on the Witwatersrand when Randgold and Exploration closed the doors of the mine in 1994, having been in operation for 99 years. Over the years of the mine's operation, the gold grades in the ore had decreased and the costs of production had increased, leading to a situation where the production costs had outstripped the gold price by 1994 (Mining Mirror, 2013).

5.5 History of the Study Area as Revealed through Available Historic Photographs

Photograph 1

The historic photograph depicted below represents the earliest available image depicting the study area. While the exact age of this photograph is not presently known, it more than likely dates to the period between the First World War and the 1930s. Very few of the buildings and dwellings that characterised the mine village in later years, already existed at the time, with open undeveloped fields visible where rows of residential dwellings were later added.

The following observations can be made from this photograph:

- No. 1 Shaft and its associated plant can be seen in the foreground. It can be surmised that this mine shaft was the first one to be developed at the mine. Although the shaft and plant depicted here would be located within the present study area, no evidence for these features could be found during the fieldwork.

- In the middle background on the left, an extensive building is shown. This building was identified during the fieldwork in 2012, and is included in this report as Building Type 28. This building is the General Manager's Residence, and was demolished/vandalised between 2012 and 2014.

- Behind the No. 1 Shaft and associated plant, the cricket field can be seen. Although the scoreboard and fence shown on this photograph does not exist anymore, the general layout of the cricket field still exists today.

- To the right of the cricket field, the tennis courts and old tennis club building are shown. Neither the tennis courts nor the tennis club building could be found during the fieldwork.

- Two of the residential dwellings associated with the mine is shown behind the tennis courts on the right. These dwellings still exist today, and are included in this report as Building Type 34. It seems likely that the two buildings depicted on this photograph are building numbers DRD35 and DRD37.

- In the background, the headgear and associated buildings and plant of Central Shaft can be seen. These features are all located outside the present study area.

Figure 17 – Historic photograph depicting sections of the study area. This photograph was obtained from the Barloworld Archives.

Photograph 2

The historic photograph depicted below represents an early view of Shaft No. 2, the DRD mine offices as well as the nearby factories and stores. The only indication of the age of the photograph is from a vehicle that is parked in the background. This vehicle appears to be typical of the period between the late 1930s and early 1940s. It seems likely therefore for this photograph to have been taken during the 1940s.

The following observations can be made from this photograph:

- No. 2 Shaft and its associated plant can be seen in the middle foreground. It can be surmised that this mine shaft was the second one to be developed at the mine. Although the shaft and plant depicted here would be located within the present study area, no evidence for these features could be found during the fieldwork.

- The building directly across the road from the No. 2 Shaft headgear, was identified during the fieldwork and is included in this report as Building Type 69, which is a Boiler Shop. This building still exists today.

- Immediately behind the boiler shop, a long rectangular building with a pitched roof can be seen. This building was identified during the fieldwork undertaken during December 2013 and is included in this report as Building Type 76, which is Work Areas and Workshops. The building does not exist anymore, and was demolished / vandalised between December 2013 and October 2014.

- Behind the previous building, the cluster of buildings that was identified during the fieldwork as Offices and Administration Centre (Building Type 83), can be seen. While some of the buildings forming part of this cluster had already been demolished / vandalised by the time that the fieldwork took place, others were demolished / vandalised between the fieldwork of December 2013 and October 2014.

- The rectangular building behind and to the left of the Building Type 83 structures, was identified during the fieldwork undertaken in 2012. It is included in this report as Building Type 39, which is the DRD Survey Offices. This building still exists today.

- The rectangular building with a pitched roof that appears behind the DRD Survey Offices, was identified during the fieldwork undertaken in 2012. It is included in this report as Building Type 41, namely Tertiary Offices 1. This building still exists today.

- The relatively wide rectangular building with a low pitched roof that is shown behind the Building Type 41 structure, was identified during the fieldwork undertaken in 2012. This building is included in this report as Building Type 43, which is a Car Port. This building still exists today.

- The long rectangular building with a pitched roof that is depicted a short distance behind the Car Port building, was identified during the fieldwork undertaken in 2012 as a demolished ruin (see Building Type 45).

- A white dwelling can just be seen further behind the Building Type 45 structure. This dwelling, partially obscured by a lane of trees, appears to be the Corrugated Iron Dwelling at Building Type 33 that was identified during this fieldwork undertaken in 2012.

- An interesting observation to be made from this historic photograph, is that the building known for the purposes of this report as the DRD Main Office Building, was not yet constructed.

- In the background, the headgear and associated buildings of the Circular Shaft can be seen.

Figure 18 – The depiction of this car in the background of the historic photograph was used to date the image to between the late 1930s and 1940s.

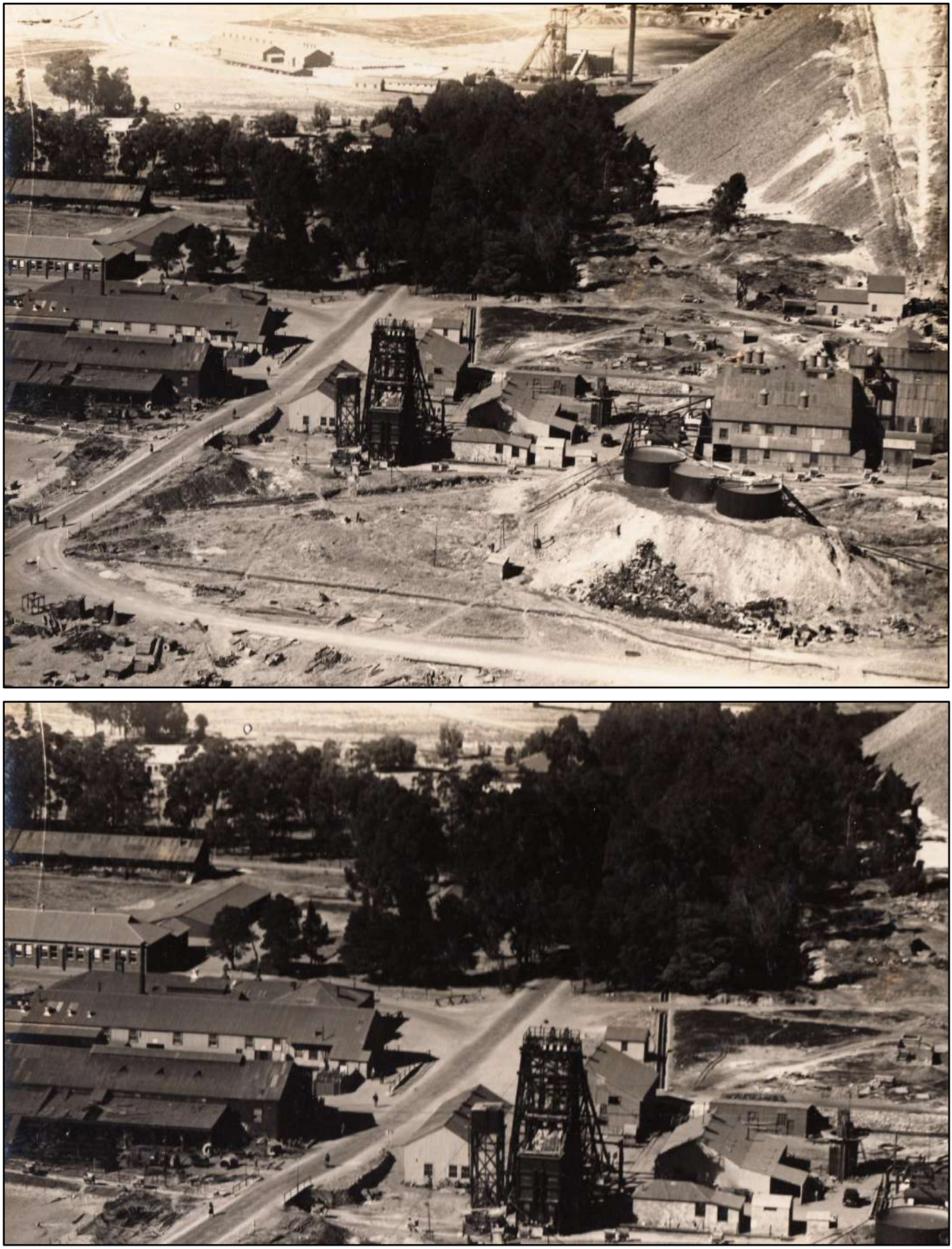


Figure 19 – These cropped versions of a historic photograph provide an early view of Durban Roodepoort Deep's No. 2 Shaft and its associated buildings, with some of the mine's offices and stores visible on the left. Photograph obtained from the Barloworld Archives.

Photograph 3

The historic photograph depicted below represents an early view of Durban Roodepoort Deep's Reduction Works, Compound and Dump. It seems likely for this photograph to have been taken at the same time as the previous image. This means that the photograph under discussion here dates to the period between the late 1930 and the 1940s.

The following observations can be made from this photograph:

- The cluster of two buildings (one of which has the appearance of a tower) at the front of the reduction works was identified during the fieldwork undertaken in 2012. This cluster is included in this report as Building Type 55, which is an Electrical Substation. This building was demolished / vandalised between 2012 and 2014.

- With the exception of Building Type 55, all the buildings forming part of the mine's old reduction works had long since disappeared with no evidence for the presence of these buildings identified during the fieldwork starting in 2012.

- To the right of the reduction works, the old mine compound is also clearly depicted. A short distance to the left of the compound, a large building is depicted. This building was identified during the fieldwork undertaken in 2012, and is included in this report as Building Type 54, which is Compound Offices. This building still exists today.

- Immediately in front of the old mine compound, another large building is shown. This building was identified during the fieldwork undertaken in 2012, and is included in this report as Building Type 53, which is an Eating House. This building still exists today.

- The mine compound depicted on this historic photograph exhibits strong similarities to the mine compound located within the study area today. All the elements of the compound included in this report as Building Type 49, Building Type 50, Building Type 51 and Building Type 52 are depicted on this photograph. These building components still exist today.

Figure 20 – The historic photograph shown at the top provides an early view of Durban Roodepoort Deep's reduction works and compound. The cropped section below shown just the mine compound. Photograph obtained from the Barloworld Archives.

Photograph 4

The period between 1947 and 1948 saw the Durban Roodepoort Deep staff village expanding rapidly. During these two years, a large number of staff houses were added to the study area. A number of photographs were found in the Barloworld Archives which depicts these dwellings added during 1947 and 1948.

The following observations are made on a photograph by photograph basis. Please refer to the corresponding figure numbers on the subsequent pages.

- **Figure 21**

  This photograph was taken in 1948 and depicts a row of completed junior staff houses at Durban Roodepoort Deep. During the fieldwork undertaken in 2012, almost the entire row of dwellings as it appears on this image, was identified. The buildings depicted here are all included in this report as Building Type 1 and Building Type 2 structures. For the most part, all the buildings depicted here still exist today.

- **Figure 22**

  The front façade of one of the buildings depicted in the previous image. This image was taken in 1948 and shows a newly completed Building Type 1 dwelling. As mentioned before, this building type is still largely preserved within the present study area.

- **Figure 23**

  General view of one of the double storey dwellings that were erected between 1947 and 1948 for senior staff members of the mine. During the fieldwork undertaken in 2012, five of these double storey buildings were identified. Between 2012 and 2014, all five these dwellings were demolished / vandalised.

- **Figure 24**

  Another general view of one of the double storey dwellings that were erected between 1947 and 1948 for senior staff members of the mine. As mentioned above, during the fieldwork undertaken in 2012, five of these double storey buildings were identified. Between 2012 and 2014, all five these dwellings were demolished / vandalised.

Figure 21 – Historic photograph taken in 1948. Obtained from the Barloworld Archives.

Figure 22 – Historic photograph taken in 1948. Obtained from the Barloworld Archives.

Figure 23 – Historic photograph taken in 1948. Obtained from the Barloworld Archives.

Figure 24 – Historic photograph taken in 1948. Obtained from the Barloworld Archives.

Photograph 5

It can be expected that at the time that the staff village of Durban Roodepoort Deep expanded rapidly (the period during the late 1940s), the sport and recreational facilities at the staff village were also expanded. The sport facilities at the staff village were known to have comprised bowling greens, tennis courts, a swimming pool and a cricket ground. These were all clustered together in a relatively central section to the staff village located east of the main offices. A number of photographs were found in the Barloworld Archives which depicts the sport and recreational facilities at the staff village. Although undated, it can be expected that these photographs were taken during the same period as the collection of dated photographs shown in Photograph 4. The following observations are made on a photograph by photograph basis. Please refer to the corresponding figure numbers on the subsequent pages.

- **Figure 25**

  This photograph is expected to have been taken during the 1940s and shows a game of bowls at the bowling green. The original bowling clubhouse can be seen in the back. While it is not certain, the possibility exists for this historic bowling clubhouse to have been modified to its current form as a result of the damage incurred during the tornado of 1948. Nonetheless, a comparison of this building with the present clubhouse building (see Building Type 29) clearly shows that significant sections of the walling of the original structure was retained in the new clubhouse design and construction. In the background, a number of semi-detached dwellings can be seen. For the most part these buildings are still located within the study area (see Building Type 36).

- **Figure 26**

  This historic photograph depicts children using the swimming pool at the staff village. The swimming pool was filled in and does not exist anymore.

- **Figure 27**

  General view of the tennis courts with the tennis clubhouse just visible on the left. The tennis courts and tennis clubhouse do not exist anymore.

- **Figure 28**

  Inside view of the 'recreation hall' of the mine village.

Figure 25 – Historic photograph of a game of bowls at the staff village. Obtained from the Barloworld Archives.

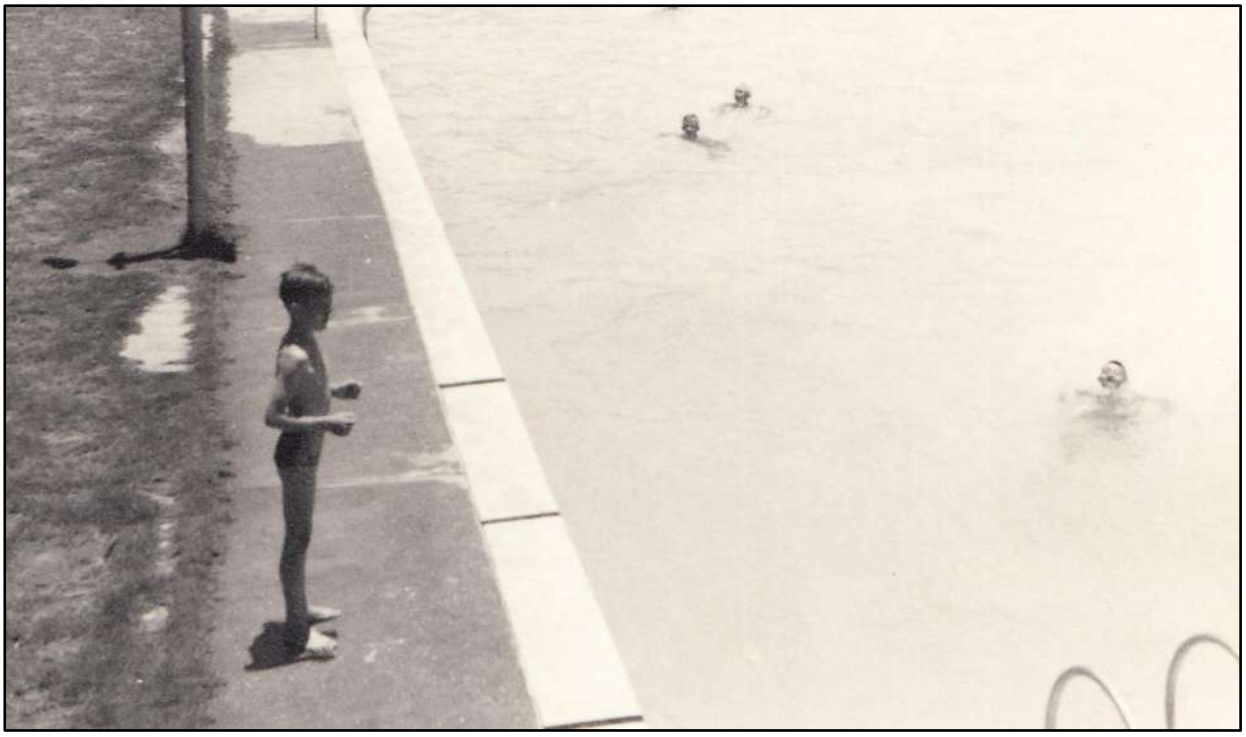


Figure 26 – Historic photograph of the staff village swimming pool. Obtained from the Barloworld Archives.

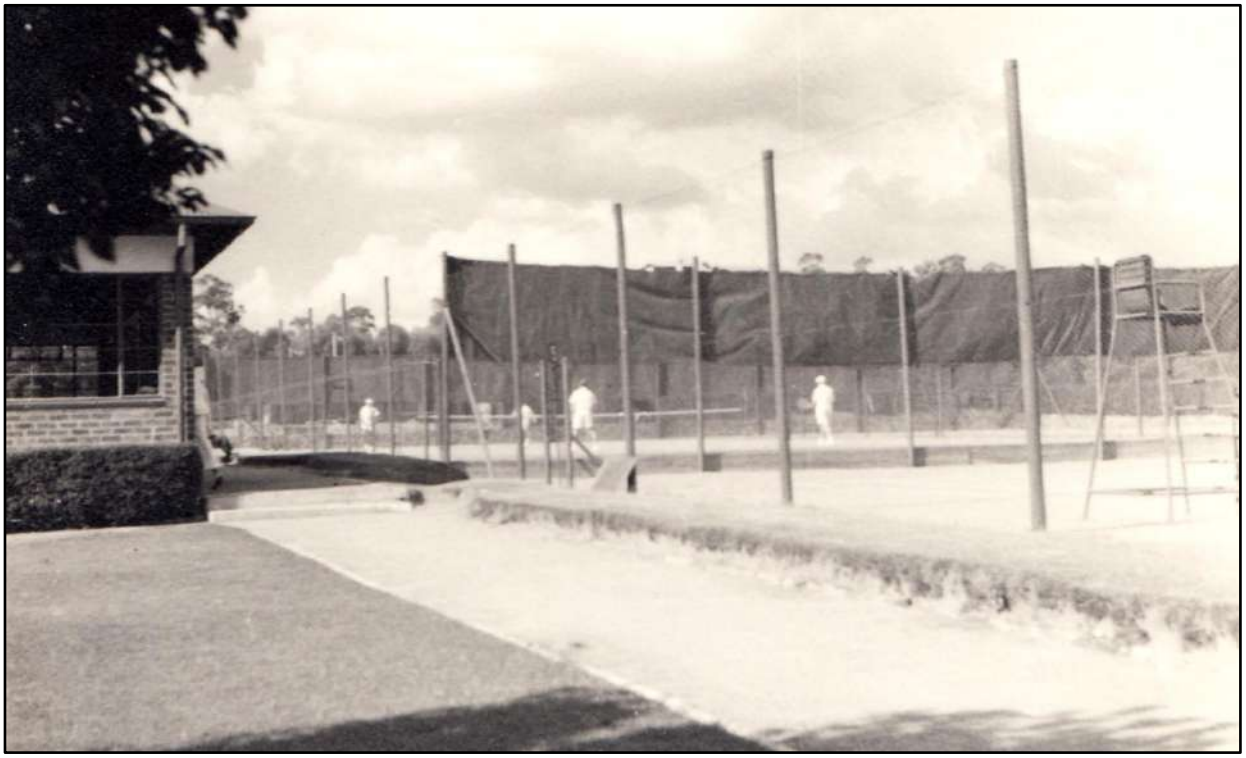


Figure 27 – Historic photograph of the tennis courts at the staff village. Obtained from the Barloworld Archives.

Figure 28 – Historic photograph of the inside of the Recreation Hall. Obtained from the Barloworld Archives.

Photograph 6

A massive tornado struck Roodepoort on 26 November 1948. The tornado touched down no less than 15 times, and wrought destruction to Roodepoort town and its surroundings. A total of 40 adults and 20 children were seriously injured, and four people lost their lives due to the tornado (www.roodepoortrecord.co.za). As shown by the photographs depicted below, the Durban Roodepoort Deep mine was certainly not exempt from the tornado and the destruction it brought.

The following observations are made on a photograph by photograph basis. Please refer to the corresponding figure numbers on the subsequent pages.

- **Figure 29**

  The headgear and associated buildings of Durban Roodepoort Deep's Circular Shaft is shown in the aftermath of the tornado of 26 November 1948.

- **Figure 30**

  An extensively damaged semi-detached dwelling is shown. It is not presently clear exactly which dwelling was destroyed in this fashion by the tornado of 1948.

- **Figure 31**

  Even the bowling clubhouse was significantly impacted upon by the tornado of 1948. While it is not certain, the possibility exists for this historic bowling clubhouse to have been modified to its current form as a result of the damage incurred during the tornado of 1948. Nonetheless, a comparison of this building with the present clubhouse building (see Building Type 29) clearly shows that significant sections of the walling of the original structure was retained in the new clubhouse design and construction.

- **Figure 32**

  It is clear from this photograph that while the swimming pool of the Durban Roodepoort Mine Village remained largely unscathed from the tornado, the wooden fencing enclosing the swimming pool was badly damaged. In this photograph sections of the damaged wooden fencing are used as rafts by the intrepid school boys.

Figure 29 – Historic photograph taken in November 1948. Obtained from the Barloworld Archives.

Figure 30 – Historic photograph taken in November 1948. Obtained from the Barloworld Archives.

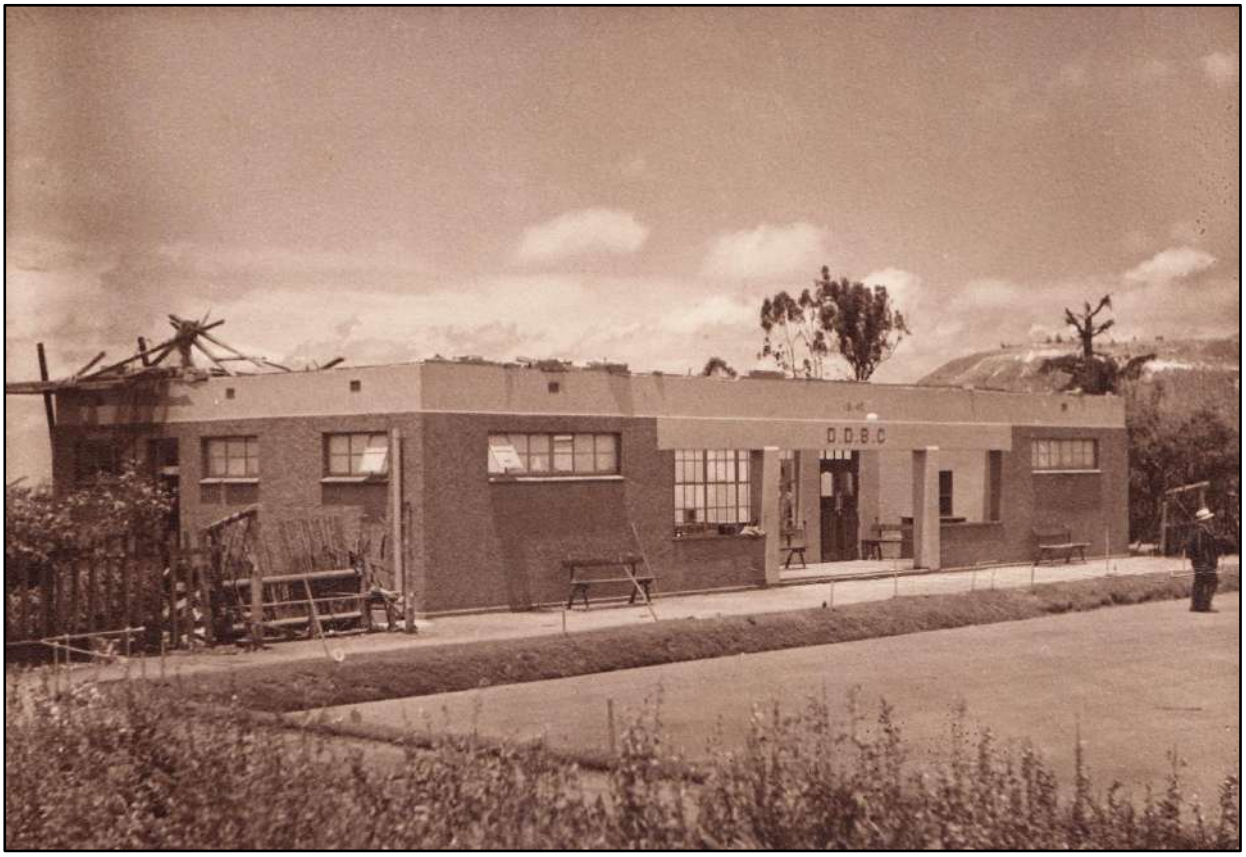


Figure 31 – Historic photograph taken in November 1948. Obtained from the Barloworld Archives.

Figure 32 – Historic photograph taken in November 1948. Obtained from the Barloworld Archives.

Photograph 7

The historic photograph shown below was taken during the period between the 1940s and 1950s and shows a similar view as the one depicted in Photograph 1. Despite the fact that exactly the same section of the study area is not shown on the two images, a comparison of these two photographs shows that the Durban Roodepoort Deep mine village had expanded significantly since the time that the first photograph was taken.

The following observations can be made from this photograph:

- In the foreground on the left, two buildings with associated garages are shown. These buildings were identified within the study area during the fieldwork undertaken in 2012, but have since been demolished / vandalised. The two buildings shown here are included in this report as building numbers DRD156 and DRD157, and both were characterised in this report as Building Type 13.

- Behind the two Building Type 13 buildings, a row of three double storey dwellings is shown that were erected for the mine's Senior Staff Members. A fourth building of the same type, can be seen on the right. All four these buildings are included in this report as building numbers DRD147, DRD152, DRD153 and DRD154 and were identified during the fieldwork undertaken in 2012. For the purposes of this report, these buildings are all grouped together as Building Type 17 structures. These four buildings were all demolished / vandalised in the period between 2012 and 2014.

- Behind the Building Type 17 structures, a row of four Building Type 18 dwellings can just be seen. These were also identified during the fieldwork undertaken in 2012 as building numbers DRD148, DRD149, DRD150 and DRD151, but do not exist anymore.

- In the middle background on the left, immediately behind the row of three double storey Building Type 17 structures, the only example of a Building Type 7 structure from within the study area can be seen. This building was identified during the fieldwork undertaken in 2012 as building numbers DRD56 and DRD57, but sadly had since been demolished / vandalised.

- In the middle background, immediately left of the Building Type 7 structure, one of the numerous examples of the Building Type 1 structures can be seen. This building was identified during the fieldwork undertaken in 2012, and is included in this report as building number DRD55. This building still exists today.

Figure 33 – Historic photograph depicting sections of the study area. This photograph was obtained from the Barloworld Archives.

5.6 Aerial Photographs

Aerial photographs provide a valuable tool for establishing the chronology of buildings, as well as their approximate age. Such aerial photographs are also very helpful in compiling a historic overlay of a particular site.

A sequence of aerial photographs was obtained for the study area. Images taken in 1938, 1941, 1952 and 1991 were obtained from the National Geo-Spatial Information at the Department of Rural Development and Land Reform in Cape Town. The following aerial photographs were included in this assessment:

- 129_015_54526 – photograph taken in 1938
- 158_009_56353 – photograph taken in 1941
- 314_005_44490 – photograph taken in 1952
- 952_003_04120 – photograph taken in 1991

As an example of the usefulness of historic aerial photographs for this type of study and assessment, two depictions each of sections of the study area as shown on the 1938 and 1991 aerial photographs will be included below.

Aerial Photograph taken in 1938

The oldest available aerial photograph depicting the study area that could be found, was taken in 1938 (NGI, Aerial Photographs, 129_015_54526).

The two depictions of sections of the study area presented below, comprise the compound complex near the north-western end of the study area, as well as a portion of the study area consisting of the mine offices, sports fields and houses associated with the mine village.

Aerial Photograph taken in 1991

The most recent available aerial photograph depicting the study area that could be found, was taken in 1991 (NGI, Aerial Photographs, 129_015_54526).

The two depictions of sections of the study area presented below, will again comprise the compound complex near the north-western end of the study area, as well as a portion of the study area consisting of the mine offices, sports fields and houses associated with the mine village.

Figure 34 – Depiction of a section of the study area taken in 1938. This section of the study area includes the mine offices, sports fields and houses. Note the undeveloped spaces at the lower end and to the right of this image.

Figure 35 – Depiction of the same section of the study area taken in 1991. Note the increased number of buildings within this section, as well as the use of components of the study area as a golf course.

Figure 36 – Depiction of a section of the study area taken in 1938. This section of the study area includes the compound and associated buildings. A cemetery was identified in the field west of the compound buildings.

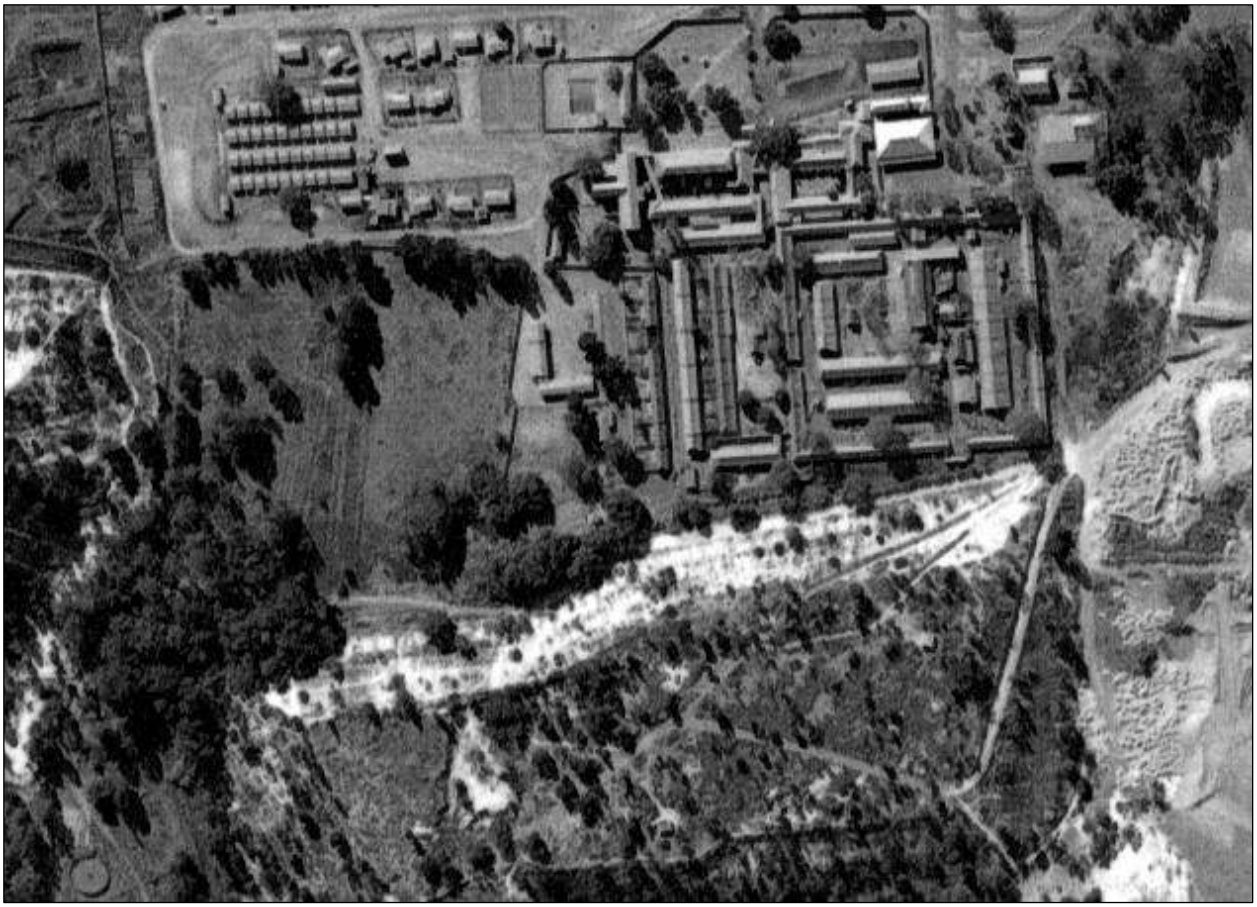


Figure 37 – Depiction of the same section of the study area taken in 1991. Note the changes which had taken place within this section of the study area over the preceding 53 years.

5.7 Previous Archaeological and Heritage Reports from the Study Area and Surroundings

An assessment of the South African Heritage Resources Information System (SAHRIS) revealed that a number of previous heritage and archaeological studies were undertaken in the immediate surroundings of the present study area. Only reports that covered areas located in proximity to the present study area boundaries will be included in this discussion.

A number of such previous archaeological and heritage studies were identified on SAHRIS. These include the following:

Birkholtz, P.D. 2001. Heritage Impact Assessment for Bram Fischerville Ext. 7. An unpublished report by CRM Africa on file at SAHRA: SAHRIS MAP ID_00544.

CRM Africa was commissioned by Globecon Environmental Management Services to undertake a heritage impact assessment for the proposed development of Bram Fischerville Ext. 7. The study resulted in the identification of one archaeological site in the form of Early Stone Age lithics.

The archaeological site identified during the Bram Fischerville Ext. 7 study, is located roughly 655m south-west of the present study area.

Van Schalkwyk, J. 2003. A Survey of Heritage Resources in the proposed Dobsonville X9 development, Dobsonville, Soweto. An unpublished report by the National Cultural History Museum on file at SAHRA: SAHRIS MAP ID_00486.

The National Cultural History Museum was commissioned by Bokamoso Landscape Architects to undertake a heritage impact assessment for the proposed development of Dobsonville X9 on a portion of the farm Vlakfontein 238 IQ.

No heritage sites were identified during the study. The study area for this 2003 study is located 4.2km south by south-west of the present study area.

Van Schalkwyk, J. & M. Naudé. 2004. Heritage Impact Assessment for the proposed Waste Blending Platform Project, Roodepoort District, Gauteng. An unpublished report by the National Cultural History Museum on file at SAHRA: SAHRIS MAP ID_00545.

The National Cultural History Museum was commissioned by Bohlweki Environmental to undertake a heritage

impact assessment of five sites earmarked for the proposed development of the proposed Waste Blending Platform Project. The nearest component of the 2004 study area to the present study area was located roughly 4km to the east.

No archaeological sites were identified during the study. A number of reasonably old earthworks and buildings associated with mining activities were identified in some of the study area components.

Birkholtz, P.D. 2006. Phase 1 Heritage Impact Assessment for the Proposed Jameson Field Extension 1 Residential Township Development, Gauteng Province. An unpublished report by Archaeology Africa on file at SAHRA: Report Reference Number 9-2-228-0001-20060326-AACC.

Archaeology Africa was commissioned by Marsh Environmental Services to undertake a heritage impact assessment for the proposed Jameson Field Extension 1 development located on Portions 12 and 37 of the farm Vlakfontein 238 IQ.

The study identified seven heritage sites comprising three sites that can be directly associated with the Jameson Raid and its final battle on 2 January 1896, three buildings and one cemetery.

This study area is located 5km south-west of the present study area.

Birkholtz, P.D. 2008. Heritage Impact Assessment for the Proposed Development of a Shopping Complex on Rand Leases Ext. 14. An unpublished report by Archaeology Africa.

Archaeology Africa was commissioned by Marsh Environmental Services to undertake a heritage impact assessment for the proposed development of a shopping complex on Rand Leases Ext. 14, located on a portion of the farm Vogelstruisfontein 231 IQ. This study area is located 1.7km north-east of the present study area.

No heritage sites were identified.

Birkholtz, P.D. & M. Naudé. 2010. Heritage Impact Assessment for the Proposed Development of the Remaining Extent of Portion 161 of the farm Vogelstruisfontein 231 IQ, City of Johannesburg Metropolitan Municipality, Gauteng Province. An unpublished report by the PGS.

PGS was commissioned by Marsh Environmental Services to undertake a heritage impact assessment for the proposed development of Portion 161 of the farm Vogelstruisfontein 231 IQ. This study area is located 2.8km east of the present study area.

The heritage study revealed the presence of an old mine village comprising 45 houses, six communal garages, a transformer station, mine shaft and mine offices.

Du Piesani, J. 2014. Heritage Impact Assessment for the Mining Right Application for the Reclamation of the Soweto Cluster Dumps, Roodepoort, Gauteng Province. An unpublished report by Digby Wells on file at SAHRA: SAHRIS Case ID_4700.

Digby Wells was commissioned by Ergo Mining to undertake a heritage impact assessment for the proposed reclamation of the Soweto Cluster Dumps. The study area for this project also included sections of the Vlakfontein, Rand Leases and Durban Roodepoort Deep mine dumps. The latter section of this project's study area is located roughly 500m north of the present study area.

This heritage impact assessment noted the presence of a number of historic sites associated with the Durban Roodepoort Deep mine, including an old compound, cemetery and headgear. These identified sites are all located in close proximity to the present study area.

Van der Walt, J. 2015. Archaeological Impact Assessment for the proposed Thulani Police Station and Subdivision of Erf 3206, Thulani Ext. 1, Soweto. An unpublished report by HCAC on file at SAHRA: SAHRIS Case ID_7155.

HCAC was commissioned by W & L Consultants to undertake an archaeological impact assessment for the proposed Thulani Police Station and Subdivision of Erf 3206, Thulani Ext. 1, Soweto. This 2015 study area is located 4.2 km south-west of the present study area. No archaeological or heritage sites were identified during the study.

6 FIELDWORK FINDINGS

The methodology utilised during the fieldwork was to undertake pedestrian and vehicle surveys of the study area. GPS coordinates were taken of identified heritage sites and such sites were recorded photographically.

A total of 196 buildings were identified during the fieldwork, with four archaeological sites comprising two historic middens and two cemeteries, also identified. In the section that follows, the identified buildings will be discussed first, followed by the archaeological sites.

6.1 Built Heritage

6.1.1 Description of Precincts and Building Types identified during the Fieldwork undertaken in 2012 and 2013

6.1.1.1 Precinct 1

Precinct 1 comprises 47 individual buildings (46 containing one or more dwellings and one with a non-residential function) constituting 63 dwelling units. Eight building types were identified here.

Building Type 1

Buildings 55, 111, 112, 113, 114, 117, 118, 119, 120, 121, 124, 124b, 125, 126a, 127, 128, 129 & 130

This building type comprises a single storey dwelling built of yellow face brick with steel framed windows and a corrugated iron roof. The building type has a L-shaped plan with one protruding gable wing extending towards the road. Typical of mining-related architecture is the presence of concrete lintels across the doors and windows. A small separate face brick structure is located on its western end and likely provided accommodation and toilet facilities to the domestic workers.

These dwellings were occupied by foremen and senior artisans.

Figure 38 – General view of the front (northern) façade of one of the buildings classified as a Building Type 1 structure.

Building Type 2

Buildings 115, 116, 122 and 123

This building type was originally exactly the same as Building Type 1. The only difference is that it has two extending front gables instead of one, giving the building a U-shaped plan. Only four of the Building Type 1 dwellings were converted into Building Type 2 structures by adding another wing to the front of the building. This extension was likely undertaken in cases where the families residing in these dwellings required more sleeping rooms or space. Individuals such as senior fitter and turners (for example Mr Rudling and his family who resided in dwelling 116) and senior carpenters (for example Mr Willie Oesch and his family who resided in dwelling 122) lived in these houses.

Figure 39 – Two general views of Building Type 2.

Building Type 3

Buildings 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 91, 92, 93, 94, 96, 97, 99, 100, 101, 106, 107, 108 & 109

Building Type 3 comprises rectangular semi-detached buildings, each of which contains two individual dwellings. Thirteen complete buildings of this type are located north of Main Reef Road, with three complete buildings located south of the road. Three semi-demolished buildings comprising one remaining half of this building type are located north of the road and one to the south of it. The building is a rectangular, plastered, brick building divided in the middle into two separate dwellings. The window frames are of steel, with concrete lintels. Some entrances have ornamental arched brickwork. The roofs are of corrugated iron with open ventilated ridging. Of exceptional significance is the occurrence of Kirkness brick fireplaces.

Figure 40 – General and detailed views of Building Type 3.

Building Type 4

Buildings: 127a

One example of this building type is located within this precinct. It comprises a square-shaped brick building with steel framed windows and hipped corrugated roof. The building has a brick wall adjacent to its back door and one face brick chimney. Three protruding vertical face brick pilasters are located on the corner closest to the chimney.

Figure 41 – General view of Building Type 4.

Building Type 5

Buildings: 127b

One example of this building type is located within this precinct. It comprises the same core floor plan as is the case with Building Type 4. The only difference is that it has an added section on the one side (chimney end) of the original building. Although the three protruding vertical face brick pilasters can still be identified, they are both structural and aesthetic elements and form part of the wall of the added section.

Figure 42 – General view of Building Type 5.

Building Type 6

Buildings: 54

Only one example of this building type was found within the study area. It comprises a square-shaped brick building with a wrap-around verandah on its southern and eastern ends. A number of building phases can be identified in the structure. The original core structure probably had a square floor plan of brick with a L-shaped verandah and a hipped corrugated roof. The walls of this original structure are exceptionally thick. A kitchen with a lean-to roof was added along the northern facade. The supporting columns of the verandah – which may have been of wood - were replaced by yellow face bricks. This modification could have been contemporary with the addition of a new room using the same face bricks along the western facade.

Figure 43 – General and detailed views of Building Type 6.

Building Type 7

Buildings: 56 & 57

Only one example of this building type was found within Precinct 1 and within the study area. Building Type 7 comprises a semi-detached building consisting of two dwellings. It is a rectangular building with two gabled wings on the ends. The building has a stone foundation, brick walls and sash windows. The only exception is on the closed face brick porch where face bricks and steel-framed windows were used. The interior of the building includes pressed ceilings and timber planking floors.

Figure 44 – General and detailed views of Building Type 7.

Building Type 8

Buildings: Small Electrification Building 1

One example of this building type was identified within Precinct 1. It is a small rectangular structure with walls of yellow face brick and a pitched corrugated iron roof. The building is associated with the electrification of the mine village and more than likely housed an electrical substation.

Figure 45 – General view of Building Type 8.

6.1.1.2 Precinct 2

Precinct 2 comprises 18 buildings of which 15 are dwellings and three are non-residential structures. Eight building types are located here.

Building Type 9

Buildings: 245, 247, 248, 250 & 251

Five examples of this building type were located within Precinct 2. It comprises an L-shaped floor plan with a saddle corrugated iron roof. Some of the dwellings of this type were constructed with face brick while others were plastered and painted. A rectangular structure located directly south-west of the dwelling includes a single garage and room for domestic staff. An L-shaped wall leads from the one side of the front gable to the front right corner of the garage, creating a small courtyard towards the back door. The windows of all the buildings are steel-framed. The exceptional elements of the dwellings interiors are the fireplaces and parquet floors.

Figure 46 – General and detailed views of Building Type 9.

Building Type 10

Buildings: 246, 249 & 252

Three examples of this building type were identified within Precinct 2. Although the general character and orientation of the building is very similar to Building Type 9, there are some differences. The two most obvious differences are the rectangular floor plan covered with a hipped roof (not pitched) and without another room with gable protruding along the front facade. The rest of the dwelling (and its outbuildings) appear very similar. This building also has steel frame windows. The outbuilding consists of a single garage and room for a domestic worker.

Figure 47 – General view of Building Type 10.

Building Type 11

Buildings: 253 & 254

Two examples of this building type were identified within Precinct 2. The dwelling has an elongated rectangular floor plan with plastered brick walls and saddle corrugated iron roof with steel frame windows.

Figure 48 – General views of Building Type 11.

Building Type 12

Buildings: 157a & 157b

Two examples of this building type were identified within Precinct 2. The dwelling has a U-shape floor plan with plastered brick and some face brick walls. The dwelling has a hipped corrugated iron roof and steel frame windows. The front door is defined by a face brick porch. The site also contains one U-shape outbuilding consisting of a garage and room for domestic worker. The building type is set inside a large garden.

Figure 49 – General and detailed views of Building Type 12.

Building Type 13

Buildings: 155, 156 & 157

Three examples of this building type were identified within Precinct 2. The dwelling has a decadent L-shape floor plan, with walls of yellow face and plastered brick above the window lintels. It has hipped corrugated iron roof and steel frame windows. The front facade of the dwelling is characterised by a protruding room with hipped roof and closed porch with a flat pre-stressed concrete roof.

Figure 50 – General views of Building Type 13.

Building Type 14

Buildings: Large Electrification Building 1

One example of this building type was identified within Precinct 2. It is a rectangular structure with walls of yellow face brick and pitched corrugated iron roof. The exterior corners taper towards the roof creating an illusion of buttressing. The building is associated with the electrification of the mine village and more than likely housed an electric transformer.

Figure 51 – General view of Building Type 14.

Building Type 15

Buildings: Corrugated Shed 1

One example of this building type was identified within Precinct 2. It is a large rectangular IBR sheet iron building with a pitched roof. The building resembles the size and scale of an industrial shed or workshop but is used by the local wrestling club as a gymnasium.

Figure 52 – General views of Building Type 15.

Building Type 16

Buildings: Corrugated Shed 2

One example of this building type was identified within Precinct 2. It is a small rectangular corrugated iron building with a pitched roof. The building has the appearance of wood and iron structures associated with the original mine workings and industrial architecture.

Figure 53 – General views of Building Type 16.

6.1.1.3 Precinct 3

Precinct 3 comprises five residential stands with five dwellings on them. Only one building type was identified within this precinct.

Building Type 17

Buildings: 146, 147, 152, 153 & 154

The building type comprises a large double-storey face brick dwelling with a corrugated iron roof. The building was originally L-shaped and at a later stage another section containing an upper-storey en-suite bathroom was added giving the building a Z-shape. The front facade is dominated by the curved protruding wing with large steel frame windows on both floors. The main bedroom (upper floor) and living space (ground floor) were located here to utilise the light and to enjoy the views towards the landscaped garden. The building has four bedrooms, one en-suite toilet-bathroom, another separate toilet and another separate room with a bath. The lower level has a study, open living room-dining room (with covered porch to the front) with a large kitchen in the back. The building is located on a large property that includes a number of other buildings and features such as a closed garage, patio, tennis court and swimming pool. It is evident from the size and layout of the house and stand that these buildings were used to accommodate senior staff members of the mine, including possibly the Mine Manager, the Surface Manager, the Underground Manager and the Chief Surveyor.

Figure 54 – The front façade of one of the examples of Building Type 17.

Figure 55 – General and detail views of Building Type 17.

6.1.1.4 Precinct 4

Precinct 4 comprises 12 buildings, all of which are dwellings. Two different building types were identified here.

Building Type 18

Buildings: 148, 149, 150 & 151

Only four examples of this building type were found within Precinct 4. These are quite stylish dwelling units with several outstanding architectural features. The floor is irregular in shape but a central passage defines the arrangement of the interior. The building is set on a concrete foundation with red face bricks above the foundation defining the plinth and filling the area from the plinth to the window sills. It is defined and framed by a single row of protruding dark blueish face bricks. The entire area above the window sills is constructed with plastered brickwork with another single row of protruding face bricks located above the windows. Of exceptional significance is the prominent concrete cornice above the windows. These are the only dwellings with this feature. The dwelling has a hipped corrugated iron roof with two red brick chimneys. Steel frame windows occur in the entire building. Other outstanding features are the face brick chimney stack and the small circular windows located directly adjacent to it.

Figure 56 – General and detail views of Building Type 18.

Building Type 19

Buildings: 138, 139, 140, 141, 142, 143, 144 & 145

Eight examples of this building type were identified within the study area. The building type has an irregular L-shape plan with rooms protruding along the front facade. It is constructed with face brick at the bottom to window lintel height with a hipped corrugated iron roof. A prominent feature is the yellow brick chimney located at the one end of the dwelling. An open enclosure links the dwelling with the outbuildings at the back. The enclosed area is defined by a number of structures including the dwelling, staff quarters, washing/ironing rooms and a covered garage.

Figure 57 – General and detail views of Building Type 19.

6.1.1.5 Precinct 5

Precinct 5 comprises 24 buildings, all of which are dwellings. Three existing building types were again identified here as were 10 new building types.

Building Type 4

Buildings: 230

One example of this building type is located within this precinct. The floor plan and architecture is the mirror image of a dwelling type described in Precinct 1.

Figure 58 – The front façade of the Building Type 4 structure from within Precinct 5.

Building Type 5

Buildings: 232

One example of this building type is located within this precinct. The building type is described under Precinct 1.

Figure 59 – The front façade of the Building Type 5 structure from within Precinct 5.

Building Type 18

Buildings: 65

Only one example of this building type was found within this precinct. The type is described under Precinct 4.

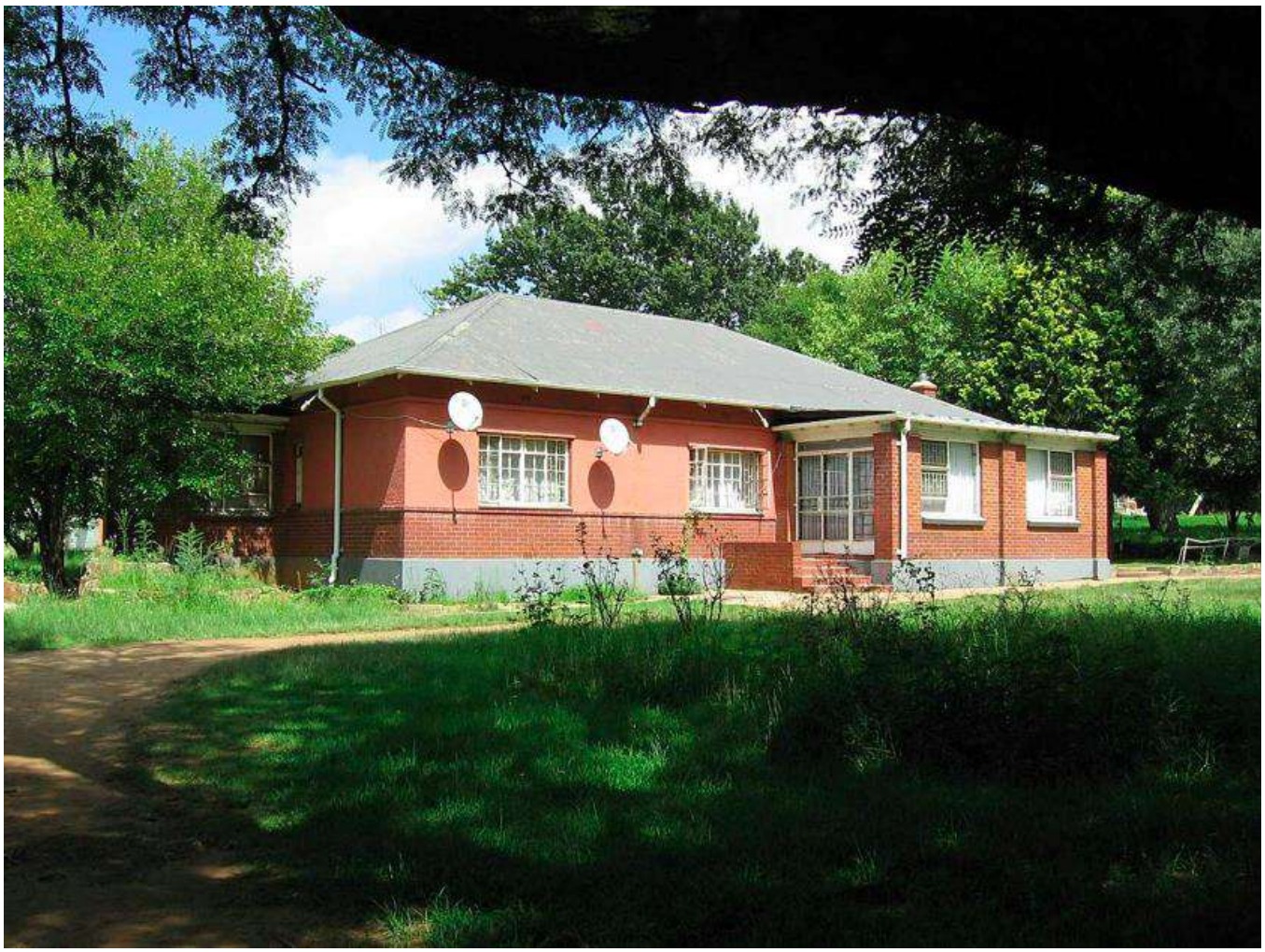


Figure 60 – General view of the Building Type 18 structure that was identified within Precinct 5..

Building Type 20

Buildings: 229, 237, 238 & 244

Four examples of this building type are located within this precinct. The building type comprises a rectangular floor plan constructed with plastered brick, a hipped corrugated iron roof (with prominent face brick chimney) and steel frame windows. The front facade of the building is characterised by a low face brick wall defining a stoep. The stoep is partially enclosed with a single face brick wall at one end, (probably for privacy and protection against the wind and sun). Some variation of this type also occurs namely the closing of the sides of the open stoep with steel and plastic and covering it with plastic corrugated sheets. Three of the buildings of this type from this precinct were constructed with a dark face brick and one was constructed with a yellow face brick.

Figure 61 – General views of Building Type 20.

Building Type 21

Buildings: 231, 235, 240 & 241

Four examples of this building type are located within this precinct. The building type comprises a rectangular floor plan constructed with plastered brick with some sections executed with yellow face brick. It has a hipped corrugated iron roof and a single prominent chimney at one end and steel frame windows throughout the entire building. The front facade of the building is characterised by a low yellow face brick wall defining the open stoep. The main entrance and front door is defined by a tall yellow face brick wall that also forms part of the stoep, (for privacy and protection against the wind and sun). The four buildings of this type are built with face bricks, varying in colour. One of these buildings is built with both a yellow and darker face brick.

Figure 62 – General views of Building Type 21.

Building Type 22

Buildings: 233, 236 & 239

Three examples of this building type are located within this precinct. The building type is an offset T-shaped construction of yellow face brick with a saddle shaped corrugated iron roof with a single chimney and steel frame windows. The front facade of the building is characterised by a covered porch with a gable. Both yellow and darker face bricks were used for the construction of the three buildings.

Figure 63 – General views of Building Type 22.

Building Type 23

Buildings: 242

One example of this building type is located within Precinct 5. The building type comprises a rectangular brick structure with a pitched corrugated iron roof, a single chimney and steel frame windows.

Figure 64 – Building Type 23.

Building Type 24

Buildings: 234

One example of this building type is located here. It has a rectangular floor plan, constructed with plastered bricks, a hipped corrugated iron roof with an extended gabled wing located on one side and steel frame windows.

Figure 65 – Building Type 24.

Building Type 25

Buildings: 131, 132 & 133

Three examples of this building type are located within this precinct. The building type has an open V-shape floor plan (rectangular floor plan with a slight angel in the centre – almost like a bent rectangle). These buildings are entirely constructed with yellow face bricks and have a hipped corrugated iron roof with a chimney to one side. The structure is dominated by the extensive concrete lintels above both windows and doors.

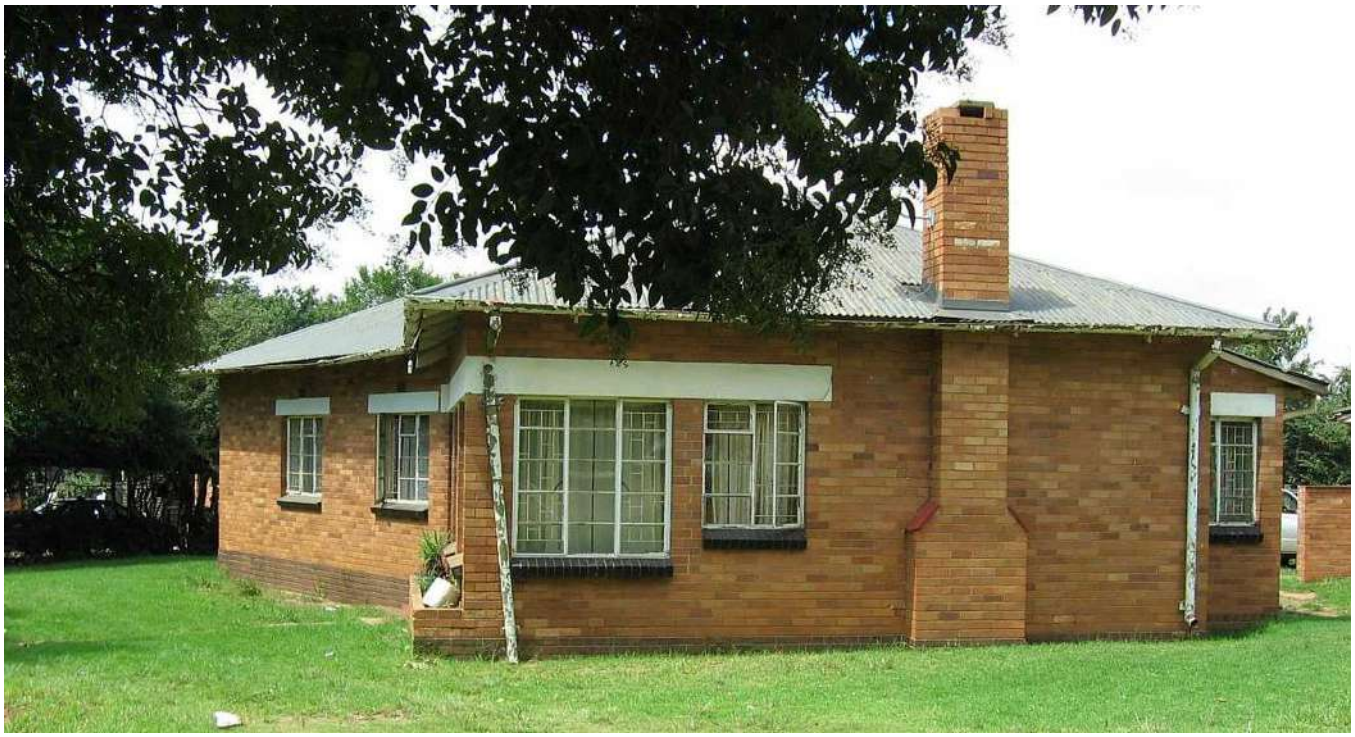


Figure 66 – General views of Building Type 25.

Building Type 26

Buildings: 134, 135, 136 & 137

Four examples of this building type are located within this precinct and are arranged into a crescent. The floor plan is L-shaped with a prominent protruding section along the front façade containing three large symmetrically arranged steel-frame windows. The entire façade is subdivided into two sections, one half consisting of the protruding rooms and the other set back containing the remainder of the bedrooms. The dwelling and prominent chimney are constructed with yellow face bricks and the hipped roof is of corrugated iron. The outbuilding consists of a single garage with a room for a domestic worker.

Figure 67 – General views of Building Type 26.

6.1.1.6 Precinct 6

Precinct 6 comprises one building (Building Type 27) which is comprised six individual dwelling units.

Building Type 27

Buildings: 59, 60, 61, 62, 63 & 64

Only one example of this building type was found within the entire study area and it is the only building located in Precinct 6. It consists of a large single storey complex containing several dwelling units under a single roof. The complex has a corrugated iron saddle roof with a lean-to verandah section along the entire length of the front facade. The entire verandah used to be a semi-open space but was later closed-off. An exceptional element and detail of the building are the use of face bricks along the façade mimicking the various methods bricks can be laid and perhaps mimicking folk patterns of brick masonry (bricks were laid vertically horizontally and diagonally). Each of the dwelling units has its own brick chimney and enclosure or courtyard at the back. The courtyard is defined by plastered and face brick outbuildings serving as rooms for domestic workers and as outdoor toilets. The more recent windows along the façade where the stoeps were closed-off are of steel whilst the windows of the original exterior walls are wooden sash ones.

Figure 68 – General and detail views of Building Type 27.

6.1.1.7 Precinct 7

Precinct 7 comprises one large building with a number of associated buildings and structures. Only one building type is located here.

Building Type 28

Buildings: General Manager's Residence

One very large building dominates Precinct 8. It comprises an irregular-shaped structure which incorporates a multitude of rooms. The building is locally known as the "General Manager's Residence" suggesting that it was the residence of the mine manager before the face brick buildings in Precinct 3 were constructed. The building is large enough to accommodate other purposes than residential function during the early days of the mine and as a result may have been used as mine offices as well. The building has a stone foundation and corrugated iron roof. The existing windows have steel frames but they may have replaced earlier wooden frame windows types. The front facade is balanced by two gabled wings with a covered verandah in the centre and protruding covered pedestrian portico in front of the front door. The building has wooden floors, contains several large fire places, some flanked by wooden shelving and built-in cupboards. One fireplace located at the north-western corner of the building is quite monumental in scale and constructed with red face bricks and tiles (probably a catalogue hearth from the J.J. Kirkness brickyards in Pretoria). It is flanked and partially enclosed by a solid wooden cupboards and shelves on both sides.

The building is set in the centre of a large landscaped garden. Although many of the original elements have disappeared, stone terracing, a covered swimming pool, the remains of a tennis court and an outside patio provide a glimpse into the seniority of the building and its residents.

Directly south-west of the building a corrugated iron garage is located, with another one further to the south-west. Both these structures still contain the original intricate folding door systems. A more recent less inspiring rectangular block on the southern end of the building must have functioned as domestic servant quarters.

Figure 69 – General and detail views of Building Type 28.

Figure 70 – Detail views of the interior of Building Type 28 as well as a general view of an associated garage.

6.1.1.8 Precinct 8

Precinct 8 comprises two buildings with two different building types, both of which have not been identified before in this report. Some features other than built environment elements such as sports fields are also included in this precinct.

Building Type 29

Buildings: Bowling Clubhouse

The bowling clubhouse is located here. It comprises a large rectangular brick building with a hip and gable corrugated roof. The front facade is characterised by large rectangular windows with steel frames. A stone and brick pedestrian entrance gate holding a sign containing the faded words “BOWLING CLUB” is located west of the building. The flat and open lawn located between this sign and the clubhouse is where the bowling greens used to be located.

Figure 71 – General views of the structure as well as the main entrance gate at Building Type 29 .

Building Type 30

Buildings: Golf Clubhouse

One example of this building type is located within the site. It comprises the Durban Roodepoort Deep Golf Clubhouse and Course. The clubhouse is a prefabricated structure with a covered porch in the front. A yellow face brick building not unlike a small reception office is located a short distance away from the clubhouse. In the surrounding landscape a 9-hole parkland type golf course is located. The golf course was established by Durban Roodepoort Deep in 1957 (www.durbandeepgolf.co.za).

Figure 72 – General views of the various structures identified at Building Type 30.

6.1.1.9 Precinct 9

Precinct 9 comprises 13 buildings comprising 15 individual dwelling units. Eight different building types were identified here, of which one was previously identified in this report.

Building Type 5

Buildings: 38

One example of this building type is located within this precinct. The building type is described under Precinct 1.

Figure 73 – General view of the Building Type 5 structure that was identified within Precinct 9.

Building Type 31

Buildings: 38b

Only one example of this building type is located within the precinct and study area. The building has been extensively altered. One of the outstanding elements on this dwelling is the Oregon pine arch or supporting detail on the front porch. No other building in the study area has this element.

Figure 74 – General view of Building Type 31.

Building Type 32

Buildings: 10

One example of this building type is located within the precinct. It comprises a square corrugated iron (wood and iron) dwelling, set on a stone masonry foundation with a single chimney. The building has a saddle roof with a protruding room along the front façade with a hipped roof. The porch was originally an open covered porch, but at a more recent time it had been closed with steel frame windows. The floor plan includes an L-shaped verandah which was later closed-off with steel frame windows. It is suspected that the existing steel frame windows replaced the original wooden sash windows. A number of detached outbuildings are associated with the dwelling, including a timber and iron garage and rectangular corrugated iron room for a domestic worker. These buildings still have their original wooden framed windows.

Figure 75 – General views of Building Type 32.

Building Type 33

Buildings: Corrugated Iron Dwelling 1

One example of this building type is located within the precinct. It is very similar to Building Type 32, with which it represents the only corrugated iron-type dwellings from within the study area. It must have been quite a stylish dwelling at the time, but has been extensively altered. The dwelling consists of a core building constructed with corrugated iron with a combination of a saddle and hipped corrugated iron roof and a single chimney. The building is set on a stone foundation and plinth. A prominent element is the L-shaped covered verandah which was later closed-off with sheets of corrugated iron. Its front facade is characterised by a small pitch-roofed wing on the right and a closed porch on the left. The porch was originally an open covered porch, but more recently had been closed with corrugated sheets. A small rectangular brick building was added at a later stage to the eastern end of the dwelling. While the windows from the core building are all wooden sash ones, the ones from the annex are all steel framed. The floor plan is dominated by a passage through the centre of the dwelling with the various rooms (including a kitchen and bathrooms) leading from it. A more contemporary addition is the rectangular structure with brick walls, lean-to corrugated roof and steel framed windows with concrete lintels - probably used as housing for staff.

Figure 76 – General views of Building Type 33.

Building Type 34

Buildings: 32, 34, 35 & 37

Four examples of this building type are located within the precinct. It consists of a rectangular floor plan and was constructed with face bricks. The dwelling has a hipped corrugated iron roof with two chimneys whereas industrial steel-framed windows are covered with large concrete lintels. The front facade is characterised by a verandah with one section closed-off with steel frame windows to form another room. Both the verandah and additional room were later added as their architectural vocabulary and building materials are different from the original core dwelling. Some outbuildings are associated with the dwelling.

Figure 77 – General views of Building Type 34.

Building Type 35

Buildings: 31

One example of this building type is located within the precinct. It is one-of-a-kind and consists of a rectangular floor plan constructed with plastered brick, with a hipped corrugated iron roof, two chimneys and steel frame windows. It is currently used as dwelling but it contains elements of other functional types such as those of a sports hostel (to accommodate visiting sporting teams) or a clubhouse.

Figure 78 – General view of Building Type 35.

Building Type 36

Buildings: 21, 22, 25, 26 & 27

Five examples of this building type are located within the precinct. These dwellings are semi-detached types constructed with plastered brick with a basic U-shaped floor plan. The void between the two dwellings used to be an open verandah but these spaces have over time been filled in and closed-off to become rooms. Each dwelling has two fireplaces with one separate chimney and one sharing the same vertical funnel (in the centre along the dividing firewall). The five examples described here consist of five half-sections (each of which represents an individual dwelling of a single building unit). The original wooden sash windows are intact but in the more recent additions in the centre of the front facade steel frame windows were installed. A detached corrugated iron garage is located at the back of each unit.

Figure 79 – General view of Building Type 36.

Building Type 37

Buildings: 30

Only one example of this building type is located within the study area. The core of the floor plan is the same as Building Type 36. However, an additional room was added to the front facade where the single room gabled wing is located on a Building Type 29. The building has been altered several times with verandahs closed and rooms added. Steel frame windows have replaced the original sash windows. One of the outstanding elements is the occurrence of arches in the brickwork above the windows which is not repeated on other dwellings in the study area. The building also contains small dormer air vents on the roofs rendering this type exceptional and a-typical.

Figure 80 – General view of Building Type 37.

6.1.1.10 Precinct 10

Twelve buildings are located within this precinct. Of these, 11 are newly defined building types not found elsewhere on the mining property. With the exception of two, these buildings all have non-residential functions.

Building Type 38

Buildings: DRD Main Office Building

One example of this building type is located within this precinct and indeed within the study area. It has a T-shaped floor plan and is constructed with red face brick. The building has a combination of a hipped and saddle corrugated roof with six chimneys. The steel frame windows are covered by steel burglar proofing. The front entrance has a tiny roof of concrete and teak front door crowned by the acronym “DRD” above the entrance. The interior reflects the characteristics of a typical mine office of this period. The building has a long staggered passage in order to serve all the offices and supporting rooms. Each of the larger offices has a fireplace while some offices are still furnished with desks, chairs and cupboards. The building also contains supporting rooms such as a reception area, bathrooms, a boardroom and an underground cellar where records and the archives were kept. Of special significance are the various types of brass door knobs still intact in the building.

Figure 81 – General view of the front entrance of the old DRD office building at Building Type 38.

Figure 82 – Exterior and interior views of the old DRD office building at Building Type 38.

Building Type 39

Buildings: DRD Survey Offices

The building was used as offices by the survey department of the mine. It is the only one of its kind in the study area. The building has a long rectangular floor plan constructed with red face bricks with a broken hipped corrugated roof with ventilator openings at the end of the ridging and five air turrets arranged along the ridging. Large sash windows are arranged intermittently with red brick buttresses (set of two windows between each buttress). A single concrete lintel serves all the windows and doors.

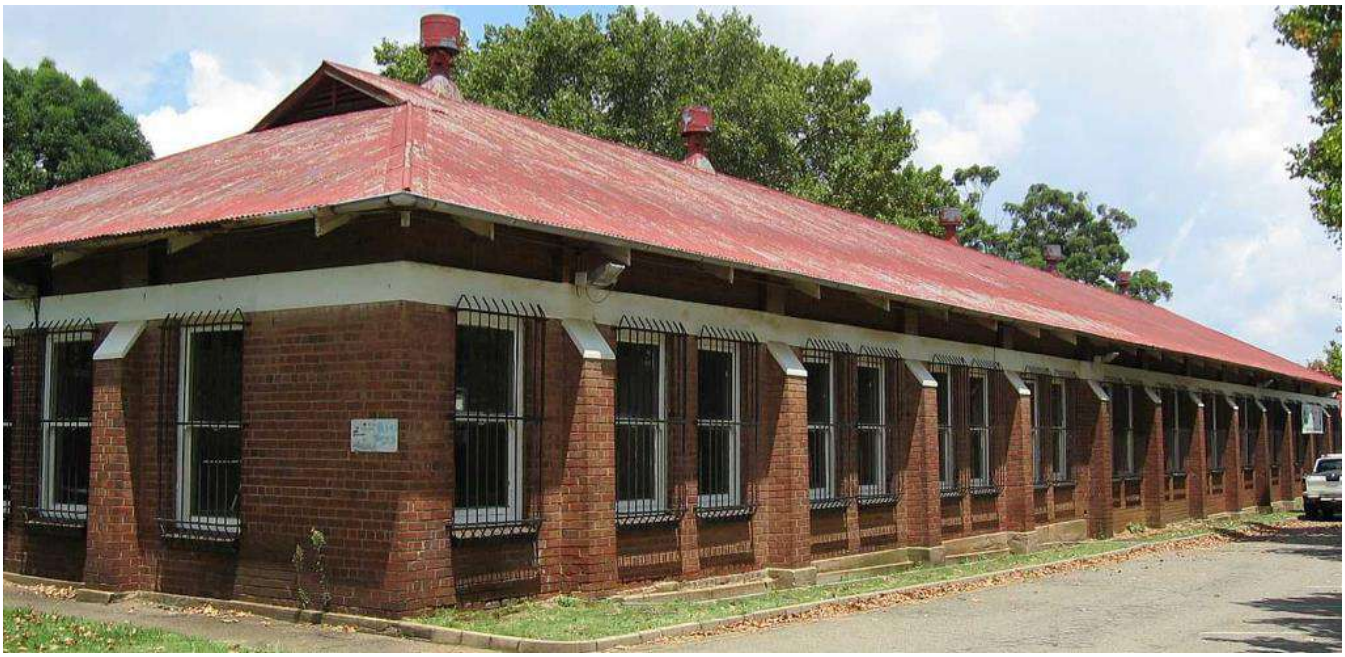


Figure 83 – General views of Building Type 39.

Building Type 40

Buildings: DRD Secondary Offices

One example of this building type is located within Precinct 10 and the entire study area. It has an elongated rectangular floor plan constructed with red face brick and a saddle corrugated iron roof. The roof along the entire front façade extends to form a verandah roof over what must have served as an exterior passage way linking all the offices. Large wooden sash windows with concrete lintels occur along both facades. The northern end of the building is clad with corrugated iron sheets.

Figure 84 – General views of Building Type 40.

Building Type 41

Buildings: Tertiary Offices 1

A narrow rectangular office block of face brick with a saddle corrugated roof is located here. The western facade contains six large wooden sash windows, two smaller windows and a single entrance suggesting its use as support buildings to the main office complex but also serving as minor offices. The windows and door are defined by prominent concrete lintels.

Figure 85 – General view of Building Type 41.

Building Type 42

Buildings: Tertiary Offices 2

A narrow rectangular office block, slightly different from the first office block in terms of form and spatial arrangement, is located here. It consists of several rooms arranged along a stoep but as the building slopes from one end to the other the roof structure is stepped along the slope. The entire complex has a saddle roof of corrugated iron. The western facade has a covered verandah serving as a passage to and from the various rooms. Each of the four units has two doors, one on each end.

Figure 86 – General view of Building Type 42.

Building Type 43

Buildings: Carport

Open sided carport with pitched corrugated iron roof on a steel frame iron roof on a steel frame.

Figure 87 – General view of Building Type 43.

Building Type 44

Buildings: Storage Building

A square storage building of red face brick is located here. It has a broken hipped roof and ventilators at the end of the ridging. The lack of windows suggests that it was used as a storage space.

Figure 88 – General view of Building Type 44.

Building Type 45

Buildings: Ruin at DRD Offices

Remains of a red face brick building of which the function remains unknown. The entire roof structure and all the windows and doors have disappeared. It is a large rectangular block with concrete lintels serving as lintels for all the windows and doors. The building's function is difficult to ascertain due to the present condition, but it could have been used as a 'change room' complex.

Figure 89 – General view of Building Type 45.

Building Type 46

Buildings: Recreation Hall

The building was used as the DRD Recreation Hall where mine functions, dances and dinners took place. Weddings of mine employees and their families also took place here (James, 2012). It is a large square building with a pyramid-shaped corrugated iron roof. The building is constructed with plastered face bricks with steel frame windows.

A dwelling is located north of the recreation hall, and must have been a residence for the caretaker cum manager of the recreation hall. The dwelling has a pyramid-shaped corrugated iron roof with steel framed windows and a single brick chimney. A small kiosk, with a hipped corrugated iron roof is the third in the cluster of these buildings.

Figure 90 – General views of Building Type 46.

Building Type 47

Buildings: Asbestos Building

This is a unique building as it is the only one of its kind. It is a small rectangular structure constructed with corrugated ferro-cement (or asbestos) sheets (walls and roof). Steel frame windows and doors are installed in the building. The building has a hipped roof with a single cylindrical plate metal turret located on the ridge in the centre of the roof. The building is located between the DRD offices and the compound to the south-east and may have been an office building for black senior employees of the mine.

Figure 91 – General views of Building Type 47.

Building Type 48

Buildings: Compound 1

This is not a single building but a complex of six buildings used as housing (formerly referred to as a mining compound). The two most prominent (and extensive) buildings are two rectangular residential blocks with pitched corrugated iron roofs with arched ridge vents along sections of each roof. Some variations in the style of the buildings occur, with a section of one building having a hipped roof and another having a parapet roof. All the buildings are constructed with plastered brickwork and have steel frame windows.

Figure 92 – General view of Building Type 48.

Building Type 14

Buildings: Large Electrification Building 2

It is the only one of its kind in Precinct 10. Another example occurs in Precinct 2. It is a rectangular structure with walls of yellow face brick and pitched corrugated iron roof. The exterior corners taper towards the roof creating an illusion of buttressing. The building is associated with the electrification of the mine village and more than likely housed an electric transformer.

Figure 93 – General view of the Building Type 14 structure that was identified within Precinct 10.

6.1.1.11 Precinct 11

Building Type 49

Buildings: Compound 2 Component 1

This building type forms part of the wider site known for the purposes of this report as Compound 2. It comprises one of the oldest sections of this compound. This building type consists of the original old compound constructed with stone and forming a large rectangle with all the entrances and exits facing towards the inside of the compound. The stone section is the oldest part of the compound and forms an enclosure. This section has a pitched roof with an arched ridge vent along the entire roof. The stone compound is divided into a number of sections following the contours and slope of the site. The entire building block comprises rooms that were probably used as black mine worker accommodation.

Figure 94 – General views of Building Type 49.

Building Type 50

Buildings: Compound 2 Component 2

Four examples of this building type are located within Compound 2. It contains architectural elements of the original stone compound in terms of the roof structure with arched corrugated iron vents but was constructed with plastered brick and are located inside the original stone compound. However it is wider and the roof and ceilings are higher. Small almost decorative corbelling occurs along the facades. The building is also divided into rooms that were once used to accommodate black mineworkers. The corrugated iron roof on one of the buildings of this type was recently replaced, although the general characteristics of the roof had been retained.

Figure 95 – General views of Building Type 50.

Building Type 51

Buildings: Compound 2 Component 3

One example was located of the third building type identified within the compound area. It has a saddle roof with verandah extending directly along the gradient of the principal roof. The building is an elongated rectangular one constructed with plastered brick. A monumental buttress (which may have been a chimney stack) is located along the one gable end. The entire building has steel frame windows. Although the building is plastered and painted, English bond brick masonry was exposed in a small area where these have peeled off. One of the facades is covered with a verandah serving as walkway to reach the rooms and a social area facing the open enclosure.

Figure 96 – General views of Building Type 51.

Building Type 52

Buildings: Compound 2 Component 4

One example of this building type - the fourth one to be identified within the compound area - is located here. It comprises a cluster of four individual buildings associated with the main entrance of the compound. The first of the buildings (not illustrated) is a small rectangular brick structure with a pitched corrugated iron roof which is situated directly inside the entrance. The second building appears to be a dwelling with a pitched corrugated roof and a closed verandah at its eastern facade. The tallest building is located behind this building. The latter building has a pitched corrugated iron roof and plastered brick walls. The fourth component of this cluster type is the entrance itself, which is flanked by two single storey brick buildings.

Figure 97 – General views of Building Type 52.

Building Type 53

Buildings: Eating House

This building is located some distance (north-west0 of the main entrance into Compound 2 and is known as the "Durban Deep Eating House". It is a large building with a broken hipped corrugated iron roof with three turret vents arranged along the ridge of the roof. The ridging ends in two wooden air vents. The front facade of the building is characterised by a row of industrial vent windows almost under the eaves and six white columns supporting what must have been a verandah roof but it has been removed. The building functioned as an eating facility for the residents of the compound.

Figure 98 – General view of Building Type 53.

Building Type 54

Buildings: Compound Offices

A short distance north-east of the main entrance to Compound 2 is a large rectangular double storey, brick building with a pitched roof. The building has a narrow covered verandah along the entire northern facade which provides access into the building from this side. Steel frame windows were installed throughout the building. Although the exact function of the building is not presently known, it may have been used as offices.

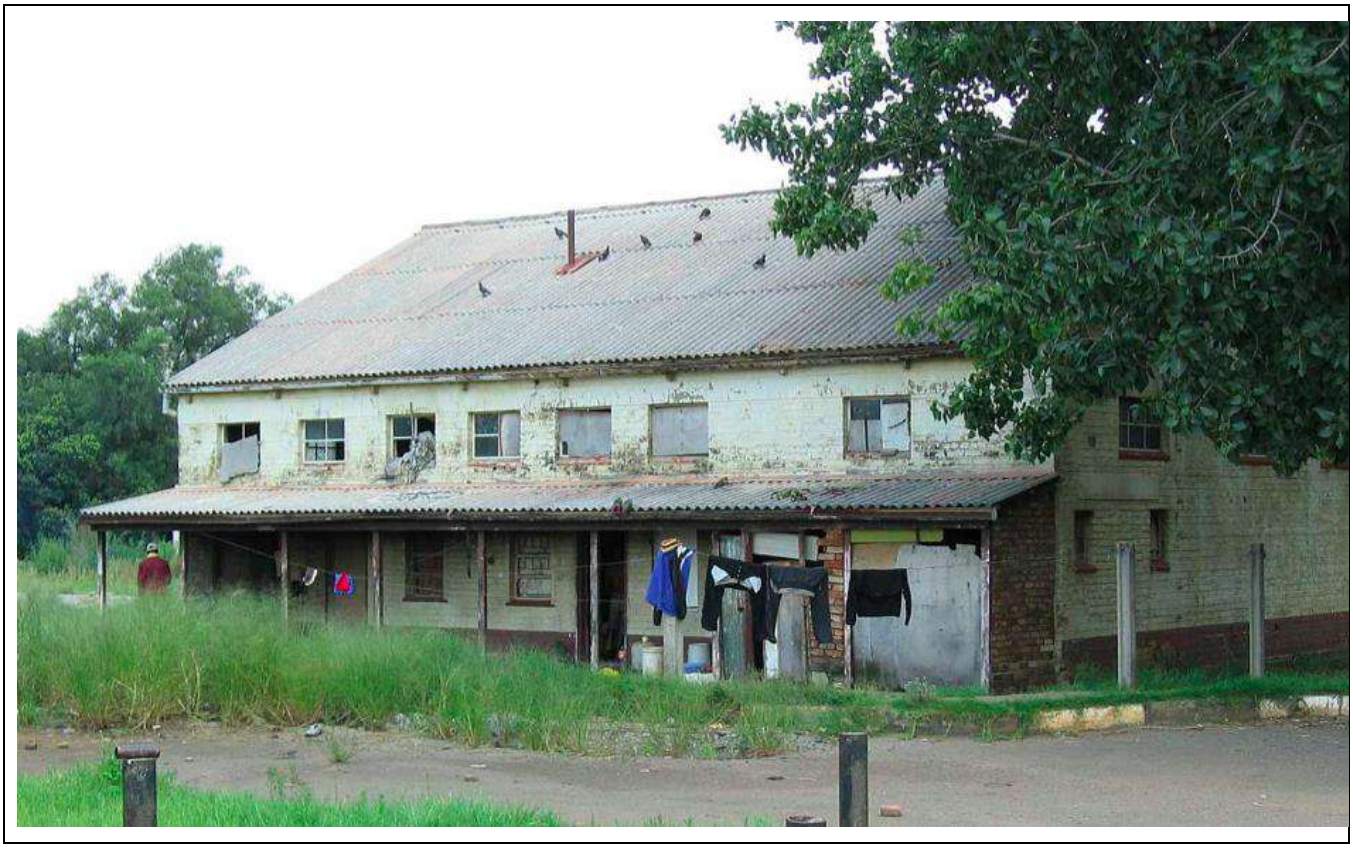


Figure 99 – General view of Building Type 54.

Building Type 55

Buildings: Electrical Substation

One example of this building type is located within the entire study area. It consists of a tall red face brick building that was used as an electrical substation. Insulators are still visible along the front facade of the building. The insulators are grouped into clusters of three, each cluster located in front of three small openings. The electrical supply line led from the building through the opening, passing the insulator and out towards the required transmission line. The area to be served by a cluster of three lines is indicated in white lettering on a dark strip of concrete directly above the openings.

Figure 100 – General and detailed views of Building Type 55.

6.1.1.13 Precinct 13

Building Type 57

Buildings: Compound 3 Component 1

Two buildings of this building type are located within this precinct. They are of different scale and length. Both buildings are constructed with brown face bricks and have hipped corrugated iron roofs with a vent along the ridging. Steel-frame windows were used with large concrete lintels. The two buildings seem to be the oldest in the complex and would have been the first accommodation for black mineworkers in this compound.

Figure 101 – General view of Building Type 57.

Building Type 58

Buildings: Compound 3 Component 2

One building of this building type is located within this precinct. It consists of a rectangular face brick building with a pitched corrugated iron roof. Steel-frame windows were installed under large concrete lintels.

Figure 102 – General view of Building Type 58.

Building Type 59

Buildings: Compound 3 Component 3

One building of this building type is located within this precinct. It comprises a rectangular face brick building with a hipped corrugated iron roof. The windows are all steel-framed and a single concrete beam serves as lintel for both doors and windows.

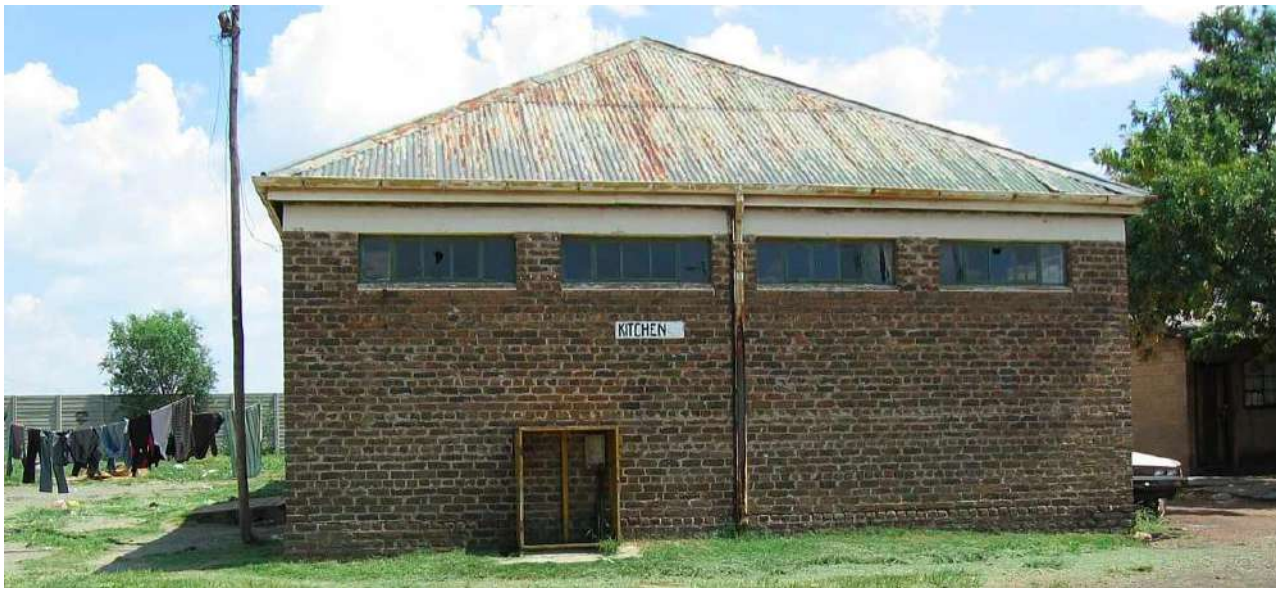


Figure 103 – General view of Building Type 59.

Building Type 60

Buildings: Compound 3 Component 4

One building of this type is located within this precinct. It is a rectangular face brick building with a pitched corrugated iron roof containing an elevated chicken coop air vent along the ridging. Steel frame windows were installed under large concrete lintels.

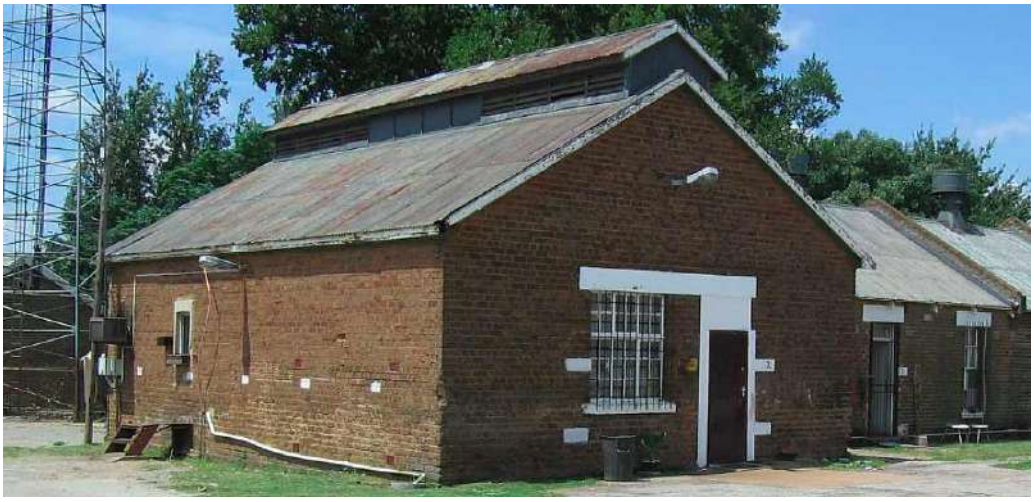


Figure 104 – General view of Building Type 60.

Building Type 61

Buildings: Compound 3 Component 5

One building of this type is located within this precinct. It consists of a rectangular face brick building with a pitched corrugated iron roof divided into two sections by firewalls protruding above the roof. The roof also has sheet iron turret vents in the centre of each of the two sections. Steel frame windows are installed under large exposed concrete lintels.

Figure 105 – General view of Building Type 61.

Building Type 62

Buildings: Compound 3 Component 6

One building of this type is located within this precinct. It comprises a rectangular face brick building with a pitched corrugated iron roof. The windows are all steel-framed with concrete slabs as lintels.

Figure 106 – General view of Building Type 62.

Building Type 63

Buildings: Compound 3 Component 7

Three buildings of this type are located within this precinct. It is an elongated rectangular building constructed with cement bricks, a pitched corrugated iron roof and commercial steel frame windows.

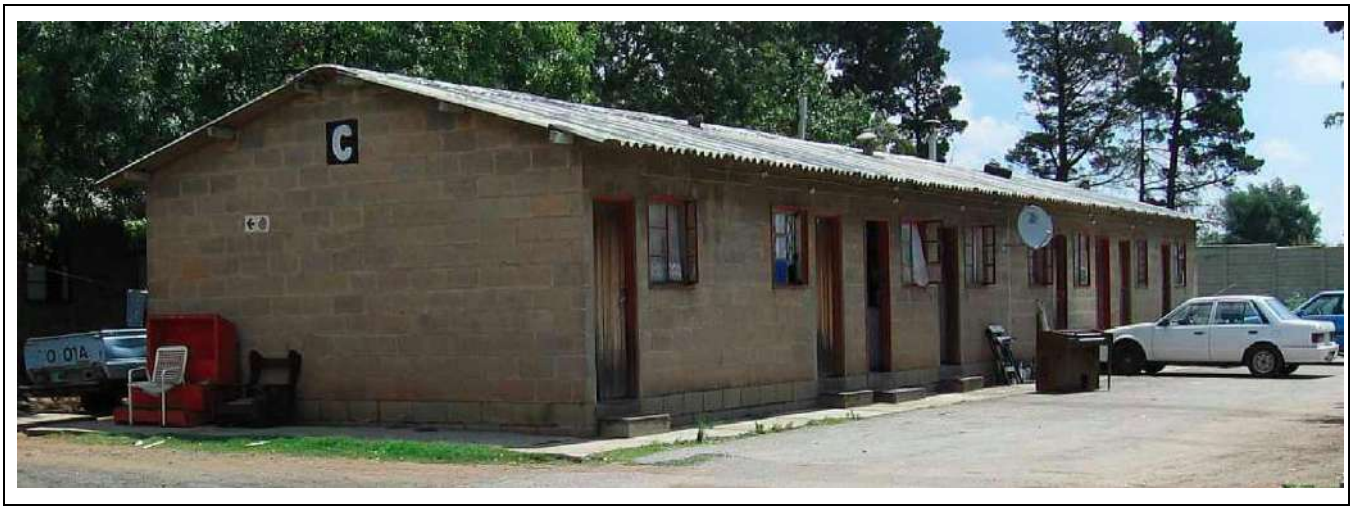


Figure 107 – General view of Building Type 63.

Building Type 64

Buildings: Compound 3 Component 8

One building of this type is located within this precinct. It comprises rectangular cement brick building with a flat corrugated iron roof.

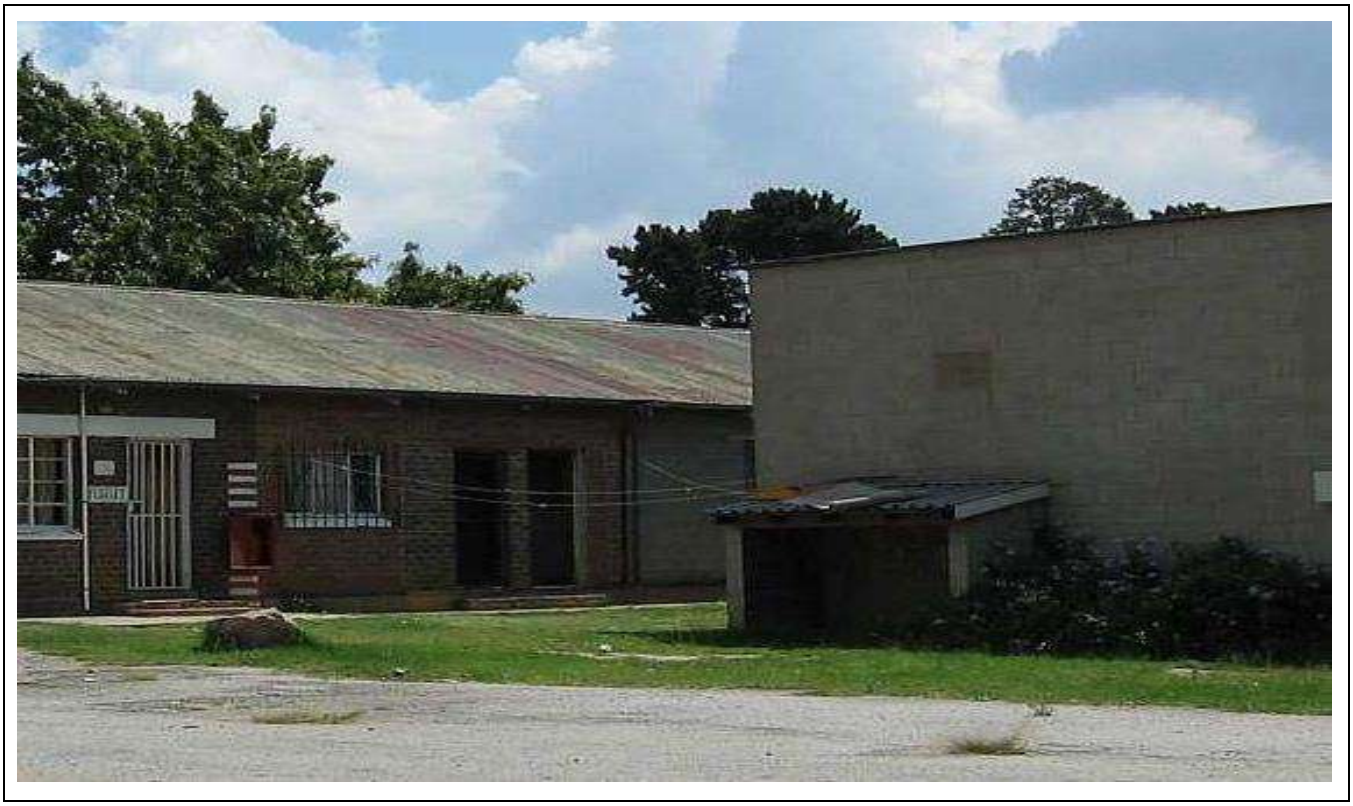


Figure 108 – General view of Building Type 64.

6.1.1.15 Precinct 15

Building Type 68

Buildings: Dwelling with Garage

One example of this building type was identified within the study area. It is a single storey dwelling still used as dwelling at the time of the fieldwork in 2014. The building forms part of the original design of the mine village and was built around 1930. The dwelling has plastered brick walls with exposed brick quoining around corners, windows and doors combined with planes of painted plastered brick. The structure has wooden frame windows and doors. Decorative features identified here include arts and crafts brick work, decorative plastering and paintwork along the shafts of the chimneys as well as patterned and etched glass panes in the French doors along the verandahs.

Figure 109 – General views of Building Type 68.

Building Type 69

Buildings: Boiler Shop

One example of this building type was identified within the study area. It comprises a double storey shed that was used as a Boiler Shop. The building forms part of the original complex of shed and warehouses located east of the DRD Offices. The building has a unique and exceptional iron superstructure comprising of an iron and timber combined superstructure clad with corrugated iron sheeting. The structure has steel frame windows and doors. A large extension at the back of the building obscures the side elevation of the original building.

Figure 110 – General views of the exterior and interior of Building Type 69.

Building Type 70

Buildings: Recreation Room and Lapa

One example of this building type was identified within the study area. It comprises a one and half volume building used as recreation area with a detached timber structure with thatched roof added to the complex. The recreation building has a timber frame with corrugated iron cladding and wooden sash windows and wooden door frames.

Figure 111 – General views of Building Type 70.

Building Type 71

Buildings: Work Areas, Workshops, Bathrooms and Ablutions

One example of this building type was identified within the study area. The building type consists of two single storey buildings adjacent to each other that were used as workshops and ablutions. One of the buildings has a timber frame with corrugated iron sheeting and roof. This building also has steel frame windows and doors.

Figure 112 – General views of Building Type 71.

Building Type 72

Buildings: Offices and Vehicle Service Centre

One example of this building type was identified within the study area. It comprises an original single story building that was used as offices as well as a later extension which is a double volume with open sides to allow vehicles to enter and park. The original building has plastered brick walls with a sheet iron gable roof. It has steel frame windows and doors. The later extension is a steel frame construction with sheets.

Figure 113 – General views of Building Type 72.

Building Type 73

Buildings: Vehicle Service Centre

One example of this building type was identified within the study area. It comprises a double volume steel framed structure with sheet iron roof and open sides.

Figure 114 – General views of Building Type 73.

Building Type 74

Buildings: Workshop

One example of this building type was identified within the study area. The original building is of corrugated iron sheeting with a large extension added at the back of the building. This extension was constructed with yellowish face bricks and has steel frame windows and doors.

Figure 115 – General views of Building Type 74.

Building Type 75

Buildings: Car Ports

One example of this building type was identified within the study area. It comprises a single storey building erected and used as car ports. The structure is only painted on the outside. A number of designated parking signs were identified within the car port at the time of the fieldwork. These designated which parking was reserved for which person including the 'Foreman Fitter', 'Mechanical Engineer', 'Electrical Engineer', 'Chief Draughtsman', 'Engineer's Clerk', 'Foreman Electrician', 'Foreman Boiler Shop', 'Foreman Carpenter' and 'Foreman Fitter'. It is therefore evident that the senior staff of the warehouse complex used this car port as parking space.

Figure 116 – General views of Building Type 75.

Building Type 76

Buildings: Work Areas and Workshops

This building type comprises a double volume building complex used as workshops. Some sections of the building do not form part of the original design and built complex. The building was erected with yellowish-brown face bricks and has steel frame windows and doors. The greatest part of this complex was part of the original mining building complex as reflected in the timber frame structures covered with corrugated iron sheeting.

Figure 117 – General views of Building Type 76.

Building Type 77

Buildings: Transport Node and Garage

The building type comprises semi- open carports. It does not form part of the original design of the complex. The building was constructed with orange brownish face bricks.

Figure 118 – General views of Building Type 77.

Building Type 78

Buildings: Offices and Workshop

The building type comprises a single storey flat roofed building that was constructed with corrugated iron sheeting. The building has steel frame doors. It was not part of the original design of the warehouse complex.

Figure 119 – General view of the front façade of Building Type 78.

Building Type 79

Buildings: Locomotive Node and Loading Area

Figure 120 – General views of Building Type 79.

Building Type 80

Buildings: Loading Bay and Parking

The building type comprises a single storey building used as a loading area. The building does not form part of the original design of the complex. The base of the building was constructed of cement bricks that were painted whereas the remainder of the building comprises a steel frame with IBR galvanized sheeting.

Figure 121 – General view of Building Type 80.

Building Type 81

Buildings: Service Centre and Work Areas

The building type comprises a double volume structure that was used as a workshop. The building formed part of the original design of the built complex within which it is located. It has steel frame windows and doors.

Figure 122 – General views of Building Type 81.

Building Type 82

Buildings: Workshop with Access for Rail Trollies

The building type comprises a single storey building that was used as a workshop. The building was not part of the original design but represents a later addition which still formed part of the built complex. It has a steel frame covered with IBR sheet iron and has steel frame windows and doors.

Figure 123 – General views of Building Type 82.

Building Type 83

Buildings: Offices and Administration Centre

The building type comprises a single storey cluster of buildings that was used as offices and an administration complex. This building type formed part of the original design of the overall built complex within which it is located. The building was constructed with reddish face bricks and has steel frame windows and doors. Some sections of the building cluster had burnt down and had been extensively vandalized.

Figure 124 – General views of Building Type 83.

Building Type 84

Buildings: Dwelling with Outbuildings

The building type comprises a single storey dwelling that was still used as a dwelling at the time of the site visit. The building has plastered brick walls constructed on a stone foundation and has a corrugated iron roof. It has a gable with covered verandah on one façade. Two examples of this building type exist within the study area.

Figure 125 – General views of Building Type 84.

Building Type 85

Buildings: Dwelling with Outbuildings

The building type comprises a single storey dwelling that was still used as a dwelling at the time of the site visit. The building has plastered brick walls and a corrugated iron roof. The building has a double gable and covered verandah on one façade.

Figure 126 – General views of Building Type 85.

Building Type 86

Buildings: Workshop and Storage Area

This building type comprises a double volume building complex used as workshops and storage areas. The building forms part of the original complex of shed and warehouses located north of the DRD Offices. The building has a timber superstructure clad with corrugated iron sheeting. The structure has steel frame windows and doors. The building does not have ornamental or decorative features.

Figure 127 – Exterior and interior views of Building Type 86.

6.1.2 Respective Ages of Buildings located within Study Area

In the table below an overview is given of the relative ages of the various building types as revealed through a study of five historical aerial photographs. The aerial photographs used in this study comprise the following:

- 1938 Aerial Photograph (80 years old)
- 1941 Aerial Photograph (77 years old)
- 1952 Aerial Photograph (66 years old)
- 1991 Aerial Photograph (27 years old)

Whenever a building type appears on one of these aerial photographs, the corresponding block is marked in blue. If the building does not appear on the particular photograph, the block remains white. Furthermore, if it proves impossible to identify the building on a particular aerial photograph either due to vegetation cover, low resolution or lack of coverage, the corresponding block remains white with a hyphen in it. If only a section of a building is shown on an aerial photograph, the corresponding block is marked in blue with the word “Partially” in it. Lastly, if a building is depicted on the aerial photograph but it is not clear whether it represents the same building (or portion of the building) looked at, the corresponding block is marked blue and the word “Possibly” appears in it.

The building numbers used here are the same as the ones identified in the field and used in the report. In cases where no building number is known, the abbreviation of the building name used in the report is provided here. For example, in the report the building’s name is Main Office Building it would be depicted here as MOB and is the building is known as the Recreation Hall in the report it is referred to here as REH and so forth.

The second column of the table refers to the building type number given to each group of buildings that are the same. It is therefore obvious that different buildings will have the same building type number.

Building Number	Building Type	≥ 27 years	≥ 66 years	≥ 77 years	≥ 80 years
DRD SEB	8	-	-	-	-
DRD LEB 1	14	-	-	-	-
DRD CS 1	15				
DRD CS 2	16				
DRD GMR	28				
DRD BCH	29	Possibly	Possibly	Possibly	Possibly
DRD GCH	30				
DRD CID	33				
DRD MOB	38			Partially	Partially
DRD SUO	39			Partially	Partially
DRD SEO	40				
DRD TEO 1	41			Partially	Partially
DRD TEO 2	42				
DRD CPO	43				
DRD STP	44				
DRD RUI	45				
DRD REH	46				
DRD ASB	47				
DRD COMP 1	48				
DRD LEB 2	14	-	-	-	-
DRD COMP2 C1	49				
DRD COMP2 C2	50				
DRD COMP2 C3	51				
DRD COMP2 C4	52				

DRD EAH	53				
DRD COO	54				
DRD ESS	55				
DRD COMP3 C1	57			-	Partially
DRD COMP3 C2	58			-	
DRD COMP3 C3	59			-	
DRD COMP3 C4	60			-	
DRD COMP3 C5	61			-	
DRD COMP3 C6	62			-	
DRD COMP3 C7	63			-	
DRD COMP3 C8	64			-	
DRD10	32				
DRD21	36				
DRD22	36				
DRD25	36				
DRD26	36				
DRD27	36				
DRD30	37				
DRD31	35				
DRD32	34				
DRD34	34				
DRD35	34				
DRD37	34				
DRD38	5				
DRD38b	31				

DRD54	6				
DRD55	1				
DRD56	7				
DRD57	7				
DRD59	27				
DRD60	27				
DRD61	27				
DRD62	27				
DRD63	27				
DRD64	27				
DRD65	18				
DRD66	3				
DRD67	3				
DRD68	3				
DRD69	3				
DRD70	3				
DRD71	3				
DRD72	3				
DRD74	3			-	-
DRD75	3			-	-
DRD76	3			-	-
DRD78	3			-	-
DRD79	3			-	-
DRD80	3			-	-
DRD81	3			-	-

DRD82	3				-
DRD83	3				-
DRD84	3				-
DRD85	3				-
DRD86	3				
DRD87	3				
DRD88	3				
DRD89	3				
DRD91	3				
DRD92	3				
DRD93	3				
DRD94	3				
DRD96	3				-
DRD97	3				-
DRD99	3				-
DRD100	3			-	-
DRD101	3			-	-
DRD106	3			-	-
DRD107	3			-	-
DRD108	3			-	-
DRD109	3			-	-
DRD111	1	-	-	-	-
DRD112	1	-	-	-	-
DRD113	1	-	-	-	-
DRD114	1	-	-	-	-

DRD115	2	-	-	-	-
DRD116	2	-	-	-	-
DRD117	1	-	-	-	-
DRD118	1	-	-	-	-
DRD119	1	-	-	-	-
DRD120	1	-	-	-	-
DRD121	1	-	-	-	-
DRD122	2	-	-	-	-
DRD123	2			-	-
DRD124	1	-	-	-	-
DRD124b	1	-	-	-	-
DRD125	1	-	-	-	-
DRD126a	1	-	-	-	-
DRD127	1	-	-	-	-
DRD127a	4			-	-
DRD127b	5			-	-
DRD128	1				
DRD129	1				
DRD130	1				
DRD131	25				
DRD132	25				
DRD133	25				
DRD134	26				
DRD135	26				
DRD136	26				

DRD137	26				
DRD138	19				
DRD139	19				
DRD140	19				
DRD141	19				
DRD142	19				
DRD143	19				
DRD144	19				
DRD145	19				
DRD146	17				
DRD147	17				
DRD148	18				
DRD149	18				
DRD150	18				
DRD151	18				
DRD152	17				
DRD153	17				
DRD154	17				
DRD155	13				
DRD156	13				
DRD157	13				
DRD157a	12				
DRD157b	12				
DRD229	20				
DRD230	4				

DRD230	4				
DRD231	21				
DRD232	5				
DRD233	22				
DRD234	24				
DRD235	21				
DRD236	22				
DRD237	20				
DRD238	20				
DRD239	22				
DRD240	21				
DRD241	21				
DRD242	23				
DRD244	20				
DRD245	9				
DRD246	9				
DRD247	9				
DRD248	9				
DRD249	9				
DRD250	9				
DRD251	9				
DRD252	9				
DRD253	10				
DRD254	10				
DRD DWG	68				

DRD BLS	69				
DRD RRL	70	Partially	Partially		
DRD WBA	71				
DRD OVS	72		Partially		
DRD VSC	73				
DRD WSP	74	Partially	Partially		
DRD CPS	75				
DRD WAW	76		Partially	Partially	Partially
DRD TNG	77				
DRD OFW	78				
DRD LNL	79				
DRD LBP	80				
DRD SCW	81				Partially
DRD WAR	82				
DRD OAC	83				
DRD DWO	84				
DRD DWO	85				
DRD WSA	86				

6.1.3 Condition of Buildings located within Study Area

6.1.3.1 Introduction

On Monday, 20 October 2014, notification was received from the project environmental consultant, Mr. Nico Botha of Singisa Environmental, indicating that during a recent site visit by the project team it was found that wide-scale and extensive vandalism had occurred to the buildings located within the study area. In response to this notification, a site visit was undertaken on Tuesday, 28 October 2014 by a team comprising Mr. Polke Birkholtz of PGS Heritage and the project architectural historian Mr. Mauritz Naudé.

The observations made during this site visit will be presented below. Please note that these observations represent the status of the study area and buildings from within the study area as observed during the site visit. The observations made during this site visit were presented to the client in writing on Wednesday, 10 December 2014. Required recommendations to mitigate the impact of vandalism were provided to the client in writing on the same day. This letter is attached to this report as Appendix D. It is not known whether these recommendations were undertaken.

For the purposes of this report, the client was also requested to provide a detailed report on the vandalism of the buildings and measures that were taken to stop the vandalism. This report can be seen in Appendix E.

6.1.3.2 Findings of the Site Visit of 28 October 2014 in terms of the Buildings earmarked for Preservation

In this section the findings of the site visit of Tuesday, 28 October 2014 in terms of the buildings earmarked for preservation within the proposed development will be made. These buildings earmarked for preservation within the proposed development came as a result of a long process of consultation with the clients. A short timeline of this process resulting in the earmarking of buildings for preservation within the proposed development will be provided below.

- PGS Heritage was originally commissioned to conduct a Heritage Impact Assessment for the proposed development of Goudrand Extension 4 situated on Portions of the Remainder of Portions 1 and 5 of the farm Roodepoort 237 IQ, Gauteng Province.

- A Draft Heritage Impact Assessment for this northern end of the proposed development had been compiled and submitted to the clients in November 2011. This report divided the mine village into 13 precincts and identified a total of 67 individual building types. The report also provided the relative ages of each individual building from within the study area by using available historical aerial imagery. During the subsequent two years a number of meetings took place between representatives of PGS Heritage and

the developers. The aim of these meetings was to find a way for the proposed development to continue without destroying the significant built heritage features identified during the original fieldwork. The meetings were also used to communicate the general responsibilities of the developers in the future conservation of the identified heritage buildings as well as the provision of general requirements on the way forward in dealing with all the buildings from within the study area that was believed to be older than 60 years. The end result of all these meetings was a compilation of a development layout plan that became available in September 2014. This development layout plan included the demarcation of a number of buildings and sites from within the study area that had to be preserved and included in the proposed development.

- As a result of the process of meetings with the client, a total of nine areas were identified for preservation within the proposed development. In some cases, these nine areas comprised single buildings whereas others consisted of a cluster of buildings. These nine areas were numbered from DRD1 – 2013 to DRD9 - 2013.

- During the latter part of 2013, PGS Heritage was appointed to also include Portion 404 of the same farm Roodepoort 237 IQ within the heritage assessment. As a result of this additional fieldwork, a tenth area was earmarked for preservation within the proposed development, namely DRD10 – 2013.

In the section that follows, the observations and findings made in terms of the site visit of Tuesday, 28 October 2014 with regard to these 10 areas earmarked for preservation within the proposed development will be provided. The discussion of each area will be divided in a general description of the buildings from that area as identified during the fieldwork undertaken between 2011 and 2013. The second component of the discussion of each area will focus on the observations made during the site visit of Tuesday, 28 October 2014. Photographs of the relevant areas will also be included in cases where vandalism and disturbance have occurred, illustrating the condition of the building(s) as witnessed during the initial fieldwork followed by a depiction of the building(s) which had been impacted upon. These photographs are presented here to illustrate the disturbance and destruction which had taken place.

In the following section general observations with regard to the remainder of the study area will be made.

DRD 1-2013 (Building Type 55)

Initial Description:

The site comprises a cluster of buildings representing an old Electrical Substation that was identified in the Draft

Heritage Impact Assessment Report as Building Type 55. The report indicates that the age of this building is ≥ 74 years. The initial report describes the building type as follows:

"*One example of this building type is located within the entire study area. It consists of a tall red face brick building that was used as an electrical substation. Insulators are still visible along the front facade of the building. The insulators are grouped into clusters of three, each cluster located in front of three small openings. The electrical supply line led from the building through the opening, passing the insulator and out towards the required transmission line. The area to be served by a cluster of three lines is indicated in white lettering on a dark strip of concrete directly above the openings".*

Status at time of Site Visit:

During the site visit of 28 October 2014, it was found that all the buildings from the site had been vandalized to such an extent that very little remains.

Figure 128 – General view of the electrical substation included in this report as Building Type 55. This photograph was taken during the fieldwork of December 2013.

Figure 129 – General view of the electrical substation included in this report as Building Type 55. This photograph was taken during the site visit of Tuesday, 28 October 2014.

DRD 2-2013 (Building Types 49-52)

Initial Description:

The site that was earmarked for preservation comprises one of the historic compounds of the Durban Roodepoort Deep Gold Mine. Four building types from this compound are considered to be especially significant, namely Building Types 49 to 52. The Draft Heritage Impact Assessment Report indicated that these building types are all ≥ 74 years and describes them as follows:

"*Building Type 49 forms part of the wider site known for the purposes of this report as Compound 2. It comprises one of the oldest sections of this compound. This building type consists of the original old compound constructed with stone and forming a large rectangle with all the entrances and exits facing towards the inside of the compound. The stone section is the oldest part of the compound and forms an enclosure. This section has a pitched roof with an arched ridge vent along the entire roof. The stone compound is divided into a number of sections following the*

contours and slope of the site. The entire building block comprises rooms that were probably used as black mine worker accommodation".

"*Four examples of Building Type 50 are located within Compound 2. It contains architectural elements of the original stone compound in terms of the roof structure with arched corrugated iron vents but was constructed with plastered brick and are located inside the original stone compound. However, it is wider and the roof and ceilings are higher. Small almost decorative corbelling occurs along the facades. The building is also divided into rooms that were once used to accommodate black mineworkers. The corrugated iron roof on one of the buildings of this type was recently replaced, although the general characteristics of the roof had been retained."*

"One example was located of Building Type 51 within the compound area. It has a saddle roof with verandah extending directly along the gradient of the principal roof. The building is an elongated rectangular one constructed with plastered brick. A monumental buttress (which may have been a chimney stack) is located along the one gable end. The entire building has steel frame windows. Although the building is plastered and painted, English bond brick masonry was exposed in a small area where these have peeled off. One of the facades is covered with a verandah serving as walkway to reach the rooms and a social area facing the open enclosure."

"One example of this building type (Building Type 52) - the fourth one to be identified within the compound area - is located here. It comprises a cluster of four individual buildings associated with the main entrance of the compound. The first of the buildings (not illustrated) is a small rectangular brick structure with a pitched corrugated iron roof which is situated directly inside the entrance. The second building appears to be a dwelling with a pitched corrugated roof and a closed verandah at its eastern facade. The tallest building is located behind this building. The latter building has a pitched corrugated iron roof and plastered brick walls. The fourth component of this cluster type is the entrance itself, which is flanked by two single storey brick buildings. "

Status at time of Site Visit:

During the site visit of 28 October 2014, it was found that the buildings from the site earmarked for preservation were still intact and for the most part in the same state of preservation as was the case when the site was first visited in 2011.

DRD 3-2013 (Building Types 38-40)

Initial Description:

The site comprises a cluster of buildings representing the Offices of the Durban Roodepoort Deep Gold Mine. The cluster of buildings consists of Building Type 38 (the Durban Roodepoort Deep Main Office Building), Building Type 39 (the DRD Survey Offices) and Building Type 40 (DRD Secondary Offices). The age of at least sections of all three these buildings is ≥ 74 years. The report describes these three building types as follows:

"One example of Building Type 38 is located within this precinct and indeed within the study area. It has a T-shaped floor plan and is constructed with red face brick. The building has a combination of a hipped and saddle corrugated roof with six chimneys. The steel frame windows are covered by steel burglar proofing. The front entrance has a tiny roof of concrete and teak front door crowned by the acronym "DRD" above the entrance. The interior reflects the characteristics of a typical mine office of this period. The building has a long staggered passage in order to serve all the offices and supporting rooms. Each of the larger offices has a fireplace while some offices are still furnished with desks, chairs and cupboards. The building also contains supporting rooms such as a reception area, bathrooms, a boardroom and an underground cellar where records and the archives were kept. Of special significance are the various types of brass doorknobs still intact in the building. "

"Building Type 39 was used as offices by the survey department of the mine. It is the only one of its kind in the study area. The building has a long rectangular floor plan constructed with red face bricks with a broken hipped corrugated roof with ventilator openings at the end of the ridging and five air turrets arranged along the ridging. Large sash windows are arranged intermittently with red brick buttresses (set of two windows between each buttress). A single concrete lintel serves all the windows and doors."

"One example of Building Type 40 is located within Precinct 10 and the entire study area. It has an elongated rectangular floor plan constructed with red face brick and a saddle corrugated iron roof. The roof along the entire front façade extends to form a verandah roof over what must have served as an exterior passageway linking all the offices. Large wooden sash windows with concrete lintels occur along both facades. The northern end of the building is clad with corrugated iron sheets."

Status at time of Site Visit:

During the site visit of 28 October 2014, it was found that all three these buildings were still intact and for the most part in the same state of preservation as was the case when the site was first visited in 2011.

DRD 4-2013 (Building Types 34)

Initial Description:

The site comprises a cluster of two examples of the same Building Type (Building Type 34). The building type represents a dwelling that is at least 74 years old. The Draft Heritage Impact Assessment Report describes the building type as follows:

"Four examples of this building type are located within the precinct. It consists of a rectangular floor plan and was constructed with face bricks. The dwelling has a hipped corrugated iron roof with two chimneys whereas industrial steel-framed windows are covered with large concrete lintels. The front facade is characterised by a verandah with one section closed-off with steel frame windows to form another room. Both the verandah and additional room were later added as their architectural vocabulary and building materials are different from the original core dwelling. Some outbuildings are associated with the dwelling."

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that both buildings are still intact and for the most part in the same state of preservation as was the case when the site was first visited in 2011.

DRD 5-2013 (Building Types 28)

Initial Description:

The site comprises a cluster of buildings, at the centre of which is the original General Manager's Residence (Building Type 28). The building type represents a unique dwelling (with associated structures) that is at least 74 years old. The Draft Heritage Impact Assessment Report describes the building type as follows:

"One very large building dominates Precinct 8. It comprises an irregular-shaped structure which incorporates a multitude of rooms. The building is locally known as the "General Manager's Residence" suggesting that it was the residence of the mine manager before the face brick buildings in Precinct 3 were constructed. The building is large enough to accommodate other purposes than residential function during the early days of the mine and as a result may have been used as mine offices as well. The building has a stone foundation and corrugated iron roof. The existing windows have steel frames but they may have replaced earlier wooden frame windows types. The front facade is balanced by two gabled wings with a covered verandah in the centre and protruding covered pedestrian portico in front of the front door. The building has wooden floors, contains several large fire places, some flanked by wooden shelving and built-in cupboards. One fireplace located at the north- western corner of the building is quite monumental in scale and constructed with red face bricks and tiles (probably a catalogue hearth from the J.J.

Kirkness brickyards in Pretoria). It is flanked and partially enclosed by a solid wooden cupboards and shelves on both sides.

The building is set in the centre of a large landscaped garden. While many of the original elements have disappeared, stone terracing, a swimming pool, the remains of a tennis court and an outside patio provide a glimpse into the seniority of the site and its residents.

Directly south-west of the building a corrugated iron garage is located, with another one further to the south-west. Both these structures still contain the original intricate folding door systems. A more recent less inspiring rectangular block on the southern end of the building must have functioned as domestic servant quarters."

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that the building has been extensively vandalized with only sections of the walls still remaining. The driveway and parking area in front of the building had also been ripped apart by illegal gold miners. The building is in a very poor condition.

Figure 130 – General view of the General Manager's Residence included in this report as Building Type 28. This photograph was taken during the fieldwork of 2011.

Figure 131 – General view of the General Manager's Residence included in this report as Building Type 28. This photograph was taken during the site visit of Tuesday, 28 October 2014.

DRD 6-2013 (Building Types 9 & 10)

Initial Description:

The site comprises a row of six dwellings comprising four examples of Building Type 9 and two examples of Building Type 10. The Draft Heritage Impact Assessment Report describes the two building types as follows:

"Five examples of Building Type 9 were located within Precinct 2. It comprises an L-shaped floor plan with a saddle corrugated iron roof. Some of the dwellings of this type were constructed with face brick while others were plastered and painted. A rectangular structure located directly south-west of the dwelling includes a single garage and room for domestic staff. An L-shaped wall leads from the one side of the front gable to the front right corner of the garage,

creating a small courtyard towards the back door. The windows of all the buildings are steel-framed. The exceptional elements of the dwellings interiors are the fireplaces and parquet floors."

"Three examples of Building Type 10 were identified within Precinct 2. Although the general character and orientation of the building is very similar to Building Type 9, there are some differences. The two most obvious differences are the rectangular floor plan covered with a hipped roof (not pitched) and without another room with gable protruding along the front facade. The rest of the dwelling (and its outbuildings) appear very similar. This building also has steel frame windows. The outbuilding consists of a single garage and room for a domestic worker."

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that all six the buildings are still intact and for the most part in the same state of preservation as was the case when the site was first visited in 2011.

DRD 7-2013 (Building Types 19, 25, 26 & 27)

Initial Description:

The site comprises a cluster of buildings associated with Cemetery Road and comprises the only example of Building Type 27 (Precinct 6), two examples of Building Type 19 (Precinct 4) as well as three examples of Building Type 25 and three examples of Building Type 26 (both from Precinct 5). The report describes these building types as follows:

"Only one example of Building Type 27 was found within the entire study area and it is the only building located in Precinct 6. It consists of a large single storey complex containing several dwelling units under a single roof. The complex has a corrugated iron saddle roof with a lean-to verandah section along the entire length of the front facade. The entire verandah used to be a semi-open space but was later closed-off. An exceptional element and detail of the building are the use of face bricks along the façade mimicking the various methods bricks can be laid and perhaps mimicking folk patterns of brick masonry (bricks were laid vertically horizontally and diagonally). Each of the dwelling units has its own brick chimney and enclosure or courtyard at the back. The courtyard is defined by plastered and face brick outbuildings serving as rooms for domestic workers and as outdoor toilets. The more recent windows along the façade where the stoeps were closed-off are of steel whilst the windows of the original exterior walls are wooden sash ones."

"Eight examples of Building Type 19 were identified within the study area. The building type has an irregular L-shape plan with rooms protruding along the front facade. It is constructed with face brick at the bottom to window lintel

height with a hipped corrugated iron roof. A prominent feature is the yellow brick chimney located at the one end of the dwelling. An open enclosure links the dwelling with the outbuildings at the back. The enclosed area is defined by a number of structures including the dwelling, staff quarters, washing/ironing rooms and a covered garage."

"Three examples of Building Type 25 are located within this precinct. The building type has an open V-shape floor plan (rectangular floor plan with a slight angle in the centre – almost like a bent rectangle). These buildings are entirely constructed with yellow face bricks and have a hipped corrugated iron roof with a chimney to one side. The structure is dominated by the extensive concrete lintels above both windows and doors."

"Four examples of Building Type 26 are located within this precinct and are arranged into a crescent. The floor plan is L-shaped with a prominent protruding section along the front façade containing three large symmetrically arranged steel-frame windows. The entire façade is subdivided into two sections, one half consisting of the protruding rooms and the other set back containing the remainder of the bedrooms. The dwelling and prominent chimney are constructed with yellow face bricks and the hipped roof is of corrugated iron. The outbuilding consists of a single garage with a room for a domestic worker.

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that Building Type 27 had been extensively vandalized with only sections of the walling still intact. All examples of Building Type 19 had similarly been extensively vandalized. Furthermore, three of the four examples of Building Type 26 had also been extensively vandalized. The only buildings still in the same state of preservation as what was observed during 2011 are the three examples of Building Type 25 as well as one example of Building Type 26.

Figure 132 – General view of Building Type 27 as seen during the fieldwork of 2011.

Figure 133 – General view of Building Type 27 as seen during the site visit of Tuesday, 28 October 2014.

DRD 8-2013 (Building Type 3)

Initial Description:

The site comprises a cluster of three buildings consisting of six dwellings. All three these buildings are examples of Building Type 3. The Draft Heritage Impact Assessment Report describes this building type as follows:

"Building Type 3 comprises rectangular semi-detached buildings, each of which contains two individual dwellings. 13 complete buildings of this type are located north of Main Reef Road, with three complete buildings located south of the road. Three semi-demolished buildings comprising one remaining half of this building type are located north of the road and one to the south of it. The building is a rectangular, plastered, brick building divided in the middle into two separate dwellings. The window frames are of steel, with concrete lintels. Some entrances have ornamental arched brickwork. The roofs are of corrugated iron with open ventilated ridging. Of exceptional significance is the occurrence of Kirkness brick fireplaces."

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that all three the buildings are still intact and for the most part in the same state of preservation as was the case when the site was first visited in 2011.

DRD 9-2013 (Building Type 17)

Initial Description:

The site comprises two examples of Building Type 17 of which five examples were identified within the study area. The Draft Heritage Impact Assessment Report describes this building type as follows:

"Building Type 17 comprises a large double-storey face brick dwelling with a corrugated iron roof. The building was originally L-shaped and at a later stage another section containing an upper-storey en-suite bathroom was added giving the building a Z-shape. The front facade is dominated by the curved protruding wing with large steel frame windows on both floors. The main bedroom (upper floor) and living space (ground floor) were located here to utilise the light and to enjoy the views towards the landscaped garden. The building has four bedrooms, one en-suite toilet-bathroom, another separate toilet and another separate room with a bath. The lower level has a study, open living room-dining room (with covered porch to the front) with a large kitchen in the back. The building is located on a large property that includes a number of other buildings and features such as a closed garage, patio, tennis court and swimming pool. It is evident from the size and layout of the house and stand that these buildings were used to accommodate senior staff members of the mine, including possibly the Mine Manager, the Surface Manager, the Underground Manager and Chief Surveyor."

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that both examples of this building type were vandalized to such an extent that only sections of the walling have remained. The same holds true for the remaining three examples of this building type.

As a result, no intact examples of this building type still remain within the study area.

Figure 134 – General view of one of the examples of Building Type 17 as seen during the fieldwork of 2011.

Figure 135 – General view of one of the examples of Building Type 17 as seen during the site visit of Tuesday, 28 October 2014.

DRD 10-2013 (Building Types 68, 69, 70 & 71))

Initial Description:

The site comprises three dwellings (one example each of Building Type 68, Building Type 69 and Building Type 70) as well as an old Boiler Shop (Building Type 71) that are all earmarked for preservation. These building types can be described as follows:

"Building Type 68 comprises a single storey dwelling that is still used for this purpose today. The building forms part of the original design and was built around 1930. It has plastered brick walls with exposed brick quoining around corners, windows and doors combined with planes of painted plastered brick. The building also has wooden frame windows and doors. Decorative features include arts and crafts brick work, decorative plastering and paintwork along the shafts of the chimneys. Also patterned and etched glass panes in the French doors along the verandahs."

"*One example of Building Type 69 is located within the precinct. It comprises a square brick building with a hipped roof along its centre and with a protruding room along the front façade with a pitched roof. The protruding room is on the eastern end of the building. The porch was originally an open covered porch, but at a more recent time it had been closed with steel frame windows. The floor plan includes an L-shaped verandah which was later closed-off with steel frame windows. A number of detached outbuildings are associated with the dwelling."*

"*One example of Building Type 70 is located within the precinct. It comprises a square brick building with a hipped roof along its centre and with a protruding room along the front façade with a pitched roof. The protruding room is on the western end of the building. The porch was originally an open covered porch, but at a more recent time it had been closed with steel frame windows. The floor plan includes an L-shaped verandah which was later closed-off with steel frame windows. A number of detached outbuildings are associated with the dwelling."*

"Building Type 71 is a double storey shed and formed part of the original design and built complex. It has a unique and exceptional iron superstructure (iron and timber combined superstructure clad with corrugated iron sheeting). The building has steel frame windows and doors with no ornament and decorative features. A large extension at the back of the building obscures the side elevation of the original structure."

Status at the time of Site Visit:

During the site visit of 28 October 2014, it was found that all four the buildings from this site earmarked for preservation are still in almost the same condition than what was the case when these buildings were first identified in December 2013.

6.1.3.3 General Observations made during the Site Visit of 28 October 2014

The site visit has shown that significant components of the old Durban Roodepoort Deep mine village had been vandalized, destroyed or demolished. Not only was this evident with regard to buildings originally earmarked for conservation, but also on almost all built aspects of the entire historic mine village. The evident impact is severe and of a very serious nature. According to the clients their security was unable to stop the wanton destruction and vandalism from taking place within the study area. The clients indicated that it proved impossible for them to protect any of these buildings due to the socio-economic conditions of the study area. The study area is characterized by wide-scale illegal gold mining activities as well as related criminal activities.

The table below provides a summary of the observations made with regard to the sites earmarked for conservation during the site visit undertaken on Tuesday, 28 October 2014.

Site Number	Number of Buildings	Still Preserved	Vandalised/Destroyed	% Vandalised/Destroyed
DRD1-2013	2	0	2	100%
DRD2-2013	7	7	0	0%
DRD3-2013	3	3	0	0%
DRD4-2013	2	2	0	0%
DRD5-2013	3	0	3	100%
DRD6-2013	6	6	0	0%
DRD7-2013	9	4	5	55.6%
DRD8-2013	3	3	0	0%
DRD9-2013	2	0	2	100%
DRD10-2013	4	4	0	0%
TOTALS	41	29	10	35.6%

From this table it is evident that 35.6% of the buildings that were earmarked for preservation were in fact extensively vandalized and/or destroyed. In other words, of the 49 buildings earmarked for preservation, 10 were extensively vandalized and/or destroyed in the period between 2011 and 28 October 2014. It is therefore clear that a significant percentage of the buildings that were identified as good examples of the building types from within the old Durban Roodepoort Deep Mine Village, have since been irrecoverably vandalized and/or demolished.

However, the severity of the impact was not only observed on the buildings and sites earmarked for conservation, but can also be seen in almost all sections of the historic mine village. The table below provides an opportunity to compare the number of buildings identified within the old mine village during 2011 with the number of buildings located there today. The information contained in this table is based on the site visit undertaken on 28 October 2014 (the focus of which was on the sites and buildings identified for preservation) as well as the most recent Google Earth aerial image that was taken on 4 September 2014. Please note that Precincts 12 to 14 are located outside of the present study area.

Precinct	Number of Buildings	Still Preserved	Vandalised/Destroyed	% Vandalised/Destroyed
Precinct 1	47	41	6	12.8%
Precinct 2	18	11	7	38.9%
Precinct 3	5	0	5	100%
Precinct 4	12	0	12	100%
Precinct 5	23	18	5	21.7%
Precinct 6	1	0	1	100%
Precinct 7	3	0	3	100%
Precinct 8	2	1	1	50%
Precinct 9	13	13	0	0%
Precinct 10	17	13	4	23.5%
Precinct 11	11	9	2	18.2%
Precinct 15	30	10	20	66.7%
TOTALS	182	116	66	36.3%

It is quite evident from this table that the period between 2011 and 2014 represented a similarly severe and significant impact on all the buildings from within the old mine village, with 36.3% of the buildings located within this area in 2011 now severely vandalized and/or demolished. The severity of this impact on the site can also be seen when one focuses down on the individual building types. The table below provides a comparison on this level between 2011 and 2014. It is evident that of the individual building types identified within the old mine village, 31 are completely vandalized and/or demolished. This means that no examples for 31 of the 78 identified building types can be found within the study area. This equates to a significant 39.7% of the total number of identified building types for which no further examples can be found within the old mine village.

Building Type	Number of Buildings	Still Preserved	Vandalised/Destroyed	% Vandalised/Destroyed
Building Type 1	18	16	2	11.1%
Building Type 2	4	2	2	50%
Building Type 3	20	0	0	0%
Building Type 4	2	2	0	0%
Building Type 5	3	3	0	0%
Building Type 6	1	1	0	0%
Building Type 7	1	0	1	100%
Building Type 8	1	1	0	0%
Building Type 9	5	5	0	0%
Building Type 10	3	3	0	0%
Building Type 11	2	2	0	0%
Building Type 12	2	1	1	50%
Building Type 13	3	0	3	100%
Building Type 14	2	0	2	100%
Building Type 15	1	0	1	100%
Building Type 16	1	0	1	100%
Building Type 17	5	0	5	100%
Building Type 18	5	1	4	80%
Building Type 19	8	0	8	100%
Building Type 20	4	3	1	25%
Building Type 21	4	1	3	75%
Building Type 22	3	3	0	0%
Building Type 23	1	1	0	0%

Building Type 24	1	1	0	0%
Building Type 25	3	3	0	0%
Building Type 26	4	1	3	75%
Building Type 27	1	0	1	100%
Building Type 28	3	0	3	100%
Building Type 29	1	1	0	0%
Building Type 30	1	1	0	0%
Building Type 31	1	1	0	0%
Building Type 32	1	1	0	0%
Building Type 33	1	1	0	0%
Building Type 34	4	4	0	0%
Building Type 35	1	1	0	0%
Building Type 36	3	3	0	18.2%
Building Type 37	1	1	0	0%
Building Type 38	1	1	0	0%
Building Type 39	1	1	0	0%
Building Type 40	1	1	0	0%
Building Type 41	1	1	0	0%
Building Type 42	1	1	0	0%
Building Type 43	1	1	0	0%
Building Type 44	1	0	1	100%
Building Type 45	1	0	1	100%
Building Type 46	1	1	0	0%
Building Type 47	1	0	1	100%
Building Type 48	6	6	0	0%
Building Type 49	1	1	0	0%
Building Type 50	4	4	0	0%
Building Type 51	1	1	0	0%
Building Type 52	1	1	0	0%
Building Type 53	1	1	0	0%
Building Type 54	1	1	0	0%
Building Type 55	2	0	2	100%
Building Type 68	2	2	0	0%
Building Type 69	3	3	0	0%
Building Type 70	1	1	0	0%
Building Type 71	3	3	0	0%
Building Type 72	1	0	1	100%
Building Type 73	1	0	1	100%
Building Type 74	1	0	1	100%
Building Type 75	1	0	1	100%
Building Type 76	1	0	1	100%
Building Type 77	1	0	1	100%
Building Type 78	1	0	1	100%
Building Type 79	1	0	1	100%
Building Type 80	1	0	1	100%
Building Type 81	1	0	1	100%
Building Type 82	1	0	1	100%
Building Type 83	1	0	1	100%
Building Type 84	1	0	1	100%
Building Type 73	1	0	1	100%
Building Type 74	1	0	1	100%
Building Type 75	1	0	1	100%

Building Type 76	1	0	1	100%
Building Type 77	1	0	1	100%
Building Type 78	1	0	1	100%
Building Type 79	1	0	1	100%
Building Type 80	1	0	1	100%
Building Type 81	1	0	1	100%
Building Type 82	1	0	1	100%
Building Type 83	1	0	1	100%
Building Type 84	1	0	1	100%
Building Type 85	1	1	0	0%
Building Type 86	1	0	1	100%
Building Type 87	1	0	1	100%
Building Type 88	1	0	1	100%
Building Type 89	1	0	1	100%
Building Type 90	1	0	1	100%
Building Type 91	1	0	1	100%

6.1.4 Inventory of Built Heritage Sites still found within the Study Area

6.1.4.1 Introduction

In this section an inventory will be provided of the buildings that are still located within the study area. This inventory takes cognizance of the original inventory presented in Section 6.1.1, and using the information relating to the deterioration, demolition and vandalism which characterised the study area during the period between 2012 and 2014, a final inventory of buildings currently located within the study area will be presented.

6.1.4.2 Inventory of Built Heritage Sites

The table below provides an inventory of the built heritage sites still located within the study area. Distribution maps for these built heritage sites are included after the table.

Building Number	Building Type	Coordinates	Approximate Age	Proposed Action
DRD SEB	8	S 26.171971 E 27.876168	Not known	Demolition
DRD BCH	29	S 26.171694 E 27.866634	Possibly older than 60 years	Demolition
DRD GCH	30	S 26.173953 E 27.867521	Younger than 60 years	Demolition

DRD CID	33	S 26.173716 E 27.862741	Older than 60 years, possibly older than 100 years	Preservation
DRD MOB	38	S 26.171426 E 27.862266	Older than 60 years. Components of the building may be older than 100 years as well.	Preservation
DRD SUO	39	S 26.171407 E 27.862907	Older than 60 years. Components of the building may be older than 100 years as well.	Preservation
DRD SEO	40	S 26.171494 E 27.863240	Older than 60 years, possibly older than 100 years	Preservation
DRD TEO 1	41	S 26.171591 E 27.862663	Older than 60 years. Components of the building may be older than 100 years as well.	Demolition
DRD TEO 2	42	S 26.171853 E 27.862492	Older than 60 years, possibly older than 100 years	Demolition
DRD CPO	43	S 26.171832 E 27.862700	Older than 60 years	Demolition
DRD STP	44	S 26.172149 E 27.862366	Older than 60 years, possibly older 100 years	Demolition
DRD REH	46	S 26.171507 E 27.863942	Older than 60 years, possibly older than 100 years	Demolition
DRD COMP 1	48	S 26.173373 E 27.863502	Younger than 60 years	Demolition
DRD COMP2 C1	49	S 26.172390 E 27.857801	Older than 60 years, possibly older than 100 years	Preservation
DRD COMP2 C2	50	S 26.171950 E 27.857376	Older than 60 years, possibly older 100 years	Preservation

DRD COMP2 C3	51	S 26.172181 E 27.857685	Older than 60 years, possibly older than 100 years	Preservation
DRD COMP2 C4	52	S 26.171316 E 27.857744	Older than 60 years, possibly older than 100 years	Preservation
DRD EAH	53	S 26.170874 E 27.857796	Older than 60 years, possibly older than 100 years	Demolition
DRD COO	54	S 26.170871 E 27.858632	Older than 60 years.	Demolition
DRD COMP3 C1	57	S 26.183624 E 27.866847	Older than 60 years.	Demolition
DRD COMP3 C2	58	S 26.183249 E 27.866420	Older than 60 years.	Demolition
DRD COMP3 C3	59	S 26.183570 E 27.866537	Younger than 60 years.	Demolition
DRD COMP3 C4	60	S 26.183225 E 27.866862	Younger than 60 years.	Demolition
DRD COMP3 C5	61	S 26.183256 E 27.866998	Younger than 60 years.	Demolition
DRD COMP3 C6	62	S 26.183282 E 27.867131	Younger than 60 years.	Demolition
DRD COMP3 C7	63	S 26.183508 E 27.866288	Younger than 60 years.	Demolition
DRD COMP3 C8	64	S 26.183086 E 27.866390	Younger than 60 years.	Demolition
DRD10	32	S 26.172314 E 27.864855	Older than 60 years, possibly older than 100 years	Demolition
DRD21	36	S 26.171209 E 27.865767	Older than 60 years, possibly older than 100 years	Demolition

DRD22	36	S 26.171324 E 27.865774	Older than 60 years, possibly older than 100 years	Demolition
DRD25	36	S 26.171595 E 27.865819	Older than 60 years, possibly older than 100 years	Demolition
DRD26	36	S 26.171695 E 27.865826	Older than 60 years, possibly older than 100 years	Demolition
DRD27	36	S 26.171794 E 27.865833	Older than 60 years, possibly older than 100 years	Demolition
DRD30	37	S 26.172078 E 27.865861	Older than 60 years, possibly older than 100 years	Demolition
DRD31	35	S 26.172563 E 27.866904	Older than 60 years.	Demolition
DRD32	34	S 26.173229 E 27.867317	Older than 60 years.	Demolition
DRD34	34	S 26.172865 E 27.866412	Older than 60 years.	Demolition
DRD35	34	S 26.172741 E 27.866117	Older than 60 years.	Preservation
DRD37	34	S 26.172638 E 27.865822	Older than 60 years.	Preservation
DRD38	5	S 26.172420 E 27.864390	Older than 60 years.	Demolition
DRD38b	31	S 26.172933 E 27.864470	Older than 60 years.	Demolition
DRD54	6	S 26.173080 E 27.874066	Older than 60 years.	Demolition
DRD55	1	S 26.173813 E 27.873983	Older than 60 years	Demolition

DRD65	18	S 26.175234 E 27.873672	Older than 60 years	Demolition
DRD66	3	S 26.173459 E 27.874335	Older than 60 years	Preservation
DRD67	3	S 26.173494 E 27.874447	Older than 60 years	Preservation
DRD68	3	S 26.173570 E 27.874638	Older than 60 years	Preservation
DRD69	3	S 26.173614 E 27.874760	Older than 60 years	Preservation
DRD70	3	S 26.173690 E 27.874938	Older than 60 years	Preservation
DRD71	3	S 26.173733 E 27.875066	Older than 60 years	Preservation
DRD72	3	S 26.173811 E 27.875249	Older than 60 years	Demolition
DRD74	3	S 26.173646 E 27.877086	Older than 60 years	Demolition
DRD75	3	S 26.173565 E 27.876974	Older than 60 years	Demolition
DRD76	3	S 26.173463 E 27.876819	Older than 60 years	Demolition
DRD77	3	S 26.173393 E 27.876721	Older than 60 years	Demolition
DRD78	3	S 26.173284 E 27.876566	Older than 60 years	Demolition
DRD79	3	S 26.173214 E 27.876465	Older than 60 years	Demolition
DRD80	3	S 26.173103 E 27.876322	Older than 60 years	Demolition

DRD81	3	S 26.173039 E 27.876224	Older than 60 years	Demolition
DRD82	3	S 26.172845 E 27.875943	Older than 60 years	Demolition
DRD83	3	S 26.172781 E 27.875845	Older than 60 years	Demolition
DRD84	3	S 26.172673 E 27.875694	Older than 60 years	Demolition
DRD85	3	S 26.172611 E 27.875601	Older than 60 years	Demolition
DRD86	3	S 26.172501 E 27.875441	Older than 60 years	Demolition
DRD87	3	S 26.172430 E 27.875338	Older than 60 years	Demolition
DRD88	3	S 26.172319 E 27.875182	Older than 60 years	Demolition
DRD89	3	S 26.172248 E 27.875087	Older than 60 years	Demolition
DRD91	3	S 26.171669 E 27.874933	Older than 60 years	Demolition
DRD92	3	S 26.171776 E 27.875080	Older than 60 years	Demolition
DRD93	3	S 26.171847 E 27.875193	Older than 60 years	Demolition
DRD94	3	S 26.171956 E 27.875342	Older than 60 years	Demolition
DRD96	3	S 26.172123 E 27.875605	Older than 60 years	Demolition
DRD97	3	S 26.172195 E 27.875715	Older than 60 years	Demolition

DRD99	3	S 26.172379 E 27.875958	Older than 60 years	Demolition
DRD100	3	S 26.172485 E 27.876103	Older than 60 years	Demolition
DRD101	3	S 26.172550 E 27.876209	Older than 60 years	Demolition
DRD106	3	S 26.173095 E 27.876977	Older than 60 years	Demolition
DRD107	3	S 26.173162 E 27.877084	Older than 60 years	Demolition
DRD108	3	S 26.173275 E 27.877235	Older than 60 years	Demolition
DRD109	3	S 26.173341 E 27.877333	Older than 60 years	Demolition
DRD111	1	S 26.170885 E 27.874711	Unknown	Demolition
DRD113	1	S 26.171067 E 27.875419	Unknown	Demolition
DRD114	1	S 26.171233 E 27.875648	Unknown	Demolition
DRD115	2	S 26.171402 E 27.875889	Unknown	Demolition
DRD116	2	S 26.171574 E 27.876083	Unknown	Demolition
DRD117	1	S 26.171748 E 27.876355	Unknown	Demolition
DRD118	1	S 26.171920 E 27.876595	Unknown	Demolition
DRD119	1	S 26.172165 E 27.876936	Unknown	Demolition

DRD120	1	S 26.172341 E 27.877214	Unknown	Demolition
DRD121	1	S 26.172501 E 27.877396	Unknown	Demolition
DRD123	2	S 26.172935 E 27.877900	Older than 60 years.	Demolition
DRD124	1	S 26.173250 E 27.878047	Unknown	Demolition
DRD124b	1	S 26.173510 E 27.878166	Unknown	Demolition
DRD125	1	S 26.173753 E 27.878274	Unknown	Demolition
DRD126a	1	S 26.174008 E 27.878392	Unknown	Demolition
DRD127a	4	S 26.173968 E 27.877657	Unknown	Demolition
DRD127b	5	S 26.174133 E 27.877890	Unknown	Demolition
DRD128	1	S 26.174659 E 27.874007	Younger than 60 years.	Demolition
DRD129	1	S 26.174891 E 27.874150	Older than 60 years.	Demolition
DRD130	1	S 26.175137 E 27.874290	Younger than 60 years.	Demolition
DRD131	25	S 26.176114 E 27.873189	Older than 60 years.	Preservation
DRD132	25	S 26.175950 E 27.872945	Older than 60 years.	Preservation
DRD133	25	S 26.175786 E 27.872698	Older than 60 years.	Preservation

DRD136	26	S 26.175407 E 27.871716	Older than 60 years.	Preservation
DRD155	13	S 26.172259 E 27.872275	Older than 60 years.	Demolition
DRD157b	12	S 26.172393 E 27.870291	Younger than 60 years.	Demolition
DRD230	4	S 26.175783 E 27.874059	Younger than 60 years.	Demolition
DRD233	22	S 26.176582 E 27.873886	Younger than 60 years.	Demolition
DRD234	24	S 26.176300 E 27.873544	Younger than 60 years.	Demolition
DRD235	21	S 26.176737 E 27.873612	Younger than 60 years.	Demolition
DRD236	22	S 26.176455 E 27.873212	Younger than 60 years.	Demolition
DRD237	20	S 26.176859 E 27.873216	Younger than 60 years.	Demolition
DRD238	20	S 26.176449 E 27.872887	Younger than 60 years.	Demolition
DRD239	22	S 26.176844 E 27.872918	Younger than 60 years.	Demolition
DRD240	21	S 26.176424 E 27.872647	Younger than 60 years.	Demolition
DRD241	21	S 26.176844 E 27.872603	Younger than 60 years.	Demolition
DRD245	9	S 26.170873 E 27.865387	Younger than 60 years.	Preservation
DRD246	9	S 26.170855 E 27.865648	Younger than 60 years.	Preservation

DRD247	9	S 26.170824 E 27.865874	Younger than 60 years.	Preservation
DRD248	9	S 26.170806 E 27.866118	Younger than 60 years.	Preservation
DRD249	9	S 26.170785 E 27.866368	Younger than 60 years.	Preservation
DRD250	9	S 26.170770 E 27.866599	Younger than 60 years.	Preservation
DRD251	9	S 26.170733 E 27.866836	Younger than 60 years.	Demolition
DRD252	9	S 26.170721 E 27.867093	Younger than 60 years.	Demolition
DRD253	10	S 26.170682 E 27.867411	Younger than 60 years.	Demolition
DRD254	10	S 26.170694 E 27.867750	Younger than 60 years.	Demolition
DRD DWG	68	S 26.169515 E 27.863447	Older than 60 years, possibly older than 100 years	Preservation
DRD BLS	69	S 26.170536 E 27.862242	Older than 60 years, possibly older than 100 years	Preservation
DRD DWO 1a	84	S 26.170144 E 27.863867	Older than 60 years, possibly older than 100 years	Preservation
DRD DWO 1b	84	S 26.169934 E 27.863904	Older than 60 years, possibly older than 100 years	Preservation
DRD DWO 2	85	S 26.169706 E 27.863931	Older than 60 years, possibly older than 100 years	Demolition

6.1.5 Assessment of Significance of the Identified Buildings

Introduction

According to the Burra Charter 'cultural significance' means 'aesthetic, historic, scientific or social value for past, present or future generations'. Cultural significance is a concept which helps in estimating the value of places. These terms and their meaning are not mutually exclusive, for example, architectural style has both historical and aesthetic aspects (Burra Charter, 1999).

The categorization into aesthetic, historic, scientific and social values is one approach to understand the concept of cultural significance (Burra Charter, 1999). However, more precise categories may be used as understanding of a particular place may increase.

For the purposes of this report such categories are used in tandem with the criteria set out by the National Heritage Resources Act.

Significance criteria in terms of Section 3(3) of the National Heritage Resources Act.

	Criteria	***Significance***
1.	***The importance of the cultural heritage in the community or pattern of South Africa's history (Historic and political significance)*** The DRD village can be considered as an entity on its own with the various buildings, structures, infra structural elements, activity areas and planted vegetation combining into a village with its own character and deep layered history associated with gold mining in the region. DRD has been a significant mine in the history of mining on the Witwatersrand. The various patterns of land use and spatial arrangements of buildings and open spaces reflect on a particular period and a specific frame of reference among mining planners and designers.	***Rating*** ***Medium***
2.	***Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage (Scientific significance).*** Due to the closing of the mine and several other gold mines, this period and the villages and architecture associated with these villages are disappearing at a rate that cannot be controlled. Part of this occurrence is the presence of illegal miners who move into the buildings or otherwise demolish the built fabric and sell or reuse the building materials elsewhere without any control by the new landowners. As the buildings were designed and constructed for a particular use unique to the mine and the mine's needs, once the building is demolished without any recording the unique character of these buildings is lost. When housing units were	***Rating*** ***High***

	designed, several types were clustered to form ensembles of dwellings that look the same and had to serve a particular niche in the mining hierarchy. This resulted in different types but more than one building of such a type being constructed at the same time.	
3.	***Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage (Research/scientific significance)*** The history of mining, mining engineering and the architecture of gold mining are intertwined but the preservation of this history and the built fabric is not recorded or preserved, neither the subject of research theses and historical publications. The recording and preservation of this heritage aspect has become a lost chapter in the history of historical architecture and mining architecture in particular.	***Rating*** ***Medium***
4.	***Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects (Scientific significance)*** It is easy to define and categorize a 'class' of South Africa's heritage, cultural places and physical cultural heritage. Mining history stands out among all other clusters of heritage in Gauteng and the entire region north of the Vaal River. The village of DRD and the various engineering and architectural remains in the village has become a model and a type site for studying mining architecture associated with mining villages and the residential component of mining structures between the 1910 and 1970.	***Rating*** ***High***
5.	***Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group (Aesthetic significance)*** The architecture found at DRD are not associated with the common academic schools of thought associated with the *avante garde* architecture outside the domain of mining. However, the architecture at DRD does reflect a unique character associated with aesthetics. It is not the aesthetics originating from the academic sphere but rather the sphere of mining functionality and practicality. This is a unique class of architecture but various preferences in the design do reflect typical elements and features common and trendy of a particular period and style.	***Rating*** ***Medium***
6.	***Importance in demonstrating a high degree of creative or technical achievement at a particular period (Scientific significance)*** In typical engineering tradition (the mine construction work is supervised by engineers), all buildings currently used are structurally sound. To some extent the original buildings were slightly over-designed, especially the structural features such as foundations and lintels. None of the buildings are exceptional	***Rating*** ***Medium***

	examples of creativity but in some buildings the creative use of face brick masonry is significant (the most significant building was demolished). In general, the brick masonry is exceptional and reflect outstanding craftsmanship. Craftsmanship is also reflected in the construction of hearths, chimneys, timber floor planking and roof constructions.	
7.	***Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (Social significance)*** People who worked at the mine, lived in the village or who grew up in the village have strong emotional ties with the village and village life during the period when it was still functional and served its community in the same way any other town would serve its community. None of the former residents have remained in the village.	***Rating*** ***Medium***
8.	***Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa (Historic significance)*** The village is not associated with the work of a significant individual and all associations relate to the community and former workers at the mine.	***Rating*** ***Low***
9.	***The significance of the site relating to the history of slavery in South A***frica. Neither the site nor any of the buildings have any association with the history of slavery in South Africa. However, the site reflects on the history of mining and workers on mines on the Witwatersrand. One of the significant complexes is the old DRD compound with stone masonry walling. This is a significant historic structure, unique to the DRD village.	***Rating*** ***Low***

Significance criteria in terms of historical, artefactual and spatial significance.

As the criteria set out in the National Heritage Resources Act tend to approach heritage from the level of 'national' significance and few heritage sites and features fall within this category, a second set of criteria are used to determine the regional and local significance of heritage sites. Three sub-categories are used to determine this significance:

a) Historical significance – this category determines the social context in which a heritage site and resource need to be assessed. These criteria focus on the history of the 'place' in terms of its significance in time and the role they played in a particular community (human context).

b) Architectural significance – The objective of this set of criteria is to assess the artefactual significance of the heritage resource, its physical condition and meaning as an 'object'.

c) Spatial significance – focuses on the physical context in which the object and place exists and how it contributed to the landscape, the region, the precinct and neighborhood.

Historical significance

As the criteria set out in the National Heritage Resources Act tend to approach heritage from the level of 'national' significance and few heritage sites and features fall within this category, a second set of criteria are used to determine the regional and local significance of heritage sites. Three sub-categories are used to determine this significance:

	Criteria	**Significance**
1.	***Is the site or any building associated with a historical person or group?*** None of the buildings can be associated with a historical person. It can only be associated with the many workers and their families who worked and lived in the village for a period of hundred years.	***Rating*** ***Low***
2.	***Is the site or any building associated with a historical event?*** Neither the site nor any of the buildings are associated with an outstanding historical event.	***Rating*** ***Low***
3.	***Is the site or any building associated with a religious, economic, social, political or educational activity?*** The original village operated as a specialized village mainly focusing on serving the housing needs of the mine workers of DRD mine. These activities have now been culminated. The village was associated with the DRD gold mine and this economic activity used to be the principal economic motivation for the existence of the village. The village has strong associations with the social life on the mine and in the village.	***Rating*** ***Low***
4.	***Is the site or any building of archaeological significance?*** The fieldwork was also undertaken by archaeologists and the archaeological findings are included in this report. Some of the buildings are older than 100 years and they are considered places of Archaeological significance.	***Rating*** ***Medium***
5.	***Are any of the buildings or structures on the site older than 60 years?***	***Rating*** ***High***

	Most of the remaining buildings in the village are older than 60 years and are protected by the 60 years clause of the National Heritage Resources Act.	

Architectural significance (artefactual significance)

	Criteria	Significance
1.	***Are any of the buildings or structures an important example of a building type?*** None of the buildings are exceptional examples of a building type, but those identified to be retained represent a particular type within a typology that is unique to the DRD village. All the buildings and structures need to be compared within the context of the DRD village and cannot be compared to other architectural styles outside the village such as the nearby municipal area and its residential suburbs.	***Rating*** ***Medium***
2.	***Are any of the buildings outstanding examples of a particular style or period.*** None of the buildings were designed to serve the preferences of a period or academic architectural style. However general stylistic features and characteristics can be observed in some buildings that relate to the period when they were designed. One of the typical periods relates to the period around World War II (1938-1947). The style continued to a longer period from 1939 to 1953. During this period private, industrial and commercial buildings were constructed with a yellow face brick and steel frame windows. All the dwellings of the senior officials were constructed with these bricks but these buildings have now all been demolished. Prior to this period, buildings reflected architectural characteristics of the Edwardian style (the period 1905 to 1920). After 1920 some dwellings reflected characteristics of the Arts and Crafts movement. Modernist features also featured in some buildings while dwellings erected during the period 1950-1965 reflect typical characteristics of the period with plastered brick walling, face brick chimneys and low pitch hipped roofs. <u>Earliest compound typology</u> 	***Rating*** ***Medium***

Edwardian semi-detached typology

Yellow face brick typology

Type 1:

Type 2:

Type 5

Type 13:

	Arts & Crafts characteristics Type 68:  1950-1965 tradition: 	
3.	***Do any of the buildings contain fine architectural details and reflect exceptional craftsmanship?*** Not all the buildings were investigated to identify the architectural detailing and decorative aspects. All the remaining buildings reflect exceptional brick masonry and bricklaying craftsmanship.	***Rating*** ***Medium***
4.	***Are any of the buildings or structures an example of an industrial, engineering or technological development.*** Most of the remaining buildings in the village are dwellings as few of the industrial buildings have remained intact. The industrial buildings and structures such as the boiler room, are similar to other structures on the Witwatersrand and their uniqueness and rarity relates directly to the fact that comparable structures have already been demolished making these example more unique and uncommon. 	***Rating*** ***Medium***

5.	***What is the state of the architectural and structural integrity of the buildings?*** The buildings were not investigated one-by-one to determine their architectural and structural integrity. All the buildings are under threat either due to it being empty and redundant or alternatively illegally occupied. Buildings that are used as residential units tend to be maintained but slowly decay from inside, while any redundant and empty building is quickly demolished. The speed of this tendency cannot be predicted.	***Rating*** ***See comments in column***
6.	***Is every building's current and future use in sympathy with its original use (for which the building was designed)?*** A large number of buildings have already been demolished due to inter alia the activities of vagrants and illegal miners. Buildings were also demolished by presently unknown entities or individuals in order to curb the influx of vagrants into the buildings and into the village. Most of the buildings in the village are dwellings and they are still used for this purpose. Buildings designed to be used as storage sheds and workshops have been demolished and the building materials have been removed from the site completely.	***Rating*** ***See comments in column***
7.	***Were the alterations done in sympathy with the original design.*** Most of the alterations were modernisations of the original services of each dwelling. Roofs and guttering were replaced and stoeps were closed-off with steel frame windows. Buildings were not investigated individually to determine the impact of alterations to the original core buildings.	***Rating*** ***See comment in column***
8.	***Were the additions and extensions done in sympathy with the original*** design? The dwellings were not extended but the industrial buildings were extensively extended. These extensions were done for practical reasons and aesthetics were not considered of any significance. The buildings were not investigated one-by-one to assess the various additions and extensions that were added to the original buildings.	***Rating*** ***See comment in column***
9.	***Are any of the buildings or structures the work of a major architect, engineer or builder?*** Buildings on mining villages are not normally designed by architects outside the mining company but by in-house designers that may include draftsman. Inside the mining institution individuals tend to become officials and the designs are therefore the work of the office or company and not that of individuals.	***Rating*** ***Low***

Spatial significance

Even though each building needs to be evaluated as single artifact the site still needs to be evaluated in terms of its significance in its geographic area, city, town, village, neighborhood or precinct. This set of criteria determines the spatial significance

	Criteria	Significance
1.	***Can any building or structure be considered a landmark in the town or city?*** The village is an entity on its own and located detached and separate from the town of Roodepoort. Due to its unique character and specialized nature the village can be considered a landmark in the region. However, the proposed new development focuses on creating a new township which will destroy the original village.	***Rating*** ***High***
2.	***Do any of the buildings contribute to the character of the neighborhood?*** The village is a neighborhood in itself. The village has its own character and functioned as a single urban entity but outside the boundaries of Roodepoort Municipality. The neighborhood character was determined and defined by the village and village life. Since the closing of the mine the village stopped functioning as a mining village and has become an entity with its own social and community character consisting of almost independent groups and individuals who live in the village due to lack of other accommodation and without any central management structure. Each building contributes to the character of this village but the essence of the original village is gone.	***Rating*** ***Medium***
3.	***Do any of the buildings contribute to the character of the square or streetscape?*** The village used to have several large open spaces – net necessarily designed to function as urban squares but as open spaces dividing the various classes and representing clusters of dwellings where individuals of the same status and income lived. The design of the village happened in phases and each phase resulted in the introduction of small clusters of dwellings arranged according to a new spatial design framework and urban form. Open spaces and street patterns were determined by each phase of the development and both these urban features defined each cluster development.	***Rating*** ***Medium***
4.	***Do any of the buildings form part of an important group of buildings?*** The spatial and cultural context in which the buildings were evaluated was the matrix of the village. What makes the DRD	***Rating*** ***High***

village exceptional is the large typology of dwellings that were erected over a period of 100 years, reflecting an exceptional large variety of styles and building trends. One cluster of buildings reflecting solid and well-crafted buildings is the cluster of administration building executed in red face bricks categorized as Types 38, 39 and 40.

One of the remaining buildings is of special architectural significance namely the dwelling categorized as Type 68. It forms part of the cluster of dwellings but it is the only one of its kind in the entire village

Section 38(3) (c) An assessment of the impact of the development on such heritage resources.

Several buildings have been identified to be protected and included in the proposed design. However, the design is only a town planning scheme and only allows for future land uses and the demarcation of new smaller residential and related properties. It does not give any indication of architectural design or any architectural features on these new properties. The proposals in this report only determine which buildings may be demolished and which need to be retained. No further detail regarding new buildings, alterations, rehabilitation or preservation can be determined nor prescribed within such a town planning framework.

The real impact of the proposed development can therefore not be guaranteed as there is no control of the design of buildings and the future planning processes on each demarcated property.

Section 38(3) (d) An evaluation of the impact of the development on heritage resources relative to the sustainable economic benefits to be derived from the development.

During the heritage assessment process, some effort was made to guide the town planning philosophy and the outcomes of the spatial development framework. The proposed town planning scheme is in no way based on the existing and historic spatial planning structure and was aimed at creating a framework for maximum land use for medium and lower income group residential developments with community services and essential infra structure and services. Preserving the historic built fabric is not guaranteed in a town planning process and sympathetic design is not reinforced by the guidelines and regulations of the town planning scheme.

Section 38(3) (e) The results of consultation with the communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.

This report excludes the results of any public participation processes.

Section 38(3)(f) If heritage resources will be adversely affected by the proposed development the consideration of alternatives.

No alternatives for the proposed design were proposed but examples of some of the buildings were identified for preservation and reuse. The heritage experts and the town planning team have tried to cluster historic buildings together in order to allow some identity to be retained and not to decontextualize buildings completely.

Section 38(3)(g) ..plans for mitigation of any adverse effects during and after the completion of the proposed development.

See Section 8

6.2 Fieldwork Findings in terms of Non-Built Heritage Sites

6.2.1 Introduction

The fieldwork team from PGS Heritage traversed the study area by vehicle and on foot. In terms of the fieldwork to identify non-built heritage sites, the team conducted a controlled-exclusive surface survey, specifically focusing on undisturbed or undeveloped areas. These surveys of the more undisturbed and undeveloped sections of the study area were undertaken almost exclusively on foot by a fieldwork team including experienced archaeologists and archaeological field assistants.

The positions of all identified heritage sites were recorded using a hand-held GPS device in the form of a Garmin 60CSx. The identified heritage sites were assessed for their characteristics, condition and extent and were photographically recorded.

Apart from the buildings identified in the previous section, the fieldwork revealed a total of four heritage sites. These four identified sites comprise two cemeteries (see sites DRD 1 & 4) as well as two sites consisting of the remains of historic middens (see sites DRD 2 & 3).

The figures shown on the next page comprise Google Earth depictions of the study area boundaries (red), the track logs recorded during the fieldwork by the team from PGS Heritage shown in white and the identified non-built heritage sites depicted in blue.

Figure 136 – These two Google Earth images depict the recorded track logs in white, the study area boundaries in red and the identified heritage sites in blue.

6.2.2 Fieldwork Findings

DRD 1

Site Coordinates:

S 26° 10' 20.87"
E 27° 51' 16.32"

Site Description:

An extensive cemetery is located here. It appears to have been associated with the nearby mine compound and hospital. Although it would be difficult to provide an accurate number of graves, an estimated number of between 2 500 and 3 000 graves can be given.

All the graves with visible surface dressings from this cemetery are orientated along the east-west axis. A small number of the graves have inscribed formal headstones. The details depicted on these inscribed formal headstones are provided below.

ELIZABETH C. MAKOB BORN ON JULY 22ND 1921 DIED ON THE 22ND DECEMBER WE SHALL REMEMBER	HERE REST SARAH LUTYA BORN 1863 DIED 22-9-1933	IN MEMORY OF ANTONIO LUIZ MANUEL DIED APRIL 13. 1929 AGED 70 YEARS
IN LOVING MEMORY OF PHINDILE HLONGWA * 19-3-1927 † 5-7-1962 R.I.P.	IN LOVING MEMORY OF BOY L. THOMAS HLONGWA * 12-6-1918 † 27-7-1962 R.I.P.	LEONARD NANISE 22.9.1922 – 29.3.1972
ISIKHUMBUZO SOMFANA KAMA MANDLA GEORGE HLATSHWAYO BORN 1965 DIED 1985		

From the dates depicted on these headstones it is clear that the cemetery was used over a long period of time, with graves containing inscribed headstones dating from the 1920s, 1930s, 1960s, 1970s and 1980s identified at the cemetery. It is therefore evident that this cemetery represents a tangible monument to the history of the Durban Roodepoort Deep Gold Mine and its mine workers.

It is important to note that not all graves on old mine cemeteries such as these would have been marked by surface dressings, and as a result many more graves might be located here. Graves were observed over almost the entire area defined by gravel roads on the western and southern ends, a tar road on the northern end and a high rubbish heap on the eastern end. This said, and in view of the likely presence of unmarked graves, the exact extent of the cemetery is not presently known.

Current Protection Status:

Graves and burial grounds fall under various legislative protections, depending on factors such as where the graves are located as well as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissue Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Site Significance:

Graves and burial grounds have high levels of emotional, religious and historical significance. Furthermore, the cemetery identified at DRD 1 represents a place of burial for mine workers and their families and is directly associated with the long history of the Durban Roodepoort Deep Gold Mine. As a result, the site has a **GP. A - High Significance**.

Figure 137 – General view of a section of the cemetery at DRD 1. The extent of the cemetery, as well as the high number of graves only marked with uninscribed stone dressings, can be seen.

Figure 138 – General view of another section of the cemetery at DRD 1.

Figure 139 – The headstone on the grave of Sarah Lutya (1863 – 22 September 1933).

Figure 140 – The headstone on the grave of Antonio Luiz Manuel (c. 1959 - 13 April 1929).

DRD 2

Site Coordinates:

S 26° 10' 7.10"
E 27° 51' 55.50"

Site Description:

A historic midden was identified on the northern end of the study area, roughly 190 m south-west of Randfontein Road. It comprises a reasonably extensive low heap of material covered by vegetation. Although more recent artefacts were also observed here, at least one fragment of a glass mineral water bottle commonly known as a 'Codd' was observed on the surface of the site. These 'Codd' bottles are associated with the 1890s and early 1900s, and as a result indicate that sections of this midden is certainly older than 100 years. It seems plausible for more material of this age and older to be located within the lower sections of the midden's stratigraphy.

Current Protection Status:

In terms of Section 35(4) of the National Heritage Resources Act (25 of 1999), man-made features and artefacts older than 100 years are defined as being archaeological. In the same section, the act also states that such archaeological sites and objects may not be disturbed, altered, modified or destroyed without a suitable permit.

Site Significance:

It is clear that the site does not represent an undisturbed archaeological midden. However, the possible presence of archaeological material associated with early gold mining activities in general, and mining activities of the Durban Roodepoort Deep Gold Mine in particular, necessitates a higher level of significance. As a result, the site has a **GP. B - Medium Significance**.

Figure 141 – General view of a section of the midden located at DRD 2.

DRD 3

Site Coordinates:

S 26° 10' 8.10"
E 27° 52' 2.60"

Site Description:

A historic midden was identified on the northern end of the study area, roughly 100 m south-west of Randfontein Road. At the time of the identification of the site in November 2013, it comprised a reasonably extensive area which had been scraped at an unknown time revealing a reasonably high number of historic artefacts many of which can be dated to be at least 100 years old. At the time of its identification, it seemed likely that the site represents the remaining lower sections of a historic midden which had for the most part been removed at an unknown time in the past. It is not known whether the original midden comprised only older archaeological material, or whether it had the archaeological material at the lower end of its stratigraphy with more recent cultural material discarded on top. If the latter holds true, the site shows similarities to site DRD 2 and may in fact be directly associated with it. With the two sites located 200 m apart, it seems plausible for the remnants of the historic midden to extend over this entire area.

The cultural material identified on the surface of the site include: glass fragments of mineral water bottles from the company Thomas & Co. which operated out of Roodepoort and Krugersdorp during the period 1890 to 1910; a torpedo shaped glass bottle made by the company Foster & Sons of London as well as a ginger beer bottle of the company Thomas & Coombe. This company used ginger beer bottles such as the one observed here during the period 1890 to 1912. Furthermore, a number of imported ceramic fragments were also identified, as well as at least one medicine bottle. Lastly, a reasonably high number of crucible fragments were observed. Arguably, these crucible fragments could have been associated with early gold exploration, gold prospecting or gold mining activities.

Based on the timeline of imagery provided on Google Earth, the site was partially impacted upon by the construction of a water reservoir from June 2015 onwards. While the water reservoir itself did not appear to have any impact on the site, a section of the associated construction site was placed over a section of site DRD 3.

A site visit was undertaken during June 2016 at which point it was established that although some impacts had occurred to the site, enough of it still remains for it to be mitigated.

Current Protection Status:

In terms of Section 35(4) of the National Heritage Resources Act (25 of 1999), man-made features and artefacts older than 100 years are defined as being archaeological. In the same section, the act also states that such archaeological sites and objects may not be disturbed, altered, modified or destroyed without a suitable permit.

Site Significance:

It is clear that the site does not represent an undisturbed archaeological midden. At the time of its original identification in December 2013, the site was already disturbed by grading activities with a second disturbance taking place during the middle of 2015 with the construction of a nearby water reservoir. Despite the disturbance to the site, the possible presence of archaeological material associated with early gold mining activities in general, and mining activities of the Durban Roodepoort Deep Gold Mine in particular, requires that the site has a **GP. B - Medium Significance**. This means that mitigation will be required before the site may be destroyed.

Figure 142 – General view of a section of site DRD 2 during its identification in November 2013.

Figure 143 – Google Earth image depicting the position of the site in relation to a water reservoir that was built in proximity to the site. Construction on the water reservoir commenced in June 2015.

Figure 144 – Sample of artefacts observed on the surface of the site. The items include a ginger beer bottle, torpedo-shaped 'Codd; bottle, crucible and imported ceramic fragment. Scale is in 1cm increments.

DRD 4

Site Coordinates:

S 26° 10' 10.9"
E 27° 52' 5.80"

Site Description:

A reasonably extensive cemetery was identified on the northern end of the study area, roughly 100 m south-west of Randfontein Road. It appears to have been associated with historic mining activities and potentially may have been associated with the Durban Roodepoort Deep Gold Mine. Although it would be difficult to provide an accurate number of graves, an estimated number of between 250 and 300 graves can be given.

All the graves with visible surface dressings from this cemetery are orientated along the east-west axis. Only one grave with a partially preserved inscription could be identified. This particular grave has a lined dressing of cement and brick and contains an inscription on the outer end of the western wall of this lined dressing. The dressing appears to have originally contained a headstone which had since been removed or vandalised. The remaining inscription on the wall of the lined dressing reads as follows: "*BY MRS. KAMBULE*". This seems to indicate that the headstone (which had since been removed) was erected by a Mrs. Kambule.

The remainder of the graves from this cemetery comprise stone packed graves, as well as graves that are only marked by a single stone or a small cluster of stones.

It is important to note that not all graves on old mine cemeteries such as these would have been marked by surface dressings, and as a result many more graves might be located here. In view of the likely presence of unmarked graves, the exact extent of the cemetery is not presently known.

Current Protection Status:

Graves and burial grounds fall under various legislative protections, depending on factors such as where the graves are located as well as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissue Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Site Significance:

Graves and burial grounds have high levels of emotional, religious and historical significance. Furthermore, the cemetery identified at DRD 4 appears to represent a place of burial for mine workers and their families and is more than likely directly associated with the Durban Roodepoort Deep Gold Mine. As a result, the site has a **GP. A - High Significance**.

Figure 145 – General view of a section of the cemetery at DRD 4. The high number of graves with dressings comprised of single stones or small clusters of stones can be seen in the foreground. In the background to the right the cement and brick lined dressing can be seen.

Figure 146 – Close-up view of the western end of the cement and brick lined dressing on which the only inscription from the entire cemetery at DRD 4 could be found.

Figure 147 – One of the stone packed dressings identified at DRD 4.

7 IMPACT OF PROPOSED DEVELOPMENT ON HERITAGE RESOURCES

In this section the impact of the proposed development on both the built heritage sites and non-built heritage sites will be calculated.

7.1 Assessment of Impact of Proposed Development on Built Heritage

This section was compiled by architectural historian Mauritz Naudé.

7.1.1 General

In order to determine the impact of the proposed development on the historic village directives from the National Heritage Resources Act guides the process. However, the Act does not provide clear guidelines on determining impact as it tends to focus on determining 'cultural significance'.

In the case of the DRD village, two 'classes' of human manifestation are scrutinized namely (a) the DRD village and (b) individual selected buildings in the village. These are two separate entity types although buildings form part of the village while the village serves as container in which the buildings existed for their entire existence. Determining the impact on these two entities are not the same. One universal assumption remains, if no plans exist for the reuse of a site or a building NO impact can be determined. In this instance only land uses were indicated as part of the proposal. For this reason, this impact assessment focuses on the impact of the proposed new town planning scheme on the DRD village as a whole.

7.1.2 Directives determining 'impact'

The directives to understand 'impact assessment' must be deducted from the Act starting with the definitions. In Section 2 of the Act, crucial terms such as 'alter', 'conservation', 'cultural significance' and 'development' guide the critical aspects of the assessment and the general perception is created that it tends to favor the protection of buildings, although the definitions refer to 'place' and not to buildings:

*(i) '**alter**' means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.*
*(iii) '**conservation**' in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance*
*(vi) '**cultural significance'** means aesthetic, cultural, historical, scientific, spiritual, linguistics, or technological value or significance*

*(vii) '**development**' means any physical intervention, excavation or action other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature or influence its stability and future wellbeing including –*

(a) Construction, alterations, demolition, removal or change of use of a place or a structure at a place

(b) Carrying out any works on or over or under a place

(c) Subdivision or consolidation of land comprising, a place, including the structures or airspace of a place

(d) Constructing or putting up for display signs or hoardings

(e) Any change to the natural or existing condition or topography of land and;

(f) Any removal or destruction of trees; or removal of vegetation or topsoil

According to Sect 2 subs (xxxii) '**place**' includes:

(a) A site, an area or a region

(b) A building or other structure, which may include equipment, furniture, fittings and articles associated with or connected to such building or other structure

(c) A group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures

(d) An open space, including a public square, street or park and

(e) In relation to the management of a place, includes the immediate surroundings of a place

*(xxxiii) '**planning**' means urban and regional planning as contemplated in the Physical Planning Act of 1991 (Act 125 of 1991), and provincial town planning and land use planning legislation*

*(xivl) '**structure**' means any building, works, device or other facility made by people and which is fixed to land and includes any fixtures, fittings and equipment associated therewith*

It is only under '***General principles'*** that some reference is made regarding how heritage resources should be treated once they have been selected for protection and reuse and the word 'integration' is the key concept of any validity. In Sect 5.1 (6) it is stated that: '*policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning in social and economic development'.* Determining the 'impact' would therefore focus on the efficiency and level to which the designers or planning authority have been successful in integrating the heritage place into the proposed land development – without any other additional detail regarding the design process.

It is only in Sect 38(1) that the Act states that the impact assessment must be done and the impact must be determined on the heritage resources and not the other way round namely: determining the impact of the heritage resources on the proposed design (see Sect 38(1):

Section 38(1)

(c) an assessment of the impact of the development on such cultural resources

(d) an assessment of the development on heritage resources relative to sustainable social and economic benefits to be derived from the development.

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development

No more detail regarding determining the impact of a proposed development on heritage resources is proposed or prescribed by the Act. For this reason, the following process and criteria are proposed and for lack of guidance from the Act or from any other manual or approved document from the South African Heritage Resources Agency, this framework is used.

7.1.3 Impact of the proposed development (town planning scheme) on the historic village

According to the brief for the Heritage Assessment the proposed development phase for which the assessment team was appointed was to select and assess places of significance to be protected and integrated into the spatial development framework of the proposed town planning scheme. The assessment assisted the town planning process. Once this was concluded to the satisfaction of all the parties the brief was fulfilled and the work of the heritage experts completed.

On this spatial scale (urban and village scale) the impact of the proposed spatial design framework can only be determined on the entire DRD village. The impact of the development and design for re-use on any of the identified buildings cannot be determined as the land uses were not fixed and absolute and no architectural designs were presented regarding the alterations (see definition for 'alteration' above: Definitions) or extensions to any of the buildings.

The physical features and elements that a village such as the DRD staff village consists of include inter-alia the following categories of manmade features:

(a) Buildings – manmade construction works with roofs
(b) Structures – manmade construction works without roofs
(c) Infra structural elements – roads, canals, water furrows, pipelines, railway lines, fences, electricity lines and telephone lines
(d) Activity areas – open spaces in between the manmade elements mentioned above, that include cemeteries, sports fields, parks, public spaces, pavements, gardens etc.

(e) Planted vegetation – both indigenous and exotic plants and trees introduced to the village as part of the mine managements deliberate planting of the cultural landscape.

These features have been created, erected and constructed according to a particular pattern, renders the village unique and gives the village intrinsic form, character and cultural significance. The village can be considered a one-of-kind-place. According to the National Heritage Resources Act the village represents a particular 'class' of cultural places in the history of South Africa. Any alteration to this historic structure implies that the development has an impact on the historic village and its character. The greater the loss of historic fabric (types as determined and set out above), the greater the negative impact the proposed development will have on the historic village

The various domains in which the impact was determined are organized into (a) design and implementation and (b) operation and management.

'Design and implementation' addresses the level to which the historic village is protected and integrated into the proposed development while the 'operation and management' addresses the level to which the historic village will survive and be sustained within the proposed new development.

DESIGN AND IMPLEMENTATION

	HISTORICAL	**Proposed protection of the village**	**low**	**medium**	**high**
1.	**Protection**	***to what extent will the historical village be protected in the proposed development*** According to the proposed development the historical village will cease to exist. The closing of the village was not the result of the change of ownership but rather the other way round. When the mining activities ended the land was sold. The property was not bought for its heritage significance but rather to develop the land into smaller properties. The priority to protect the village is low.	**X**		
		IMPACT			**O**
2.	**Restoration**	****to what extent will the historical village be restored*** The village will not be restored to any previous phase of its existence. No section of any representative size or representing the history of the village was identified for protection and deliberate restoration.	**Low** **X**	**medium**	**high**
		IMPACT			**O**

3.	**Re-use**	***to what extent will the historical village be re-used*** The village will not be reused, neither as a mining village nor to fulfill the role of a former mining village.	**Low** **X**	**medium**	**high**
		IMPACT			**O**
4.	**Reconstruction**	***to what extent will the historical village be reconstructed*** The village will be demolished completely with exception of only a few individual and isolated buildings.	**Low** **X**	**medium**	**high**
		IMPACT			**O**
	NEW OR CURRENT	**Proposed sympathetic development of the village**	**Low**	**medium**	**high**
1.	**Renovate**	****to what extent will renovation work be introduced into the historical village*** As the village will be destroyed no portion of the village will be revived and renovated to function according to its original intent as a mining village. Isolated number of buildings will be retained and re-used.	**Low** **X**	**medium**	**high**
		IMPACT			**O**
2.	**Modernize**	***to what extent will the historical village be modernized*** As the village will lose its original form, function, and spatial framework it will cease to exist allowing no opportunity to be recognized as the former DRD mining village, just in a modernized form and structure. ***to what extent will the new work be executed in a modern contemporary style*** The priority to introduce modern building materials and construction techniques is high.	**Low** **X**	**medium**	**High** **X**
		IMPACT			**O**
3.	**New work (introduction of new buildings and infrastructure)**	***to what extent will new work be introduced into the historical village*** A completely new spatial development framework and town planning arrangement is proposed for the entire area where the former			**X**

		village used to exist. All properties designed to fit into the new spatial development framework are designed to be served by new contemporary buildings, structures and infra structure.			
		IMPACT			**O**
4.	**New technologies**	****to what extent will new technologies be applied in the historical village*** The proposed new development framework and town planning scheme proposes to apply contemporary technologies for the construction of new buildings, structures and infra structural elements. The historical examples of the latter manmade elements and features will cease to exist and will be demolished and removed completely.			**X**
		IMPACT			**O**

OPERATION AND MANAGEMENT

	SOCIAL	**Proposed social responsibility**	**low**	**medium**	**high**
1.	**Memorialization**	****to what extent will the village and its history be memorialized in situ or anywhere else*** No plan exists for the memorialisation of the village at a central location inside the historic village where the public can visit the site and learn about the history of the mine or the village.	**X**		
		IMPACT			**O**
2.	**Education**	****to what extent will the village <u>fabric</u> be presented to the public and interested parties*** Isolated buildings were identified for protection and reuse but they are not clustered or organized in such a way that they can be enjoyed as the last or special group of building representing the history of the DRD village. None of the buildings were identified as a place for memorialization as it remains unknown what the management structure of the new development would look like. ****to what extent will the <u>history</u> of the village be presented to the public in situ or elsewhere*** No educational plan or programme forms part of the proposed development in which the history of the site, the village or any of the individual	**X** **X**		

		features can be and will be presented to the public			
		IMPACT			**O**
3.	**Entertainment**	****to what extent will the historic fabric be used or incorporated into the planning framework of the proposed development as an element for public enjoyment*** None of the isolated buildings were identified for the purposes of being part of leisure time activities within the proposed development.	**X**		
		IMPACT			**O**
4.	**Tourism**	****to what extent will the history and the fabric of the historic village be incorporated and integrated into the regions tourism and marketing plan, vision and programmes.*** It remains unknown whether the history of the village will become part of any tourism programme or local visiting plan that would include school groups or would allow private groups to visit the site.	**X**		
		IMPACT			**O**
	TECHNICAL	**Impact on historic fabric**	**low**	**medium**	**high**
1.	**Operations**	****how will the future operations (standard municipal services) of the proposed development, village, suburb, township or entity impact on the historic village.*** As the historic village will be virtually destroyed by the proposed development, each of the buildings selected to be protected and reused will become part of the proposed new layout plans for the rendering of municipal services such as electricity, sewage and water reticulation.			**X**
		IMPACT			**O**
2.	**Storage, dumping, refuse management**	****how will the need for storage, dumping of household refuse and sewage of the proposed development impact on the management of the historic village***. As the historic village will be virtually destroyed by the proposed development, the new services will be designed to first serve the new properties while also serve the retained buildings as part of a larger and new spatial development			**X**

		framework and will become connected to new services.			
		IMPACT			**O**
3.	**Movement**	****how will the future movement of vehicles and pedestrians in the proposed development impact on the historic village***. The new proposed infrastructural scheme and plan of movement was designed not to serve the historical village or to utilize the historical routes and movement patterns but rather to create a new framework for movement to serve the new design of the township.			**X**
		IMPACT		**O**	
4.	**Maintenance**	****to what extent does the proposed development make provision for a Conservation Management Plan in order to ensure proper maintenance and the sustainability of the historic village and the protection of the historic fabric of the village***. The proposed development does not make provision for Conservation management Plans for the individual properties selected to be protected and reused.	**X**		
		IMPACT		**O**	

7.1.4 Conclusion

The impact of the proposed new town planning scheme will be severe on the historical DRD village. Since the project started about four years ago most of the buildings have disappeared due to vandalisation and selective but systematic demolition. Only a selection of buildings will remain of the village as it used to be in 2014. These buildings will be retained as isolated features of the historic village.

7.1.5 Impact assessment of the proposed development on individual buildings

Once the individual buildings have been identified and an erf or property demarcated in which these buildings will be retained and reused, an architectural design proposal for the site and the building is needed in order to evaluate the impact of the future use on the historic building. This is not determined by the Act but determined according to the specifications of the Provincial Heritage Resources Agency-Gauteng. The specification asks for a color overlay of the proposed new use and alterations (as determined by the architect) on top of the as-built plans and elevations

of the historic building. Unfortunately, such plans do not exist as the development merely entailed the design of a town planning scheme.

The matrix below is used to determine the impact of the proposed development on each site and building but can only be populated once a new use has been determined for each building and the use has been translated into a design indicating the levels of restoration, reconstruction, modernisation and renovation of each building.

DESIGN AND IMPLEMENTATION

	HISTORICAL	**Proposed protection of the place or building**	**low**	**medium**	**high**
1.	**Protection**	****to what extent will the historical place or building be protected in the proposed development*** Unknown			
2.	**Restoration**	***to what extent will the historical place or building be restored*** Unknown	**Low**	**medium**	**high**
3.	**Re-use**	***to what extent will the historical place or building be re-used*** Unknown	**Low**	**medium**	**high**
4.	**Reconstruction**	***to what extent will the historical place or building be reconstructed*** Unknown	**Low**	**medium**	**high**
	NEW OR CURRENT	**Proposed sympathetic development of the site or building**			
1.	**Renovate**	****to what extent will renovation work be introduced to the place or building*** . Unknown	**Low**	**medium**	**high**
2.	**Modernize**	***to what extent will the historical place or building be modernized*** Unknown ***to what extent will the modern or contemporary services impact on the historical place or building*** Unknown	**Low**	**medium**	**High**

3.	**New work (introduction of new buildings and infrastructure)**	***to what extent will new work be introduced to the historical site*** Unknown	**low**	**medium**	**high**
4.	**New technologies**	***to what extent will new technologies be applied in the historical building*** Unknown	**low**	**medium**	**high**

OPERATION AND MANAGEMENT

	SOCIAL	**Proposed social responsibility**	**low**	**medium**	**high**
1.	**Memorialization**	***to what extent will the site and buildings history be memorialized in situ or anywhere else*** Unknown	**low**	**medium**	**high**
2.	**Education**	***to what extent will the historic fabric of the place or building be presented to the public and interested parties*** Unknown ***to what extent will the history of the historic site or building be presented to the public in situ or elsewhere*** Unknown	**low**	**medium**	**high**
3.	**Entertainment**	***to what extent will the historic fabric of the site or building be used or incorporated into the planning framework of the proposed development as an element for public enjoyment*** Unknown	**low**	**medium**	**high**
4.	**Tourism**	**to what extent will the history and the fabric of the historic place or building be incorporated and integrated into the regions tourism and marketing plan, vision and programmes.*** Unknown	**low**	**medium**	**high**
	TECHNICAL	**Impact on historic fabric**	**low**	**medium**	**high**
1.	**Operations**	***how will the future operations (standard municipal services) of the proposed***			

		development, village, suburb, township or entity impact on the historic place and building. Unknown			
2.	**Storage, dumping, refuse management**	****how will the need for storage, dumping of household refuse and sewage of the proposed development impact on the historic site and building*** Unknown	**low**	**medium**	**high**
3.	**Movement**	****how will the future movement of vehicles and pedestrians in the proposed development impact on the historic site or building***. Unknown	**low**	**medium**	**high**
4.	**Maintenance**	****to what extent does the proposed development make provision for a Conservation Management Plan in order to ensure proper maintenance and the sustainability of the historic site or building and the protection of the historic fabric of the site or building***. Unknown	**low**	**medium**	**high**

7.2 Assessment of Impact of Proposed Development on Non-Built Heritage Sites

7.2.1 General

The assessment of the impact of the proposed development on the identified non-built heritage sites was based on the development layout plan of the proposed development that became available in September 2017. This layout plan is referenced as drawing number T26002 / 3. Furthermore, these impact assessment calculations were undertaken from a pre-mitigation scenario.

7.2.2 Assessment of Impacts

7.2.2.1 Risk Calculation For The Impact Of The Proposed Development On Site DRD 1

In this section the impact of the proposed development on site DRD 1 will be established. According to the available development layout plan, the cemetery will be preserved within the proposed development. A minimum buffer area of 50m between the marked graves and the development footprints, is included in the development layout plan. As

a result, zero to limited impact is expected from the proposed development on the marked graves. Should any unmarked graves be located around the cemetery, the 50m buffer area would assist in mitigating the developments impacts. In the experience of the authors, unmarked graves have been found in association with historic mine cemeteries such as the one at DRD 1. The calculation undertaken below takes cognizance of this possible risk.

$$\text{Impact Risk} = \frac{(\text{Significance} + \text{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

$$\text{Impact Risk} = \frac{(4 + 4 + 4)}{3} \times \frac{3}{5}$$

IMPACT RISK = 2.4

Table 12: Risk Calculation for Development Impact on site DRD 1

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	High	Regional / Provincial	Long-Term	Could Happen	**Moderate**
Impact on site DRD 1	4	4	4	3	**2.4**

This calculation has revealed that the impact risk of the proposed development on site DRD 1 falls within Impact Class 3, which represents a Moderate Impact Risk. As a result, mitigation would be required. Refer Chapter 8 for the required mitigation measures.

7.2.2.2 Risk Calculation for the Impact of the Proposed Development on site DRD 2

In this section the impact of the proposed development on site DRD 2 will be established. Although the development layout plan indicates that the surroundings of the site will not be used for residential development, the site will however be directly impacted upon by a proposed access road that is associated with the development.

$$\text{Impact Risk} = \frac{(\text{Significance} + \text{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

$$\text{Impact Risk} = \frac{(3 + 3 + 4)}{3} \times \frac{3}{5}$$

IMPACT RISK = 2.67

Table 13: Risk Calculation for Development Impact on site DRD 2

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Moderate	Local	Long-Term	Very Likely	**Moderate**
Impact on site DRD 2	3	3	4	4	**2.67**

This calculation has revealed that the impact risk of the proposed development on site DRD 2 falls within Impact Class 3, which represents a Moderate Impact Risk.

As a result, mitigation would be required for site DRD 2. Refer Chapter 8 for the required mitigation measures.

7.2.2.3 Risk Calculation for the Impact of the Proposed Development on site DRD 3

In this section the impact of the proposed development on site DRD 3 will be established. The development layout plan indicates that some disturbance had already taken place to the site, further disturbance in the form of water reservoirs and associated infrastructure are proposed.

$$\text{Impact Risk} = \frac{(\text{Significance} + \text{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

$$\text{Impact Risk} = \frac{(3 + 3 + 4)}{3} \times \frac{3}{5}$$

IMPACT RISK = 2.67

Table 14: Risk Calculation for Development Impact on site DRD 3

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Moderate	Local	Long-Term	Very Likely	**Moderate**
Impact on site DRD 3	3	3	4	4	**2.67**

This calculation has revealed that the impact risk of the proposed development on site DRD 3 falls within Impact Class 3, which represents a Moderate Impact Risk.

As a result, mitigation would be required for site DRD 3. Refer Chapter 8 for the required mitigation measures.

7.2.2.4 Risk Calculation for the Impact of the Proposed Development on site DRD 4

In this section the impact of the proposed development on site DRD 4 will be established. According to the available development layout plan, the cemetery will be preserved within the proposed development. Although a limited buffer area will be kept free of development around the cemetery, the only proposed development still to take place in the surroundings of the cemetery are water reservoirs and associated infrastructure. In the experience of the authors, unmarked graves have been found in association with historic cemeteries such as the one at DRD 4. The calculation below includes this possible risk.

$$\text{Impact Risk} = \frac{(\text{Significance} + \text{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

$$\text{Impact Risk} = \frac{(4 + 4 + 4)}{3} \times \frac{3}{5}$$

IMPACT RISK = 2.4

Table 15: Risk Calculation for Development Impact on site DRD 4

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	High	Regional / Provincial	Long-Term	Could Happen	**Moderate**
Impact on site DRD 4	4	4	4	3	**2.4**

This calculation has revealed that the impact risk of the proposed development on site DRD 4 falls within Impact Class 3, which represents a Moderate Impact Risk.

As a result, mitigation would be required for site DRD 4. Refer Chapter 8 for the required mitigation measures.

8 MITIGATION MEASURES

8.1 General Mitigation Measures and Mitigation Measures in terms of Built Heritage

General

This project went through various phases that resulted from a change in the physical scenario and manmade landscape on the ground. The brief remained the same: identify and assess places of heritage significance that would guide the town planning and spatial development framework the heritage team was appointed by a town planning firm).

According to the initial brief the Heritage Impact Assessment focused on the identification of individual properties and buildings that need to be retained in the historic DRD village. No spatial development framework or town planning scheme existed for the proposed development area. The brief resulted in an assessment of the entire area and mining village to identify places of heritage significance that need to be protected and included in any future development. This was completed and a spatial development framework was drafted and discussed.

During a lapse of time (a few years) the entire site was invaded by vandals and the buildings, some of the identified buildings were looted and eventually totally destroyed by informal miners and other agencies. This resulted in the loss of sites identified for protection and reuse. The proposed spatial development framework was altered and discussed.

The objective of the spatial development framework was to indicate how the land of the former mining village, will be subdivided into properties, where certain functional zones will be located and how they will be serviced by roads and streets. In essence the completion of this spatial development framework and town planning model concluded the Heritage Impact Assessment process as no further detail could be presented by the Town Planners and developers. No further detail regarding the proposed reuse of the retained buildings and no architectural drawings of how the buildings will be altered existed and none was proposed.

Town planning - spatial development framework

The heritage legislation is not clear on the specification and procedures for the approval of town planning schemes and spatial development frameworks as these design schemes do not address the detail aspects of extensions and alterations to individual buildings.

Individual sites

The individual sites identified by the heritage team were identified based on a selection of heritage criteria with no relation, association or objective to serve any future or proposed land uses, spatial orientation respect regarding set-backs or streetscape and visual and aesthetic sympathy towards the streets.

Buildings

The general principal is that no mitigation measures or guidelines can be drafted for any of the buildings until a new purpose for each building or a new use is determined and the design architect and the heritage architect has determined to what extent renovation and modernization would be possible in relation to preservation, restoration or reconstruction. At no stage of this project did this aspect form part of the brief.

Recommendations

- The HIA can only be submitted to the PHRA-Gauteng and SAHRA for approval as a town planning scheme and spatial development framework.

- The HIA indicates which areas are available for development without legal obligation determined under the NHRA. Development may commence in these areas after approval from the PHRA-Gauteng and SAHRA.

- The HIA identifies which sites and buildings need to be retained and reused. Work may commence around these properties after approval by the PHRA-Gauteng and SAHRA.

- The brief does not specify how the individual identified properties and buildings should be reused and how they should be rehabilitated and this aspect is excluded from the HIA. Work on these sites can only commence once this aspect has been defined and a design architect has been appointed for each site. This must be done in collaboration with the heritage specialist for buildings.

- From a heritage (and conservation) point of view, the only recommendation that can be proposed by this HIA regarding the buildings older than 60 years are as follows: (a) they need to be protected against demolition in the period prior to receipt of permits; (b) each building be recorded photographically; (c) as-built architectural drawings be drafted of the floor plan and elevations of each building and (d) these be compiled into a permit application to the heritage authorities. Such buildings may only be demolished once the necessary permits from these heritage authorities are received.

- From a heritage (and conservation) point of view, the only recommendation that can be proposed by this HIA regarding the selected buildings (to be retained and reused) is that (a) they need to be protected against demolition in the period prior to development; (b) each building be recorded photographically; (c) as-built architectural drawings be drafted of the floor plan and elevations of each building and (d) these be retained and passed onto the project design architect to be used as base documents when the design process commences for each of the selected sites.

- When the architectural design process commences for the sites and buildings identified for protection and reuse, the design architect must submit the proposed designs to the PHRA-Gauteng as Section 34 applications, for approval.

8.2 Mitigation Measures in terms of Non-Built Heritage and Archaeological Resources

Introduction

A total of four non-built heritage sites were identified during the fieldwork. These sites comprise two cemeteries (DRD 1 & DRD 4) and two archaeological sites comprising historic middens (DRD 2 & DRD 3). In the subsequent section, the required mitigation measures for these sites will be provided. General mitigation measures for archaeological and non-built heritage sites will be provided in the section after that.

Mitigation Measures required for Identified Archaeological and Non-Built Heritage Resources

Cemeteries at DRD 1 and DRD 4

The following recommendations are required for the two cemeteries identified at DRD 1 and DRD 4.

- These two cemeteries must be preserved *in situ*.

- A 50m buffer area around each of these cemeteries must be kept clear of any development or associated activities.

- During the construction phase, an archaeological monitoring procedure must be implemented to allow for the archaeological monitoring of any construction activities proposed within 200m from these two cemeteries. This would ensure that such construction activities do not pose any threat to the graves, and secondly that any unmarked graves which may be located in the surroundings of these cemeteries can be identified at an early stage. Should human remains be identified during the archaeological monitoring process, the responsible archaeologist will provide suitable mitigation measures.

Historic Middens at DRD 2 and DRD 3

The following recommendations are required for the two historic middens identified at DRD 2 and DRD 3. A suitably experienced archaeologist must be appointed to undertake the mitigation measures outlined below.

- An archaeological excavation permit must be applied for from SAHRA.
- Once the above-mentioned permit is received, archaeological test excavations can be undertaken at the two sites.
- Laboratory analysis, classification and recording of the excavated archaeological materials must be undertaken once the excavations are concluded.
- An archaeological excavations report must be compiled and submitted to SAHRA with a permit application allowing the two sites to be destroyed. Only once the destruction permit is received from the heritage authority can these sites be destroyed.

General Mitigation Measures in terms of Archaeology and Non-Built Heritage Sites

The following general mitigation measures are required:

- Development activities in the surroundings of the present study area have shown that unmarked graves and cemeteries, as well as subterranean archaeological sites may very well be a characteristic of this historic gold mining landscape. As a result, and archaeological watching brief will be required during the construction phase.

9 CONCLUSIONS

Introduction

PGS Heritage (Pty) Ltd was appointed by Hunter Theron Incorporated to undertake a Heritage Impact Assessment (HIA) 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 within the Roodepoort Magisterial District, City of Johannesburg Metropolitan Municipality, Gauteng Province.

Desktop Study

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is situated is associated with historic gold mining activities from the 1880s onward. The desktop study also revealed the association of a historic mine and mine village with the study area. The mine in question was the well-known Durban Roodepoort Deep, which was established on 16 February 1895 and existed until 1994.

Heritage Fieldwork

The desktop study work was followed by fieldwork, which comprised intensive pedestrian and vehicle surveys of the study area. As a result of this fieldwork, a total of 196 buildings were identified and included in the inventory of sites. Furthermore, four non-built heritage sites were also identified within the cemetery, namely two cemeteries (DRD 1 & DRD 4) and two historic middens of archaeological age (DRD 2 & DRD 3). The heritage significance for all these sites were provided in the report.

Heritage Impact Assessments

Heritage impact risk assessments for the impact of the proposed development on both the identified built heritage and non-built heritage sites were undertaken. These impact risk assessments revealed that mitigation measures would be required.

Required Mitigation Measures for Built Heritage

General

This project went through various phases that resulted from a change in the physical scenario and manmade

landscape on the ground. The brief remained the same: identify and assess places of heritage significance that would guide the town planning and spatial development framework the heritage team was appointed by a town planning firm).

According to the initial brief the Heritage Impact Assessment focused on the identification of individual properties and buildings that need to be retained in the historic DRD village. No spatial development framework or town planning scheme existed for the proposed development area. The brief resulted in an assessment of the entire area and mining village to identify places of heritage significance that need to be protected and included in any future development. This was completed and a spatial development framework was drafted and discussed.

During a lapse of time (a few years) the entire site was invaded by vandals and the buildings, some of the identified buildings were looted and eventually totally destroyed by informal miners and other agencies. This resulted in the loss of sites identified for protection and reuse. The proposed spatial development framework was altered and discussed.

The objective of the spatial development framework was to indicate how the land of the former mining village, will be subdivided into properties, where certain functional zones will be located and how they will be serviced by roads and streets. In essence the completion of this spatial development framework and town planning model concluded the Heritage Impact Assessment process as no further detail could be presented by the Town Planners and developers. No further detail regarding the proposed reuse of the retained buildings and no architectural drawings of how the buildings will be altered existed and none was proposed.

Town planning - spatial development framework

The heritage legislation is not clear on the specification and procedures for the approval of town planning schemes and spatial development frameworks as these design schemes do not address the detail aspects of extensions and alterations to individual buildings.

Individual sites

The individual sites identified by the heritage team were identified based on a selection of heritage criteria with no relation, association or objective to serve any future or proposed land uses, spatial orientation respect regarding set-backs or streetscape and visual and aesthetic sympathy towards the streets.

Buildings

The general principal is that no mitigation measures or guidelines can be drafted for any of the buildings until a new purpose for each building or a new use is determined and the design architect and the heritage architect has determined to what extent renovation and modernization would be possible in relation to preservation, restoration or reconstruction. At no stage of this project did this aspect form part of the brief.

Recommendations

- The HIA can only be submitted to the PHRA-Gauteng and SAHRA for approval as a town planning scheme and spatial development framework.

- The HIA indicates which areas are available for development without legal obligation determined under the NHRA. Development may commence in these areas after approval from the PHRA-Gauteng and SAHRA.

- The HIA identifies which sites and buildings need to be retained and reused. Work may commence around these properties after approval by the PHRA-Gauteng and SAHRA.

- The brief does not specify how the individual identified properties and buildings should be reused and how they should be rehabilitated and this aspect is excluded from the HIA. Work on these sites can only commence once this aspect has been defined and a design architect has been appointed for each site. This must be done in collaboration with the heritage specialist for buildings.

- From a heritage (and conservation) point of view, the only recommendation that can be proposed by this HIA regarding the buildings older than 60 years to be demolished are as follows: (a) they need to be protected against demolition in the period prior to receipt of permits; (b) each building to be recorded photographically; (c) as-built architectural drawings to be drafted of the floor plan and elevations of each building and (d) these be compiled into a permit application to the heritage authorities. Such buildings may only be demolished once the necessary permits from these heritage authorities are received.

- From a heritage (and conservation) point of view, the only recommendation that can be proposed by this HIA regarding the selected buildings (to be retained and reused) is that (a) they need to be protected against demolition in the period prior to development; (b) each building to be recorded photographically; (c) as-built architectural drawings to be drafted of the floor plan and elevations of each building and (d) these be retained and passed onto the project design architect to be used as base documents when the design process commences for each of the selected sites.

- When the architectural design process commences for the sites and buildings identified for protection and reuse, the design architect must submit the proposed designs to the PHRA-Gauteng as Section 34 applications, for approval.

Required Mitigation Measures for Archaeological and Non-Built Heritage

General

A total of four non-built heritage sites were identified during the fieldwork. These sites comprise two cemeteries (DRD 1 & DRD 4) and two archaeological sites comprising historic middens (DRD 2 & DRD 3). In the subsequent section, the required mitigation measures for these sites will be provided. General mitigation measures for archaeological and non-built heritage sites will be provided in the section after that.

Cemeteries at DRD 1 and DRD 4

The following recommendations are required for the two cemeteries identified at DRD 1 and DRD 4.

- These two cemeteries must be preserved *in situ*.
- A 50m buffer area around each of these cemeteries must be kept clear of any development or associated activities.
- During the construction phase, an archaeological monitoring procedure must be implemented to allow for the archaeological monitoring of any construction activities proposed within 200m from these two cemeteries. This would ensure that such construction activities do not pose any threat to the graves, and secondly that any unmarked graves which may be located in the surroundings of these cemeteries can be identified at an early stage. Should human remains be identified during the archaeological monitoring process, the responsible archaeologist will provide suitable mitigation measures.

Historic Middens at DRD 2 and DRD 3

The following recommendations are required for the two historic middens identified at DRD 2 and DRD 3. A suitably experienced archaeologist must be appointed to undertake the mitigation measures outlined below.

- An archaeological excavation permit must be applied for from SAHRA.

- Once the above-mentioned permit is received, archaeological test excavations can be undertaken at the two sites.

- Laboratory analysis, classification and recording of the excavated archaeological materials must be undertaken once the excavations are concluded.

- An archaeological excavations report must be compiled and submitted to SAHRA with a permit application allowing the two sites to be destroyed. Only once the destruction permit is received from the heritage authority can these sites be destroyed.

General Mitigation Measures in terms of Archaeology and Non-Built Heritage Sites

The following general mitigation measures are required:

- Development activities in the surroundings of the present study area have shown that unmarked graves and cemeteries, as well as subterranean archaeological sites may very well be a characteristic of this historic gold mining landscape. As a result, and archaeological watching brief will be required during the construction phase.

On the condition that the mitigation measures recommended in this report are adhered to, and in cognisance of the assumptions and limitations, no heritage reasons can be given for the proposed town planning scheme not to continue.

10 REFERENCES

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Historic Topographic Maps

The historic topographic maps used in this report were obtained from the Directorate: National Geo-spatial Information of the Department of Rural Development & Land Reform, Cape Town.

Google Earth

All the aerial depictions used in this report are from Google Earth.

Appendix A

LEGISLATIVE REQUIREMENTS – TERMINOLOGY AND ASSESSMENT CRITERIA

General principles

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In terms of the heritage legislation, permits are required to damage, destroy, alter, or disturb them. Furthermore, individuals who already possess heritage material are required to register it. The management of heritage resources is integrated with environmental resources and this means that, before development takes place, heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves which are older than 60 years and are not located in a cemetery (such as ancestral graves in rural areas), are protected. The legislation also protects the interests of communities that have an interest in the graves: they should be consulted before any disturbance takes place. The graves of victims of conflict and those associated with the liberation struggle are to be identified, cared for, protected and memorials erected in their honour.

Anyone who intends to undertake a development must notify the heritage resources authority and, if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the construction company's cost. Thus, the construction company will be able to proceed without uncertainty about whether work will have to be stopped if an archaeological or heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32) it is stated that:
An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;

- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video 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), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with, and offer protection to, all historic and prehistoric cultural remains, including graves and human remains.

Graves and cemeteries

Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

Graves older than 60 years, but younger than 100 years, fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the South African Heritage Resources Agency (SAHRA). The procedure for Consultation regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years, over and above SAHRA authorisation.

If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

Appendix B

Curriculums Vitae of Authors

PROFESSIONAL CURRICULUM
FOR POLKE DOUSSY BIRKHOLTZ

Name: Polke Doussy Birkholtz

Date & Place of Birth: 9 February 1975 – Klerksdorp, North West Province, South Africa

Place of Tertiary Education & Dates Associated:

Institution: University of Pretoria
Qualification: BA (Cum Laude) - Bachelor of Arts Specializing in Archaeology, History & Anthropology
Date: 1996

Institution: University of Pretoria
Qualification: BA Hons (Cum Laude) - Bachelor of Arts with Honours Degree Specializing in Archaeology
Date: 1997

Qualifications:

BA	-	Degree specialising in Archaeology, History and Anthropology
BA Hons	-	Professional Archaeologist

Memberships:

Association of Southern African Professional Archaeologists (ASAPA)
Professional Member of the CRM Section of ASAPA

Overview of Post Graduate Experience:

1997 – 2000 – Member/Archaeologist – Archaeo-Info
2001 – 2003 – Archaeologist/Heritage Specialist – Helio Alliance
2000 – 2008 – Member/Archaeologist/Heritage Specialist – Archaeology Africa
2003 - Present – Director / Archaeologist / Heritage Specialist – PGS Heritage

Languages: English: Speak, Read & Write & Afrikaans: Speak, Read & Write

Total Years' Experience: 17 Years

Experience Related to the Scope of Work:

- Polke has worked as a **HERITAGE SPECIALIST / ARCHAEOLOGIST / HISTORIAN** on more than 275 projects, and acted as **PROJECT MANAGER** on almost all of these projects. His experience include the following:
    - Development of New Sedimentation and Flocculation Tanks at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Greenline*.
    - EThekwini Northern Aqueduct Project, Durban, KwaZulu-Natal. Heritage Impact Assessment for *Strategic Environmental Focus*.
    - Johannesburg Union Observatory, Johannesburg, Gauteng Province. Heritage Inventory for *Holm Jordaan*.
    - Development at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Aurecon*.

- Comet Ext. 8 Development, Boksburg, Gauteng Province. Phase 2 Heritage Impact Assessment for *Urban Dynamics*.
- Randjesfontein Homestead, Midrand, Gauteng Province. Baseline Heritage Assessment with Nkosinathi Tomose for Johannesburg City Parks.
- Rand Leases Ext. 13 Development, Roodepoort, Gauteng Province. Heritage Impact Assessment for *Marsh*.
- Proposed Relocation of the Hillendale Heavy Minerals Plant (HHMP) from Hillendale to Fairbreeze, KwaZulu-Natal. Heritage Impact Assessment for *Goslar Environmental*.
- Portion 80 of the farm Eikenhof 323 IQ, Johannesburg, Gauteng Province. Heritage Inventory for *Khare Incorporated*.
- Comet Ext. 14 Development, Boksburg, Gauteng Province. Heritage Impact Assessment for *Marsh*.
- Rand Steam Laundries, Johannesburg, Gauteng Province. Archival and Historical Study for *Impendulo* and *Imperial Properties*.
- Mine Waste Solutions, near Klerksdorp, North West Province. Heritage Inventory for *AngloGold Ashanti*.
- Consolidated EIA and EMP for the Kroondal and Marikana Mining Right Areas, North West Province. Heritage Impact Assessment for *Aquarius Platinum*.
- Wilkoppies Shopping Mall, Klerksdorp, North West Province. Heritage Impact Assessment for *Centre for Environmental Management*.
- Proposed Vosloorus Ext. 24, Vosloorus Ext. 41 and Vosloorus Ext. 43 Developments, Ekurhuleni District Municipality, Gauteng Province. Heritage Impact Assessment for *Enkanyini Projects*.
- Proposed Development of Portions 3, 6, 7 and 9 of the farm Olievenhoutbosch 389 JR, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Marsh*.
- Proposed Development of Lotus Gardens Ext. 18 to 27, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Pierre Joubert*.
- Proposed Development of the site of the old Vereeniging Hospital, Vereeniging, Gauteng Province. Heritage Scoping Assessment for *Lekwa*.
- Proposed Demolition of an Old Building, Kroonstad, Free State Province. Phase 2 Heritage Impact Assessment for *De Beers Consolidated Mines*.
- Proposed Development at Westdene Dam, Johannesburg, Gauteng Province. Heritage Impact Assessment for *Newtown*.
- West End, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Kathu Supplier Park, Kathu, Northern Cape Province. Heritage Impact Assessment for *Synergistics*.
- Matlosana 132 kV Line and Substation, Stilfontein, North West Province. Heritage Impact Assessment for *Anglo Saxon Group* and *Eskom*.
- Marakele National Park, Thabazimbi, Limpopo Province. Cultural Resources Management Plan for *SANParks*.
- Cullinan Diamond Mine, Cullinan, Gauteng Province. Heritage Inventory for *Petra Diamonds*.
- Highveld Mushrooms Project, Pretoria, Gauteng Province. Heritage Impact Assessment for *Mills & Otten*.
- Development at the Reserve Bank Governor's Residence, Pretoria, Gauteng Province. Archaeological Excavations and Mitigation for the *South African Reserve Bank*.
- Proposed Stones & Stones Recycling Plant, Johannesburg, Gauteng Province. Heritage Scoping Report for *KV3*.
- South East Vertical Shaft Section of ERPM, Boksburg, Gauteng Province. Heritage Scoping Report for *East Rand Proprietary Mines*.
- Proposed Development of the Top Star Mine Dump, Johannesburg, Gauteng Province. Detailed Archival and Historical Study for *Matakoma.*

- Soshanguve Bulk Water Replacement Project, Soshanguve, Gauteng Province. Heritage Impact Assessment for *KWP*.
- Biodiversity, Conservation and Participatory Development Project, Swaziland. Archaeological Component for *Africon*.
- Camdeboo National Park, Graaff-Reinet, Eastern Cape Province. Cultural Resources Management Plan for *SANParks*.
- Main Place, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Modderfontein Mine, Springs, Gauteng Province. Detailed Archival and Historical Study for *Consolidated Modderfontein Mines.*
- Proposed New Head Office for the Department of Foreign Affairs, Pretoria, Gauteng Province. Heritage Impact Assessment for *Holm Jordaan Group*.
- Proposed Modification of the Lukasrand Tower, Pretoria, Gauteng Province. Heritage Assessment for IEPM.
- Proposed Road between the Noupoort CBD and Kwazamukolo, Northern Cape Province. Heritage Impact Assessment for *Gill & Associates*.
- Proposed Development at the Johannesburg Zoological Gardens, Johannesburg, Gauteng Province. Detailed Archival and Historical Study for *Matakoma.*

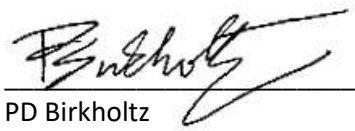
- Polke's **KEY QUALIFICATIONS:**

  - Project Management
  - Archaeological and Heritage Management
  - Archaeological and Heritage Impact Assessment
  - Archaeological and Heritage Fieldwork
  - Archival and Historical Research
  - Report Writing

- Polke's **INFORMATION TECHNOLOGY EXPERIENCE:**

  - *MS Office – Word, Excel, & Powerpoint*
  - *Google Earth*
  - *Garmin Mapsource*
  - *Adobe Photoshop*
  - *Corel Draw*

I, Polke Doussy Birkholtz, hereby confirm that the above information contained in my CV is true and correct.



PD Birkholtz

5 January 2016
Date

CV: MAURITZ NAUDÉ (2015)

Qualifications

BA - Archaeology (Pretoria)
BA – Hons Art History (Pretoria)
Post Graduate Diploma - Museology (Pretoria)
MA - Architecture – Conservation (WITS)
D. Phil – Dept Architecture and Landscape Architecture (Pretoria) current - to be completed.

Professional Experience

1) Curator and Conservator

2011-2015 – Senior Conservationist and Curator for buildings and structures: Architecture. Ditsong: National Museum of Cultural History.

1980-1983 – Curator Botshabelo Mission Station and South Ndebele Open Air Museum (Middelburg – Mpumalanga Province)

2) Researcher

1990-2009 - Senior researcher - National Cultural History Museum, Pretoria (Heritage Resources Management: conservation of architecture and the built environment)

1984-1990 – Researcher – National Cultural History Museum, Pretoria (Heritage sites and historic buildings)

1977-1979– Research assistant – Department of Archaeology (University of Pretoria)

3) Lecturer

2015 - Part time lecturer – History of the Environment, Dept Engineering, Built Environment and Information Technology, University of Pretoria

2011-2013 – Part time lecturer – BA Honors (Museum Sciences), Heritage and museum development. Dept of Historical and Heritage studies, Univ of Pretoria

1996-2015 - Part time lecturer – Post Graduate Diploma Museology: *Module 1: Conservation of architecture; Module 2: Research in the Museum.* Dept of Historical and Heritage Studies, Univ Pretoria.

2002-2015 - Part time lecturer - Environmental Law (Heritage legislation) Centre for Environmental Management (CEM), University of the North West (Potchefstroom campus)

2004-2010 - Part time lecturer - Dept of Architecture, Tshwane University of Technology (Conservation and Theory of Design)

2008-2009 – Guest lecturer – Architectural history and the assessment of buildings, Dept of Art History, Visual Arts and Musicology, UNISA.

External examiner and co-study leader

2014 - MA thesis: The cultural significance of the church of the Vow (Pietermaritzburg). Dept of Historical and heritage studies, University of Pretoria.

4) Expert Consultant: Conservation Of Buildings And Historic Sites

1995-2015 - Consultant - Assessment of historic sites and buildings

2000-2006 - Member of Heritage task group: Mapungubwe National Park (World Heritage Site)

2004-2009 – Member of South African Champion Trees Committee (National Committee – Dept of Water Affairs and Forestry).

2007 -2015 – Editorial Committee 'South African Journal for Art History' (Accredited Journal).

Heritage assessment projects in past twelve (12) years

2015 – Heritage assessment of Caledonian Sport grounds. Arcadia, Pretoria
2015 – Public participation process for proposed new buildings and alterations to former Government Garage, Pretoria
2015 – Heritage assessment of old farmstead on the farm Der Brochen in Steelpoort Valley
2015 – Heritage assessment of redundant Detonators Campus at Modderfontein Dynamite factory, Midrand
2015 – Public participation process for renovations on Grootkerk Bosman Street Pretoria.
2015 – Inventorying and assessment of heritage sites and monuments within the Ekurhuleni Metropolitan Council region

2014 – Urban heritage sensitivity study Salvokop
2014 –Architectural heritage assessment Government Garage buildings and campus
2014 – Mitigation of design and reuse of a portion of the Government Garage site for Government printing Services
2014 - Heritage assessment of farmstead and buildings on the farm Honingkrantz Postmasburg (Northern Cape Province)
2014 – Architectural assessment of dwellings in Lunnon Street Hatfield (Pretoria)
2014 – Heritage assessment and rehabilitation guidelines for reuse of semi-detached dwellings Oak Avenue Cullinan (Petra Diamonds)
2014 – Heritage assessment of Grootkerk (Bosman Street), Pretoria
2014 – Recording of old farm dwellings on the farm Steenkoolspruit (Witbank district) Mpumalanga Province
2014 – Heritage Assessment of historic farmstead and buildings on the farm Zwartkoppies (Pretoria)

2013 – Architectural assessment of historic buildings at redundant Durban Roodepoort Deep mine village (Roodepoort)
2013 – Heritage assessment of historic farmstead on the farm Mooifontein, Witbank district (Mpumalanga Province).
2013 – Heritage assessment of old farmstead - Kuruman small holdings, (Northern Cape Province)
2013 – Urban heritage sensitivity study – for proposed new Rapid Bus Transit route from Kempton Park to Thembisa (Gauteng Province).
2013 – Heritage assessment of TOLAB site and building, Pretoria City centre
2013 - Heritage assessment of old farmsteads on the farm Steenkoolspruit, Witbank district (Mpumalanga Province)
2013 – Heritage assessment of historic Bakker Pharmacy building, Modimolle (Limpopo Province)
2013 – Heritage assessment of historic mine building at Voorspoed diamond mine Kroonstad (Freestate Province)
2013 – Architectural recording of historic mine building at Voorspoed diamond mine Kroonstad (Freestate Province)
2013 – Heritage assessment of all buildings at Trans-Oranje School for the Deaf, Pretoria (Gauteng Province).

2012 – Assessment of historic buildings on former Durban Roodepoort Deep mining village
2012 – Mitigation measures for re-use of buildings on site for former Rand Leases mining village (Boksburg)
2012 – Heritage assessment of Benoni City Hall
2012 – Heritage assessment of buildings at Rustenburg Prison
2012 – Heritage assessment of buildings at Lichtenburg Prison
2012 – Assessment of old black mine workers compound of Rand Leases Mine - Boksburg
2012 – Assessment of historic farm dwellings on the farm Steenkoolspruit – Witbank district
2012 – Assessment of historic dwellings in Pretorius Street Hatfield
2012 – Assessment of historic dwellings in Flowers street Capital Park
2012 – Assessment of historic Aviation and navigation centre Bapsfontein
2012 – Assessment of farm dwellings of the historic Borchards family Levubu (Limpopo Province)
2012 – Assessment of historic industrial shed Olifantsfontein (Gauteng)
2012 – Assessment of historic Wesfort Leprosy Hospital site
2012 – Rehabilitation guidelines for proposed maintenance and restoration work on Kruger House
2012 – Assessment of historic Vereeniging Hospital – Vereeniging (Gauteng)
2012 – Assessment of historic buildings along proposed BRT route in the city centre and Sunnyside
2012 – Assessment of historic dwellings in Kotze Street, Sunnyside
2012 – Drafting a CMP framework for historic Rand Water pumping station and boiler facility,Vereeniging

2011 – Heritage assessment of alterations to eastern façade of Pretoria Station Building
2011 – Assessment of dwelling of former Director of SA Mint, Waterkloof, Pretoria
2011 – Heritage assessment of buildings at Cullinan mine (Petra Diamonds)
2011 – Assessment of old dwellings for proposed Eastwoods Mall – Arcadia
2011 – Conservation Management Policy framework: Pioneer Museum
2011 – Conservation Management Policy framework: Sammy Marks Museum
2011 – Conservation Management Policy framework: Willem Prinsloo Agricultural Museum
2011 – Conservation Management Policy framework: National Museum of Cultural History
2011 – Conservation Management Policy framework: Kruger Museum
2011 – Assessment of historic stone field post buildings Machadodorp Mpumalanga
2011 – Architectural recording of farm houses on proposed site for new Kusile Power Station Witbank

2010 – Assessment of site proposed for Department of Statistics new Head Offices, Salvokop, Pretoria.
2010 – Assessment of historic buildings on former property of ERPM Mine Boksburg
2010 - Assessment of historic buildings on redundant ERPM Eastern Shaft site, Boksburg
2010 – Assessment of decommissioned filtering dams Rand Water Board Vereenging
2010 - Assessment of historic turbine buildings, Rand water Board Vereenging
2010 – Assessment of industrial buildings and structures of Cullinan Mine
2010 – Assessment of old dwellings Park and Eastwood Streets Arcadia, Pretoria.
2010 – Assessment and mitigation of old farm dwelling Northam, Northwest Province.

2009 – Assessment of industrial buildings and structures on the farm Wilge River (Cullinan Mine)
2009 – Assessment of married quarters housing complex Rand Leases Mining (Roodepoort)
2009 – Assessment of old magistrates Court Building Naboomspruit (Limpopo Province)
2009 – Assessment of old Police Station building Bolubedu – Tzaneen.
2009 – Assessment of old magistrates Court Building Dzanani (Limpopo Province)
2009 – Assessment old magistrates Court building Shilvavusiku (Limpopo Province)
2009 – Assessment of farm buildings on the farm Goedehoop Middelburg district
2009 – Assessment of old dwellings in Brooklyn and Arcadia
2009- Assessment of old dwelling Pomona, Kempton Park (Gauteng)
2009 – Assessment of proposed development plan for Hendrik Potgieter Street development (Klerksdorp)
2009 – Recording of three old dwellings as part of the Westridge mall development (Klerksdorp)
2009 – Assessment of Post Office buildings – Menlyn Park (Pretoria)
2009 – Assessment of Mutual Park shopping mall - Rosebank (Johannesburg)
2009 – Assessment of old dwellings in Krugersdorp
2009 - Assessment of site for proposed Westridge Mall development (Klerksdorp)

2008 – Recording of old buildings for proposed Ngwenya River Lodge (Brits)
2008 – Recording of old buildings for proposed Pollak Park development (Springs)
2008 – Conservation management plan for the re-use of old buildings as part of the Pollak Park development (Springs)
2008 – Recording of old dwelling on the farm Leitrim – Heilbron
2008 – Assessment of archaeological sites on the farm Zwartkoppies (Pretoria)
2008 – Proposed mitigation of site of the former 2008 – Conservation management plan for Berea Sport Club buildings as part of the proposed new Land Affairs Head Offices
2008 – Conservation Management Plan for historic Goudkoppie site Klerksdorp
2008 – Assessment of old hangers and sheds at the Medical and Pharmaceutical Depot of the South African Department of Defense, Pretoria.

2007 – Assessment of 1902 -Wanooka House, (Park Town Johannesburg)
2007 – Assessment of 1914 dwelling (Houghton, Johannesburg)
2007 – Assessment of 1902 workers compounds Cinderella Mine (Benoni, Gauteng)
2007 – Assessment of remains of mining structures Randfontein mine (Randfontein)
2007 – Assessment of 1930 dwellings (Hatfield, Pretoria)
2007 – Drafting of an interface document for integrated management plan (ISM) for Union Buildings (Pretoria)
2007 – Assessment of buildings at the Johannesburg Observatory
2007 – Assessment of single quarters housing complex Rand Leases Mining Co
2007 – Assessment of historic Magistrates Court (Rustenburg, North West Province)
2007 – Heritage sensitivity study of University of Pretoria campuses
2007 – Assessment of buildings (Klerksdorp)
2007 - Assessment of buildings and structures Bob van Reenen Sport Stadium (Klerksdorp).
2007 – Assessment of dwelling (Ruimsig, Krugersdorp)
2007 – Sensitivity study Kopanong Precint - City Centre of Johannebsurg
2007 – Assessment of old farmstead Hartebeestpoort (Akasia).
2007 – Assessment of buildings Berea Park Sports Grounds (Pretoria)

2006 – Urban Heritage sensitivity study for Precincts 1,2,3,4,5,6, and 7 for Pretoria Strategic Development Framework (SDF)
2006 – Characterisation of Precincts 1,2,3,4,5,6 and 7 for Pretoria Strategic Development Framework (SDF)
2006 - Assessment of buildings Oeverzicht Sunnyside (Pretoria).
2006 – Assessment of Springkell Hospital Modderfontein Dynamite Factory, Midrand.
2006 - Heritage assessment of Pretoria Jewish Synagogue
2006 - Assessment of buildings Ferreirasdorp (Johannesburg City Centre)
2006 – Assessment of buildings Marshallstown, (Johannesburg City Centre).

2005 – Research and text for exhibition on the history of Church Square
2005 – Recording of remains of workers housing Rooigrond Brits
2005 – Assessment of farm buildings Ngwehya River, (Brits)
2005 – Assessment of 1886 outbuildings and dwellings on the farm Zwartkoppies (Pretoria)
2005 – Assessment of 1935 buildings Rand Airport (Germiston).

2004 - Recording of archaeological remains in proposed development area on farm Brakfontein (Centurion).
2004 - Site inventories of three sites proposed for the new head offices of the Department of Foreign Affairs (Pretoria)
2004 - Heritage impact assessment of the proposed "Lalela" Freedom of speech platform on Church Square (Pretoria).
2004 – Assessment of farm buildings and structures Vredefort Dome World Heritage Site.

2003 - Preliminary Heritage Impact Assessment of the proposed Casa Giovanetti executive apartments in Niew Muckleneuk (Pretoria).
2003 Assessment of National Heritage Site Klerksvly in the Golden Gate National Park.
2003 - Archaeological phase 1 assessment for proposed upgrade of road D2900 Siyabuswa.
2003 - Heritage Assessment of site proposed for KFC development Polokwane (Limpopo Province)
2003 - Mitigation of archaeological sites. St Lucia National Park (World Heritage Site)
2003 - Reconstruction and restoration of historic dwelling in Aoub River (Kgalagadi Transfrontier Park). Client: SANParks
2003 - Heritage Impact Assessment Phase 2 Gautrain Speed Rail Client : Bohlweki Environmental Consulting
2003 - Assessment of dwelling house in Otto Street (Krugersdorp)
2003 - Assessment of old buildings in proposed residential area of Devland 33, (Soweto). Client: Helio Alliance

2002 - Heritage assessment in the proposed road corridor for route K97 (Bon Accord).
2002 - Heritage impact assessment in area proposed for development at ESCOM head offices (Witbank).
2002 - Heritage assessment in the proposed interchange of routes K57 and Atlas road (Kempton Park).
2002 - Desk study on historic features in area proposed for Department of Environment Affairs and tourism new head offices (Pretoria).
2002 - Heritage Impact Assessment Phase 1 Gautrain Speed Rail.
2002 - Assessment of remains of structures in proposed new residential area (Kathlehong).
2002 - Heritage impact assessment in proposed road corridor K111 (Kempton Park).
2002 - Heritage impact assessment in Proposed road corridor Atlas Road (Kempton Park).
2002 - Heritage impact assessment for EMP for proposed development of Municipal stone quarry, (Bon Accord).
2002 - Assessment of structures in proposed development area of Brakfontein (Centurion).
2002 - Recordings of historic farmstead of the farm Brakfontein (Centurion).
2002. Assessment of all old buildings and farmsteads in proposed Vhembe Dongola Transfrontier Park (World Heritage Site).
2002. Recording of old farmsteads (Witbank).
2002 Assessment of old Modderfontein Mine workers compound, Brakpan East.
2002. Assessment of dwelling houses in Luipaardsvlei, (Krugersdorp).
2002 - Heritage assessment in proposed road corridor for re-alignment of Jochemus Street (Moreleta Park, Pretoria).
2002 - Heritage assessment in area proposed for Zwartland residential development (Centurion).
2002 - Assessment of historic structures and buildings on Zwartkops Country Club for proposed new residential development (Zwartkops).

5) PUBLICATIONS

Accredited Journals

2014 – Bellman hangars, structures of scale and functionality. South African Journal of Art History.

2010 – Circular structures and buildings associated with vernacular farm architecture and folk engineering. South African Journal for Art History.

2010 – A typology for 'waenhuise' in the vernacular farm architecture of the trans-Vaal River region. South African Journal for Art History.

2009 – The selective use of slate in vernacular farm buildings and structures north of the Vaal River. SA Journal of Art History (Vol: 24, nr2)

2007 – A legacy of rondavels and rondavel houses in the northern interior of South Africa. SA Journal of Art History.

2004 – A legacy of timber frame sheds and shelters in the trans-Vaal River region. SA Journal for Art History

2004 – Oral evidence on the construction of vernacular farm dwellings in the Waterberg (Limpopo Province). SA Journal of Cultural History.

2002 – Erich Mayer's depiction of the vernacular hut and multiple hut building tradition. SA Journal for Art History

2000 – Vernacular stone buildings and structures on farmsteads in the southern districts of the Mpumalanga Province. SA Journal for Cultural History.

Published Peer Reviewed Articles

2013 – Manufacturing of iron and related metal products in South Africa during the Second World War (1939-1945). Research Journal Ditsong National Museum of Cultural History (Vol 8).

2013 – Towards sustainable design and sympathetic site development; the new KPMG campus annex (Parktown, Johannesburg). Research Journal Ditsong National Museum of Cultural History (Vol 8).

2012 – Supporting outbuildings on farmsteads north of the Vaal River. Research Journal Ditsong National Museum of Cultural History (Vol 7).

2012 – The animal housing complex, a lesser building on the Hartebeestpoort farmstead. Research Journal Ditsong National Museum of Cultural History (Vol 7).

2011 – Indigenous wood types north of the Vaal River used for construction and as timber in vernacular buildings during the period 1840-1940. Research Journal (Vol 6). Pretoria: Ditsong National Museum of Cultural History.

2011 – The use of dolerite at a remote stock kraal field post on the farm Rietvlei in the Machadodorp district (Mpumalanga Province). Research Journal (Vol 6). Pretoria: Ditsong National Museum of Cultural History.

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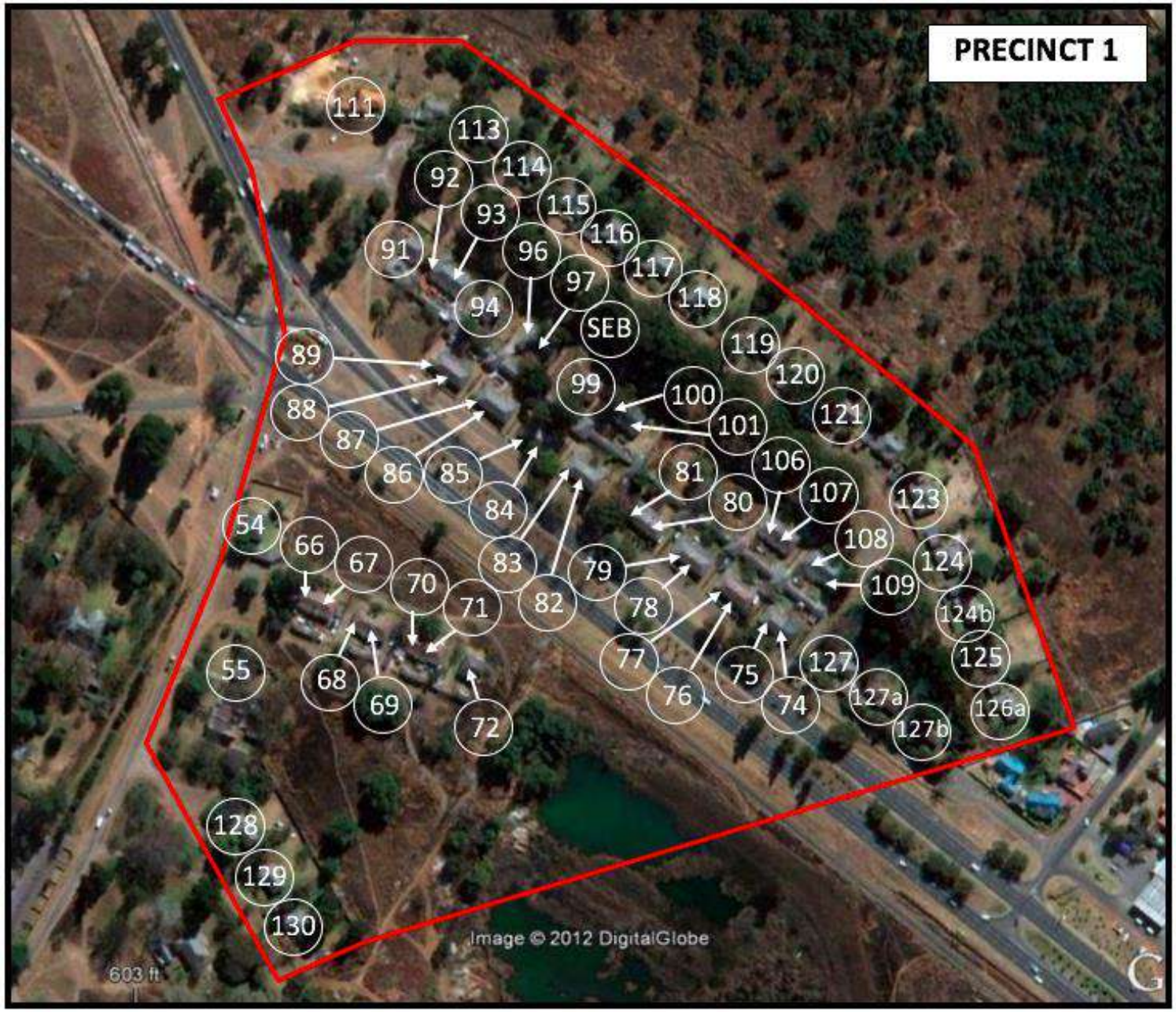
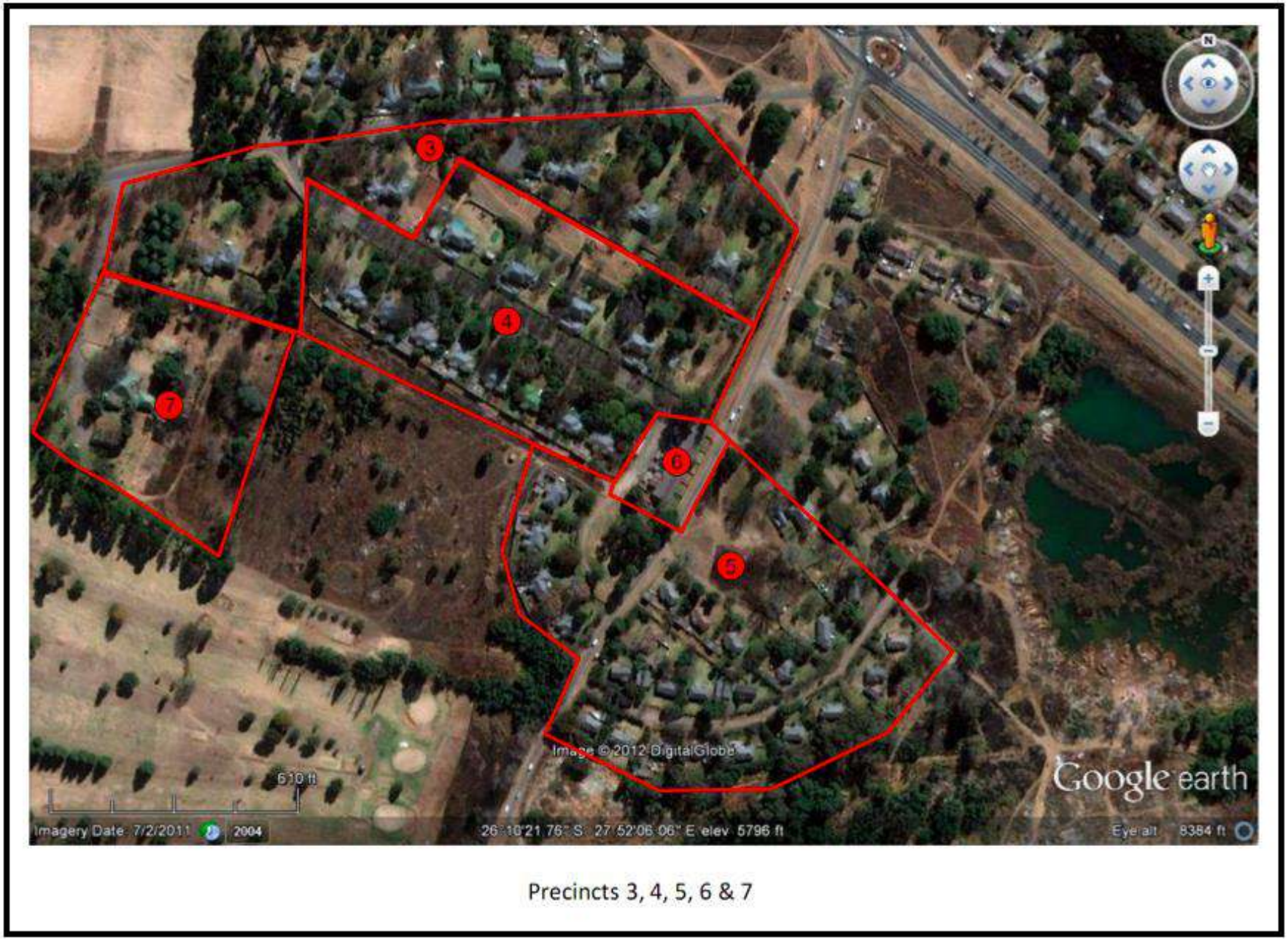
Appendix C

Distribution of Identified Built Heritage Sites

Please note that only the buildings still currently located within the study area are depicted on these distribution maps. In cases where all the buildings from a precinct had been vandalised / demolished, these precincts are not shown depicted. These are Precincts 3, 4, 6 and 7.

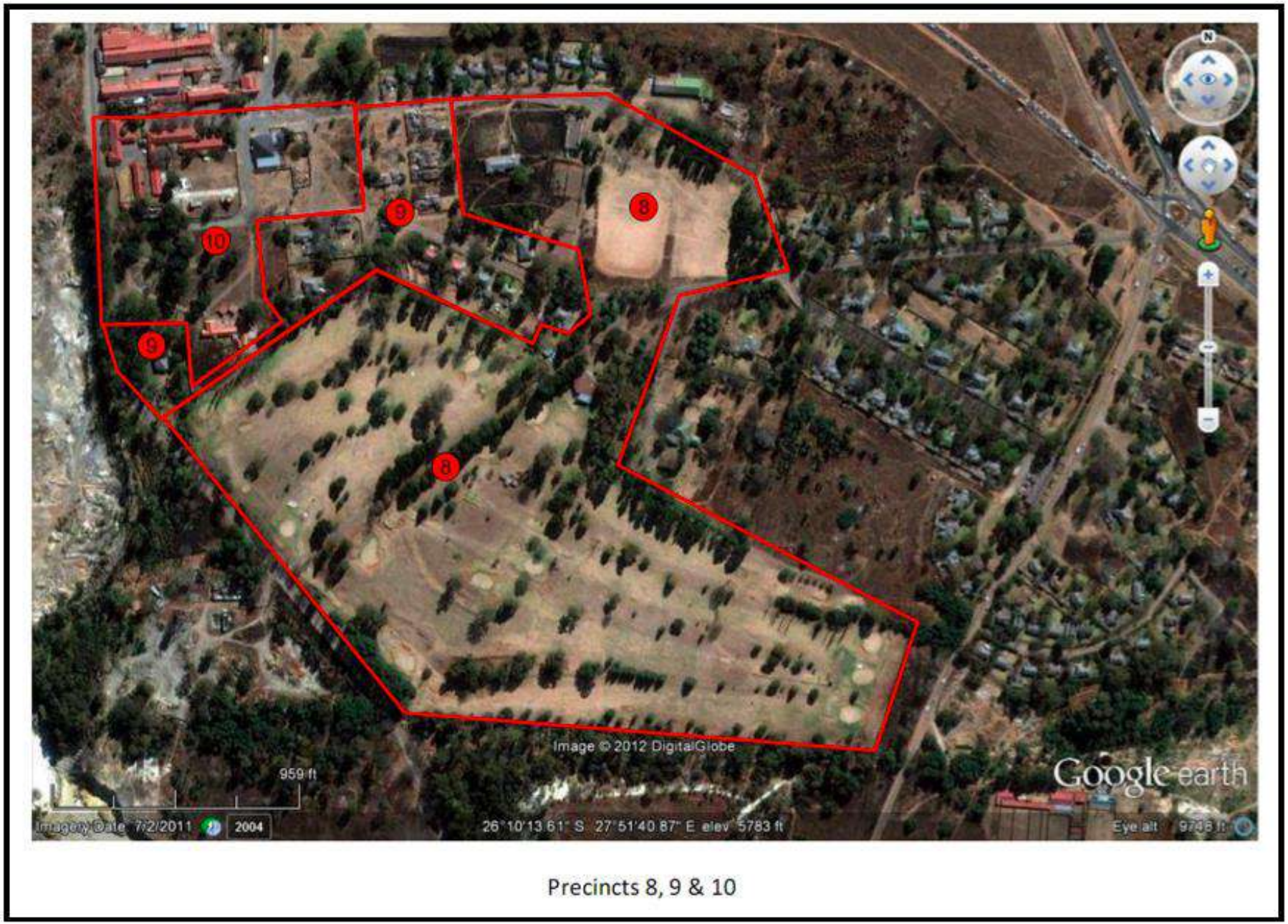

PRECINCT 1
111
113
92
114
93
115
116
91
96
117
97
118
94
SEB
119
89
120
99
100
88
121
101
87
106
86
85
81
107
123
84
80
54
108
66
67
83
79
124
70
109
71
82
78
124b
55
77
125
68
75
127
76
74
127a
69
72
126a
127b
128
129
130
Image © 2012 DigitalGlobe
603 ft


PRECINCT 2
245
246
247
248
249
250
251
252
253
254
155
157b

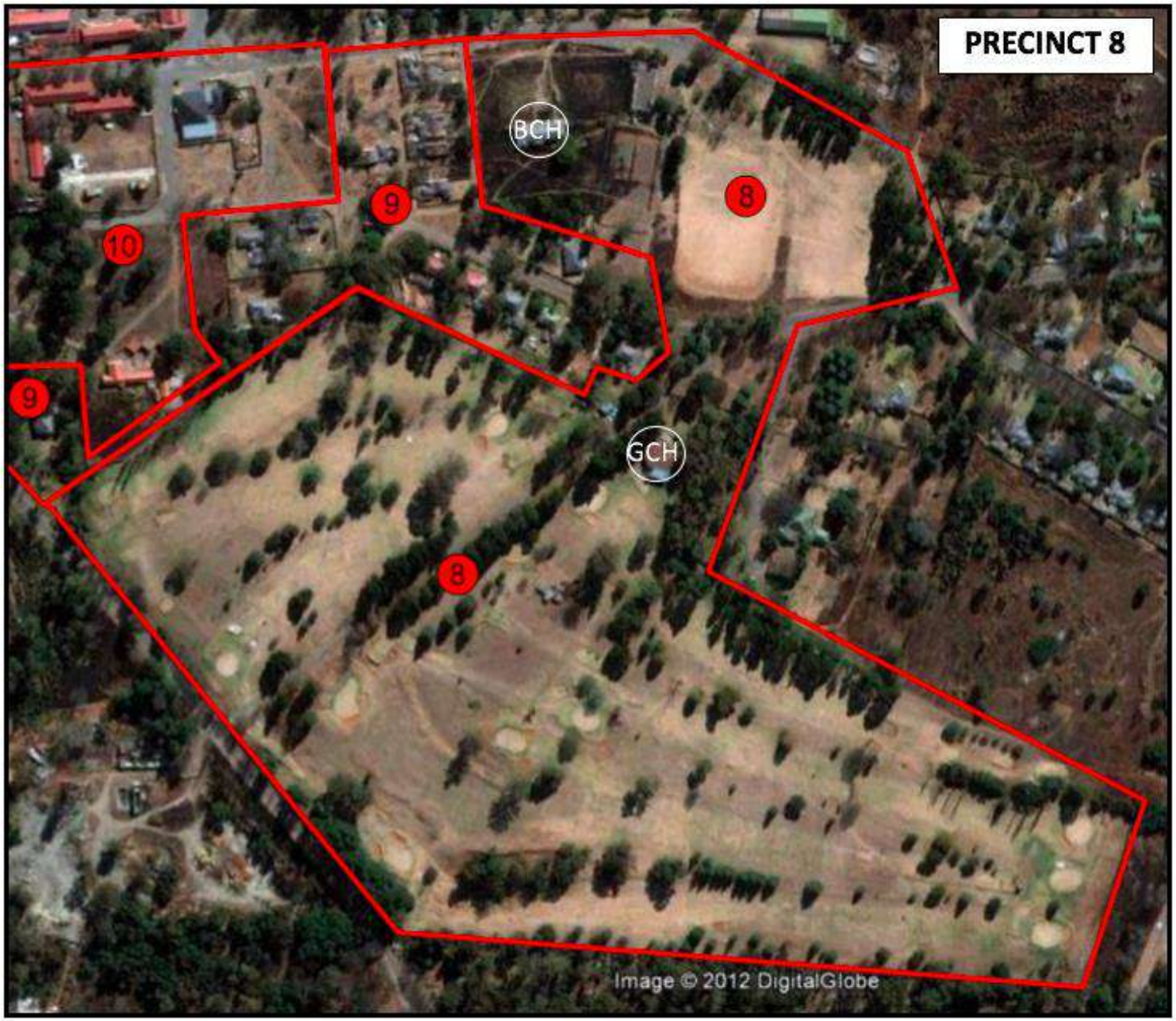


Precincts 3, 4, 5, 6 & 7


PRECINCT 5
65
136
5
133
230
245
132
131
234
240
238
236
233
235
Image © 2012 DigitalGlobe
241
239
237



Precincts 8, 9 & 10


PRECINCT 8
BCH
GCH
8
9
10
9
8
Image © 2012 DigitalGlobe


PRECINCT 9
21
22
25
26
27
30
9
10
38
10
37
31
35
34
38b
32
9
CID


PRECINCT 10
MOB
SUO
SEO
REH
TEO1
TEO2
CPO
STP
10
COMP1
9


PRECINCT 11
COMP 2
EAH
COO
C4
C2
C2
C2
C2
C1
C3


PRECINCT 13
C8
C2
C4
C5
C6
C7
C7
C7
C3
C1
C1
COMP 3


PRECINCT 15
DWG
DWO 2
DWO 1b
DWO 1a
BLS
92 m
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