



Phase 1 Heritage Impact Assessment

Proposed Development of Reiger Park Ext. 16
Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province

Project No: HU-2010-P112-RP16

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Client Name: Marsh Environmental Services (Mr. Steven Ingle)

EXECUTIVE SUMMARY

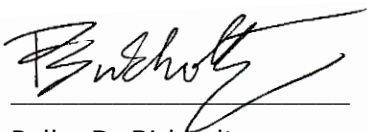
PGS Heritage and Grave Relocation Consultants was appointed by Marsh (Pty) Ltd to undertake a Phase 1 Heritage Impact Assessment for the proposed Reiger Park Ext. 16 development located near Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proponent is DRD Gold Limited.

An archival and historical study was undertaken which has revealed various aspects of the area's history. It showed that no significant heritage features can be associated with the study area during the period 1906 to 1952.

A field survey of the proposed development footprint has revealed four poorly preserved structures. With the information obtained through the desktop study it is clear that all four these structures were constructed after 1952, and were likely directly associated with the Central Reduction Works located north of the study area. This reduction facility was constructed between 1958 and 1961.

No significant heritage resources were identified within the study area. As a result no mitigation measures are required.

It is the opinion of the author of this report that in terms of the heritage aspects addressed as part of the defined scope of work of this study (see Section 3), the development may be allowed to continue.



Polke D. Birkholtz
Director

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1. INTRODUCTION

PGS Heritage and Grave Relocation Consultants was appointed by Marsh (Pty) Ltd to undertake a Phase 1 Heritage Impact Assessment for the proposed Reiger Park Ext. 16 development located near Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proponent is DRD Gold Limited.

2. DESCRIPTION OF STUDY AREA AND PROPOSED DEVELOPMENT

2.1 Study Area

The study area comprises for the most part flat topography and is largely open. A lane of large eucalyptus trees is located in the south-eastern corner of the study area, whereas small clumps of small and medium sized trees are found in two or more isolated pockets across the area.

The study area can be described as largely disturbed. Evidence for past earthmoving activities were found in various areas and the remains of mining associated activities dating to the latter half the previous century was found in a number of places.

The northern boundary of the site is defined by the security fence of the ERPM Central Reduction Works, with a small section of the north-eastern corner of the study area located within this area. The southern boundary is defined by the northern end of Reiger Park Ext. 2 whereas the site's south-eastern boundary is along St. Anthony's Street. The eastern and western boundaries of the study area are less well defined in the landscape.

2.2 Proposed Development

The proposed development comprises a total of 295 stands, 291 of which are earmarked for individual housing stands. Of the remaining four stands two are earmarked for Residential 3 development whilst the remaining two stands are earmarked for use as parks. Roads will be developed through the area, with the main access on St. Anthony's Street.

Refer Figure 1 below.



Plate 1 General view of a section of the study area.



Plate 2 This clump of trees is located on the south-eastern corner of the study area.

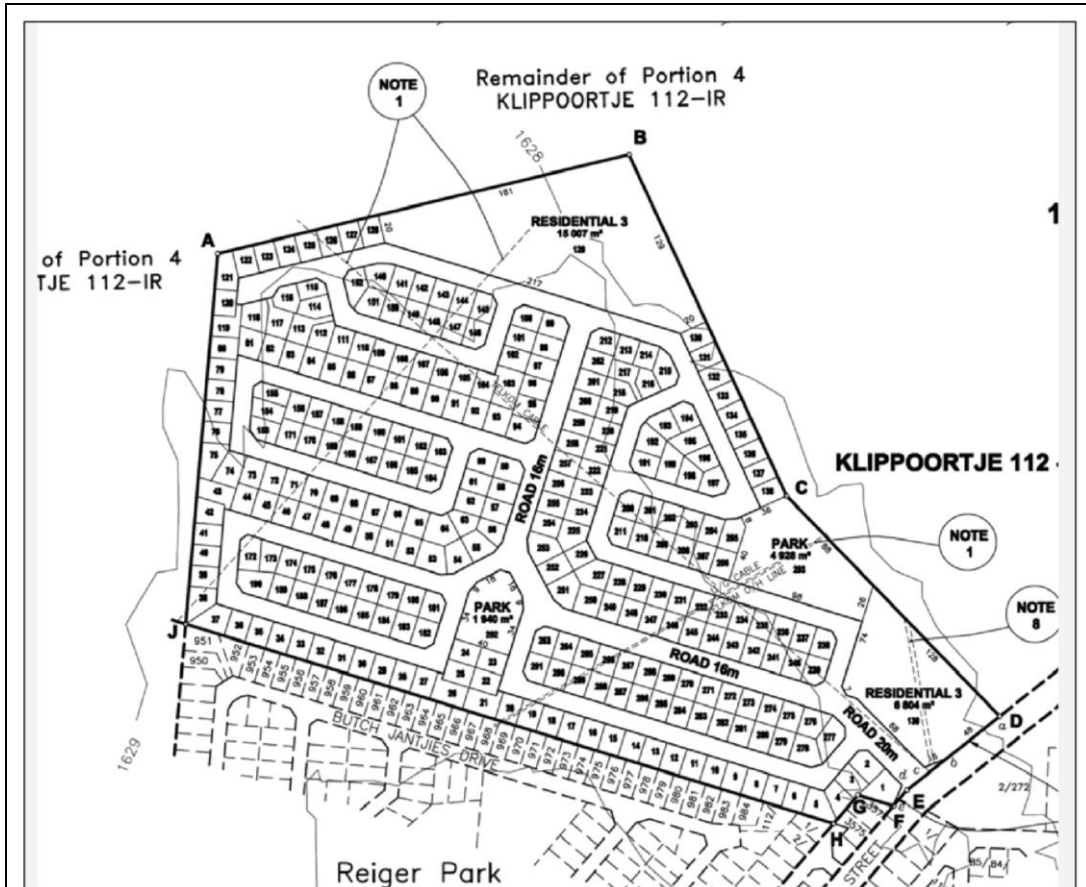


Figure 2: Layout plan for Reiger Park Extension 16



Figure 1 This image was supplied by the client. It shows the development layout plan (top) and a Google Image with the study area's boundaries depicted in red line (bottom).

3. SCOPE OF WORK

The aim of the Heritage Impact Assessment is to locate any heritage resources situated within the study area, assess their respective levels of significance, evaluate the impact of the proposed development on these sites and provide mitigation measures should these sites be negatively impacted upon.

The National Heritage Resources Act (25 of 1999) provides a very comprehensive list of what the national estate may consist of. This list includes:

1. Places, buildings, structures and equipment of cultural significance
2. Places to which oral traditions are attached or which are associated with living heritage
3. Historical settlements and townscapes
4. Landscapes and natural features of cultural significance
5. Geological sites of scientific or cultural importance
6. Archaeological and palaeontological sites
7. Graves and burial grounds
8. Sites of significance relating to the history of slavery in South Africa
9. Movable objects such as military objects and ethnographic art.

With the exception of 'geological sites of scientific or cultural importance' as well as 'palaentological sites' all these items are covered in the scope of this study's work.

Furthermore, it must be noted as well that this study focussed on the identification of tangible heritage resources. As a result very little work was undertaken in terms of intangible heritage (i.e. ritual or spiritual aspects of the area, indigenous knowledge systems and living heritage).

4. METHODOLOGY

4.1 Desktop Study

The desktop study's aim is to compile as much available information as possible on the heritage resources of the area and thereby also providing historical context for any located sites. The focus in the study was placed on archival and historical maps.

4.2 Field Surveys

The field surveys were undertaken on Thursday, 28 April 2011. Location data was captured with a Garmin MAP60CS handheld GPS receiver, loaded with a Garmap South Africa Topographic & Recreation v1.00 base map. Photographs were taken with a Canon Powershot A550 digital camera.

4.3 Consulting with Local Interested and/or Affected Parties

A public participation process was undertaken by Marsh (Pty) Ltd. The process comprised newspaper advertisements, site notices and distribution of Background Information Documents to residents, homeowners associations, ward councillor and interest groups. No Interested and Affected Parties (I&APs) registered for the process.

A number of informal discussions took place with members of the public encountered during the fieldwork undertaken by PGS Heritage & Grave Relocation Consultants. These individuals were asked whether they knew of any graves, old buildings or other heritage sites in the area.

4.4 Aspects regarding Visibility and Constraints

Not subtracting 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 heritage resources located there. This may be due to various reasons, including the subterranean nature of some archaeological sites and dense vegetation cover. 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 is true for graves and cemeteries as well.

5. LEGISLATIVE REQUIREMENTS AND TERMINOLOGY

5.1 Legislation

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

- National Environmental Management Act (NEMA) Act 107 of 1998
- National Heritage Resources Act (NHRA) Act 25 of 1999
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- 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:

- National Environmental Management Act (NEMA) Act 107 of 1998
 - Basic Environmental Assessment (BEA) – Section (23)(2)(d)
 - Environmental Scoping Report (ESR) – Section (29)(1)(d)
 - Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
 - Environmental Management Plan (EMP) – Section (34)(b)
- National Heritage Resources Act (NHRA) Act 25 of 1999
 - Protection of Heritage resources – Sections 34 to 36; and
 - Heritage Resources Management – Section 38
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
 - Section 39(3)
- Development Facilitation Act (DFA) Act 67 of 1995
 - The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

Refer Annexure C for an overview of the National Heritage Resources Act (25 of 1999).

5.2 Terminology

Archaeological resources

This includes:

- 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;
- 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;
- 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;

- 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

This means 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 change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

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

Heritage resources

This means any place or object of cultural significance

6. ASSESSMENT CRITERIA

This chapter describes the evaluation criteria used for the sites listed below. The four main criteria used in the evaluation of archaeological sites are:

- **site integrity** (i.e. primary vs. secondary context),
- **amount of deposit, range of features** (e.g. stonewalling and stone tools),

- **uniqueness** and
- **potential** to answer present research questions.

In terms of heritage sites, Section 3 (3) of the National Heritage Resources Act 25 of 1999 states that a place or object is considered part of the national estate if it has cultural significance or other special value because of:

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

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

6.1 Impact

The potential environmental impacts that may result from the proposed development.

6.1.1 Nature and existing mitigation

Natural conditions and conditions inherent in the project design that alleviate (control, moderate, curb) impacts. All management actions, which are presently implemented, are considered part of the project design and therefore mitigate against impacts.

6.2 Evaluation

6.2.1 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.

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

6.2.2 Impact rating

VERY HIGH

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment, and usually result in **severe** or **very severe** effects, or **beneficial** or **very beneficial** effects.

Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.

Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.

HIGH

These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a HIGH significance over the long term, as the area could be rehabilitated.

Example: The change to soil conditions will impact the natural system, and the impact on affected parties (in this case people growing crops on the soil) would be HIGH.

MODERATE

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are real but not substantial.

Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.

Example: The provision of a clinic in a rural area would result in a benefit of MODERATE significance.

LOW

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

Example: The temporary change in the water table of a wetland habitat, as these systems is adapted to fluctuating water levels.

Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people who live some distance away.

NO SIGNIFICANCE

No primary or secondary effects at all that are important to scientists or the public.

Example: A change to the geology of a particular formation may be regarded as severe from a geological perspective, but is of NO significance in the overall context.

6.2.3 Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of impact occurring.

POSSIBLE: Only over 40% sure of a particular fact or of the likelihood of an impact.

UNSURE: Less than 40% sure of a particular fact or likelihood of an impact occurring.

6.2.4 Duration

SHORT TERM: 0 to 5 years

MEDIUM: 6 to 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

Evaluation Example

Impact	Impact Significance	Heritage Significance	Certainty	Duration	Mitigation
Negative	Moderate	Grade GP.B	Possible	Short term	B

7. FINDINGS

7.1 Desktop Study Findings

7.1.1 Cartographic findings

7.1.1.1 ERPM General Mine Surface Plan, 1906

In Figure 2 below sections of a mine plan titled '*ERP Mines Ltd General Surface Plan of the Angelo Deep Section*' can be seen. The plan was originally compiled and surveyed by the Survey Office under supervision of the mine's surveyor at the time J. Forbes Hodgson. It was compiled on 30 June 1906. In the subsequent years revisions of the plan were made on an annual basis, with the last revision recorded for 30 June 1909. This indicates that the features and structures depicted on the plan are at least 102 years old.

While it is always very difficult to accurately establish the exact position of the study area on historical maps such as the one under discussion, the approximate position of the study area is demarcated in red dotted line in the depicted sheet below.

Two heritage features are depicted within this area (see red markers with arrows on depicted sheet below):

- Feature 1

This feature comprises a cluster of four mud huts.

- Feature 2

One mud hut is depicted here. It is located a little away from the four huts discussed above, though likely formed part of the same site.

Three heritage features are depicted in the areas surrounding the study area (see red markers on depicted sheet below):

- Feature 3

An old magazine is located here. These features were always located away from the other mine surface structures as it was used to house explosives such as dynamite. It may have been associated with the activities of the Angelo Gold Mine before the South African War.

- Feature 4

A quarry and store are depicted here. It is possible that both these features were associated with the nearby brick manufacturing plant discussed below.

- Feature 5

A brick manufacturing facility is depicted here. It comprises pug mills, a brickfield as well as mud huts where the labour force or staff must have stayed.

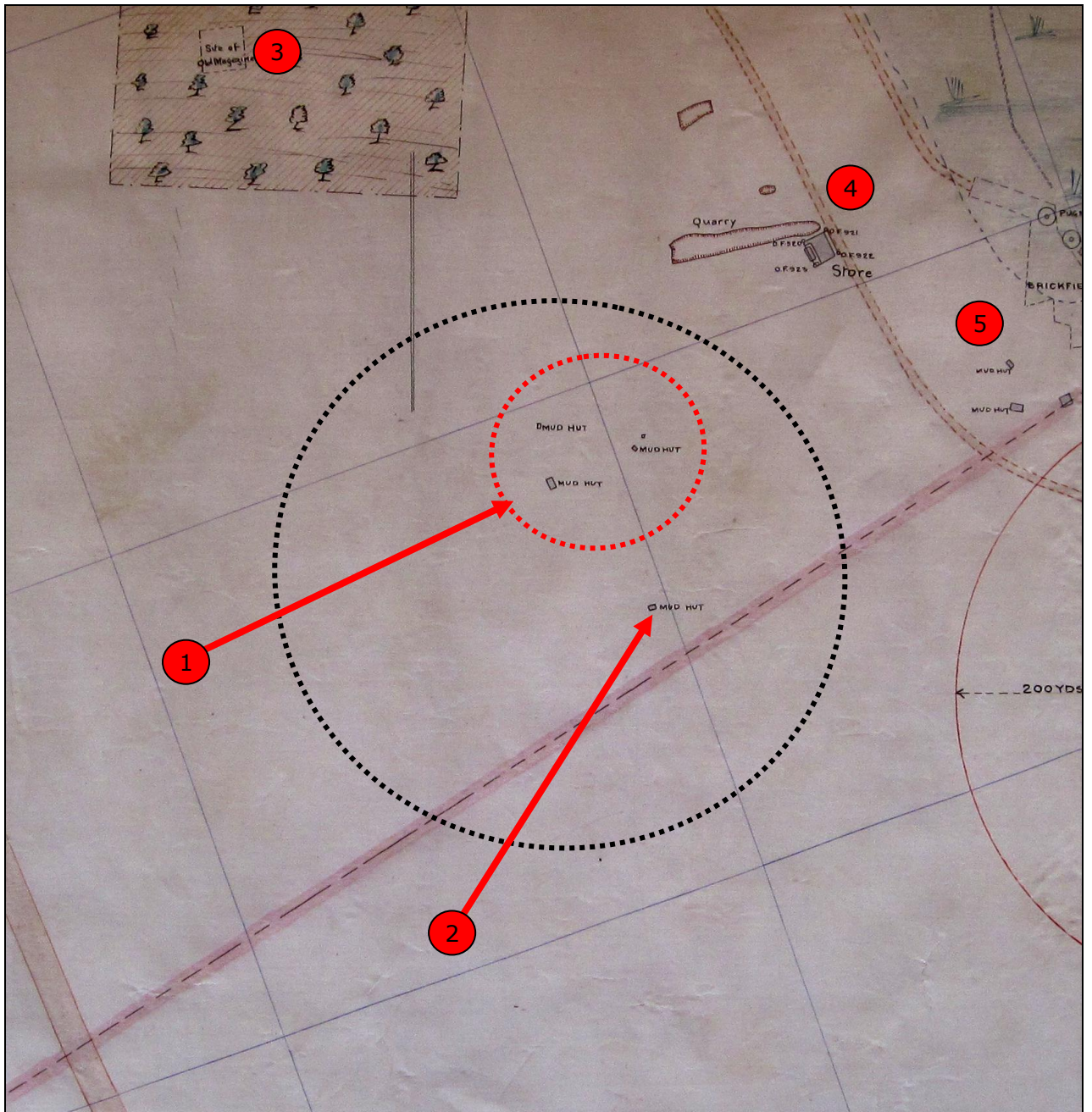


Figure 2 An enlarged section of the general surface plan dated to 30 June 1906.

7.1.1.2 1938 Aerial Photograph

An enlarged section of the 1938 aerial photograph is depicted in Figure 3. One heritage feature is depicted within the study area (see red marker with arrow):

- Feature 1

A linear feature is shown within the study area which may have been a pipeline.

Two heritage features are depicted outside of the study area:

- Feature 2

The Central Vertical Shaft and associated infrastructure are located here.

- Feature 3

A cluster of buildings is found here. Today this area is known as the St. Anthony's Education & Training Centre, though its use during the 1930s is not known.



Figure 3 Enlarged section of the 1938 aerial photograph.

7.1.1.3 1941 Aerial Photograph

An enlarged section of the 1941 aerial photograph is depicted in Figure 4.

A number of secondary roads and tracks are evident within the study area during this time. Large sections of the study area also appear to be used for agricultural activities with plough lines seemingly evident on the photograph.

Two heritage features are depicted within the study area (see red markers with arrows):

- Feature 1

A linear feature is shown within the study area which may have been a pipeline.

- Feature 2

A second linear feature is shown within the study area for the first time. While this feature may also be a pipeline, it can also possibly be a road.

Two heritage features are depicted in direct proximity to the study area (see red markers):

- Feature 3

The Central Vertical Shaft and associated infrastructure are located here. A comparison of this 1941 photograph with the 1938 one clearly shows that the site expanded in the three years between these two images. During this time a number of small trees were planted in two separate portions of land to the north and south of the shaft area.

- Feature 4

A cluster of buildings is found here. Today this area is known as the St. Anthony's Education & Training Centre, though its use during the 1930s is not known.

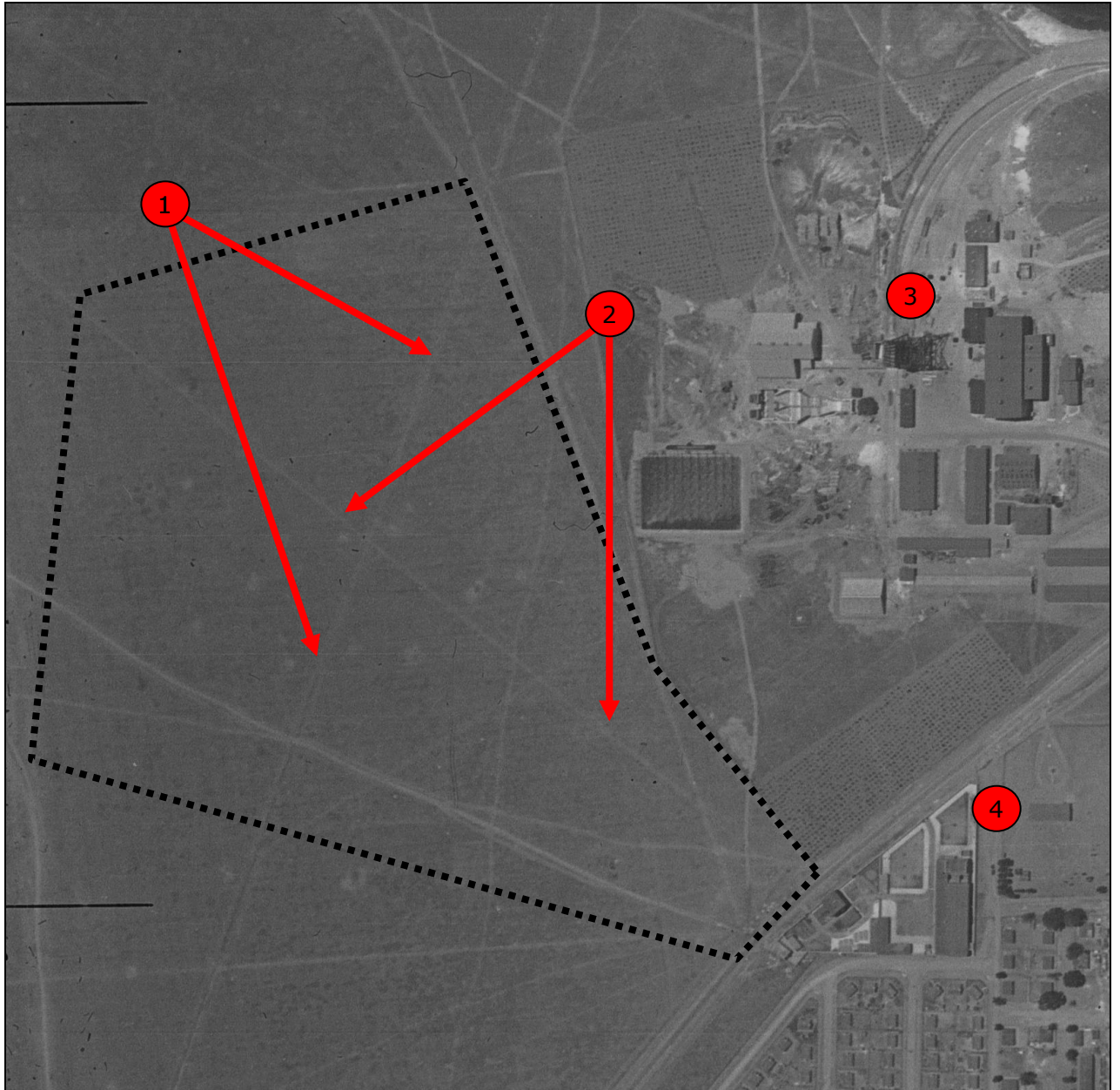


Figure 4 Enlarged section of the 1941 aerial photograph. The approximate boundaries of the study area are shown in black dotted line.

7.1.1.4 1952 Aerial Photograph

An enlarged section of the 1952 aerial photograph is depicted in Figure 5.

Two features are depicted within the study area (see red markers with arrows):

- Feature 1

A linear feature is shown within the study area which may have been a pipeline.

- Feature 2

A clump of trees is depicted on the eastern corner of the study area. These trees can still be seen today.

Three observations can be made from the direct surroundings of the study area:

- Feature 3

The Central Vertical Shaft and associated infrastructure are located here.

- Feature 4

A cluster of buildings is found here. Today this area is known as the St. Anthony's Education & Training Centre, though its use during the 1930s is not known.

- Feature 5

The houses of Reiger Park Ext. 1 can be seen for the first time.

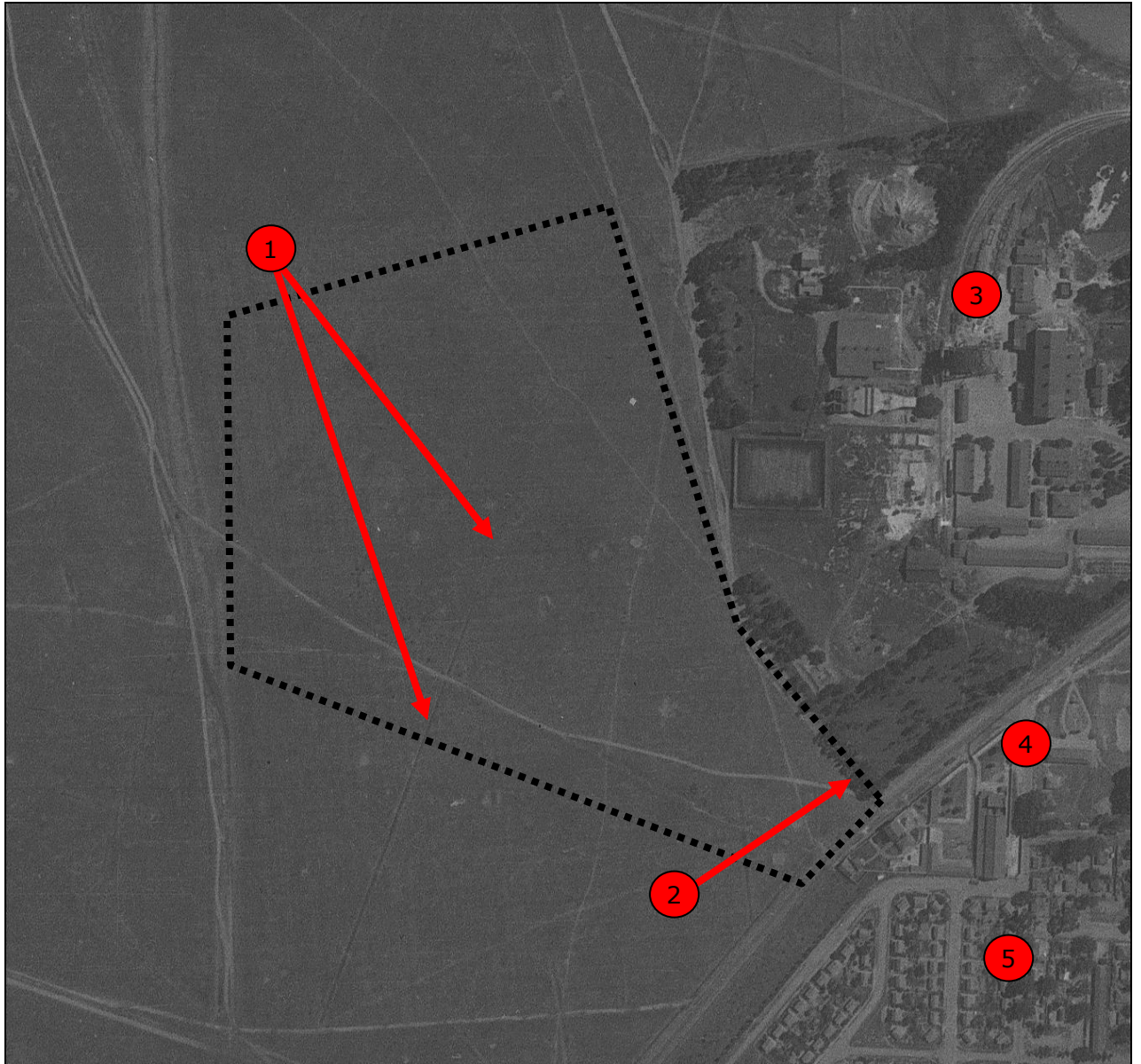


Figure 5 Enlarged section of the 1952 aerial photograph. The approximate boundaries of the study area are shown in black dotted line.

7.1.2 Historic overview of the wider area

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 phases is known as the Oldowan which is associated with crude flakes and hammer stones and dates to approximately 2 million years ago. The second technological phase known as the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial handaxe. The Acheulian phase dates back to approximately 1.5 million years ago.
250,000 to 40,000 years ago	The Middle Stone Age is the second oldest phase identified in South Africa's archaeological history. It is associated with flakes, points and blades manufactured by means of the prepared core technique.
40,000 years ago to the historic past	The Later Stone Age is the third phase identified in South Africa's archaeological history. It is associated with an abundance of very small stone artefacts known as microliths.
September 1886	A young man by the name of Pieter J.J.D Killian discovered gold-bearing reefs on the farms Leeuwpoot and Vogelfontein (Boksburg Town Council, n.d.).
March 1887	The farms Leeuwpoot and Vogelfontein were proclaimed as public diggings (Boksburg Town Council, n.d.).
July 1887	The new village which appeared as a result of the gold discoveries on the farms Leeuwpoot and Vogelfontein was named Boksburg in honour of the State Secretary of the <i>Zuid-Afrikaansche Republiek</i> , Dr. W.E. Bok (Boksburg Town Council, n.d.).
December 1887	Coal was discovered by J.L. Gauf on the eastern end of present-day Boksburg. The discovery of coal meant that the severe shortage of fuel in the surroundings of Boksburg which hampered the development of early gold mining activities, could be addressed (Boksburg Town Council, n.d.).
1889	A number of gold mining companies were established in the Boksburg area. These included the <i>Blue Sky Gold Mining Company</i> , the <i>Cinderella Gold Mining Company</i> , the <i>Agnes Munro Gold Mining Company</i> , the <i>Comet Main Reef Gold Mining Company</i> , the <i>St. Angelo Gold Mining Company</i> and the <i>Driefontein Gold Mining Company</i> (Letcher, 1936).
November 1890	The Boksburg Goldfields were proclaimed a separate administrative unit with Montagu White as it's first Mining Commissioner. During the two years that White filled this post he constructed the Boksburg Lake and also planted some 40,000 trees in a higher lying area north-west of the lake (Boksburg Town Council, n.d.).

<p>1892</p>	<p>Sir George Farrar and his associate Carl Hannau bought large quantities of shares in gold mining companies experiencing financial difficulties during this time, including the Blue Sky, Cinderella, Agnes Munro, Comet, St. Angelo and Driefontein (Letcher, 1936).</p>
<p>September 1892</p>	<p>The shares acquired by Farrar and Hannau were ceded to the H.F. Syndicate (Letcher, 1936).</p>
<p>May 1893</p>	<p>During this time these shares in the mining companies were taken over by the newly established East Rand Proprietary Mines (or ERPM) (Letcher, 1936). This company was established on 8 May 1893 with Sir George Farrar as chairman and C.S. Goldmann, Lionel Phillips, J.C.A. Henderson and S.W. Jameson as directors.</p>
<p>1894 - 1895</p>	<p>During this time ERPM reconstructed the Comet, Driefontein and St. Angelo gold mines through the provision of both working capital and land. The latter mine was re-established as the <i>Angelo Gold Mining Company Limited</i>.</p> <p>By the mid 1890s ERPM held great sway across the goldfields of Boksburg.</p>
<p>1899 – 1902</p>	<p>The South African War between Great Britain and the two Boer republics of the <i>Zuid-Afrikaansche Republiek</i> and the Free State.</p> <p>By the time that hostilities commenced on 11 October 1899, a massive exodus of British subjects from the Witwatersrand had already started. This exodus was supported by large numbers of black mineworkers who returned to their homes. Although the mining companies tried to stem the flood by offering attractive bonuses and salary increases, this had little effect. Before long all the gold mines along the Witwatersrand were forced to shut down.</p> <p>While the government of the <i>Zuid-Afrikaansche Republiek</i> intervened by appointing a State Board to carry on with mining activities on some of the mines, this proved a losing battle.</p> <p>During roughly the last two years of the war (a period known as the guerrilla phase) a number of the gold mines in the vicinity of Boksburg were attacked by Boer Commandoes. For example, the New Kleinfontein Gold Mine on the farm Driefontein was attacked by a Boer force under General Piet Viljoen. The mine manager E.J. Way was taken prisoner, but released on the same day. Another attack took place at the Moddefontein Mine as well. These attacks led to the establishment of a British force known as the Rand Rifles Mine Division to protect the mines. The force repulsed a number of attacks on the mines along the Witwatersrand. During November 1901 the mines were declared safe from attack and the unit was disbanded.</p> <p>On 4 May 1901 the Meyer and Charlton became the first gold mine along the Witwatersrand to start working again. A number of other gold mines followed suit, though it would take another three to four years before the mines managed to return to their pre-war production figures (Lang, 1986).</p>

<p>22 June 1904</p>	<p>After years of debate and deliberation, the first group of Chinese mine workers finally arrived at the East Rand Station to start working at the New Comet mine. This meant that the New Comet mine became the first gold mine anywhere along the Witwatersrand to make use of Chinese mine workers (Lang, 1986). A large number of other gold mines along the Witwatersrand followed suit as a way of addressing the serious shortage of labour brought about by the recent war. By the end of 1904 the number of Chinese mine workers employed on the Witwatersrand gold mines stood at 21,000 individuals, and by the end of the following year increased to 47,000 (Von Ketelhodt, 2007).</p>
<p>1909</p>	<p>The Anglo-French Group under chairmanship of Sir George Farrar undertook the reconstruction of the East Rand Proprietary Mines as an amalgamated entity. The amalgamation entailed the absorption of a number of smaller mining companies by ERPM, including <i>Driefontein Consolidated Mines Limited, Angelo Gold Mines Limited, New Comet Gold Mining Company Limited, Cason Gold Mines Limited, New Blue Sky Gold Mining Company Limited, Hercules Company Limited, Angelo Deep Gold Mines Limited</i> and the <i>H.F. Company Limited</i>. At the end of the reconstruction process ERPM held some 4,000 mining claims, several water rights and a few mining stands. ERPM was now one of the largest gold mines in the world.</p>
<p>March 1910</p>	<p>The last of the Chinese mineworkers left the Witwatersrand gold mines to return back home (Chilvers, 1932).</p>
<p>1914-1918</p>	<p>The First World War took place during this time, and was essentially a war between Great Britain and Germany. It had a significant negative impact on the gold mines of the Witwatersrand in that it did not only result in a rise of mining cost, but also led to a shortage of skilled European workers with many of them responding to the call to fight. However, apart from these one aspect which specifically had a very detrimental effect on the financial position of the gold mines along the Witwatersrand was the fact that all these mines had signed an agreement in 1914 that all the gold produced in South Africa would be sold for the duration of the war to the Bank of England at a fixed price of £3 17s 9d. Although this agreement initially looked very attractive, as the war carried on the rising cost of mining made the fixed price increasingly unprofitable (Cartwright, 1968).</p>
<p>1915</p>	<p>ERPM came under the control of the Central Mining and Investment Corporation (Lang, 1986).</p>
<p>1926</p>	<p>ERPM acquired the Cinderella Gold Mining Company (Cartwright, 1968). Through this acquisition a considerable body of payable ore became available to ERPM.</p>
<p>28 December 1932</p>	<p>On this day 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.</p>

November 1955	Underground workings at ERPM reached a depth of 10,000 feet (Cartwright, 1968).
May 1958	A winze at ERPM reached a depth of 11,000 feet. This meant that ERPM was officially the deepest mine in the world (Cartwright, 1968), a record it held until 2008.
1961	The newly constructed Central Reduction Works started operating in this year with a capacity of 200,000 tons a month (Beerman, 1964). It was constructed during the previous three years.

7.1.3 Historic overview of the study area



DATE	DESCRIPTION
30 June 1909	At the time the only man-made features from within the study area were four mud huts. It seems likely that they were associated with the brick manufacturing facility further to the north-east which was operated by <i>Angelo Deep Gold Mining Company Limited</i> .
1909 - 1938	Although the surrounding landscape during this time was characterised by mining development, very little evidence for this can be found from within the study area. The only new feature which can be identified within the study area is a linear structure which may have been a water pipeline.
1938 -1941	A second linear feature which may also have been a pipeline can be seen running across the study area.
1941 -1951	No new developments or features can be identified within the study area during this time. No buildings or structures are shown within the study area. This means that any buildings or structures found within the study area are younger than 60 years.

7.2 Public Participation Findings

No heritage related issues were raised during the public participation process undertaken by Marsh Environmental Services. No heritage sites or features were identified during the informal discussions with local residents.

7.3 SURVEY FINDINGS

At least four different buildings and structures (or the remains of what used to be buildings and structures) were identified during the fieldwork. However, the desktop study clearly showed that these features are all younger than 60 years. As a result they are of no heritage significance.

Nr	Building description with photographs
1.	<p data-bbox="341 259 868 293">Loading Platform and Railway Line</p> <p data-bbox="341 327 1477 517">The site comprises a large rectangular concrete structure (125m x 7m x 2m). It is orientated along the north-south axis, and has the remnants of a railway line on its eastern end. It is evident from the position of the structure parallel and adjacent to the railway line that it was used to load and/or offload railway trucks. This may have been ore from the nearby mine shafts for further processing in the reduction works north of the site, or alternatively waste material from the reduction works.</p> <p data-bbox="341 551 1469 584">The condition of the building is poor as is the condition of the adjacent railway line.</p> <p data-bbox="341 618 1477 685">Neither the building nor the railway line associated with it is depicted on the 1952 aerial photograph (see Figure 5 above), and as a result is younger than 60 years.</p>  

2. Foundation of Shed or Storage Facility

The site comprises a large rectangular concrete structure (50m x 35m). Its condition is poor with little more than the foundation remaining. The foundation is divided by means of very low walls into numerous smaller spaces. It seems likely that it was used to store material offloaded from the nearby railway line. The structure is not depicted on the 1952 aerial photograph and is therefore younger than 60 years.

**3. Unidentified Foundation Structure**

The site comprises a rectangular concrete structure (30m x 8m). The condition of the structure is very poor with only the foundation remaining. It is not depicted on the 1952 aerial photograph and is therefore younger than 60 years.



4. Brick Structure

A small rectangular brick structure is located here. It covers an area of roughly 16m² and still has most of its brick and cement walls left. The roof of the building was removed. The structure is not depicted on the 1952 aerial photograph (see Figure 5 above), and as a result is younger than 60 years.



8. COMPARISON OF SOCIO-ECONOMIC BENEFITS AND THE HERITAGE IMPACT

The following socio-economic benefits are expected from the proposed development:

- Short-term employment opportunities will be created during construction
- The proposed development will assist in addressing the housing shortage experienced in the Boksburg area
- The development will represent a financial investment into the local economy

If one considers the fact that the fieldwork did not identify any significant heritage resources within the study area, the heritage impact of the proposed development will be very low. If a comparison is made between the socio-economic benefits of the proposed development and this very low impact on the heritage resources of the area it is believed that the envisaged socio-economic benefits will far outweigh the heritage impact.

9. CONCLUSIONS AND GENERAL RECOMMENDATIONS

PGS Heritage and Grave Relocation Consultants was appointed by Marsh (Pty) Ltd to undertake a Phase 1 Heritage Impact Assessment for the proposed Reiger Park Ext. 16 development located near Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proponent is DRD Gold Limited.

An archival and historical study was undertaken which has revealed various aspects of the area's history. It showed that no significant heritage features can be associated with the study area during the period 1906 to 1952.

A field survey of the proposed development footprint has revealed four poorly preserved structures. With the information obtained through the desktop study it is clear that all four these structures were constructed after 1952, and were likely directly associated with the Central Reduction Works located north of the study area. This reduction facility was constructed between 1958 and 1961.

No significant heritage resources were identified within the study area. As a result no mitigation measures are required.

It is the opinion of the author of this report that in terms of the heritage aspects addressed as part of the defined scope of work of this study (see Section 3), the development may be allowed to continue.

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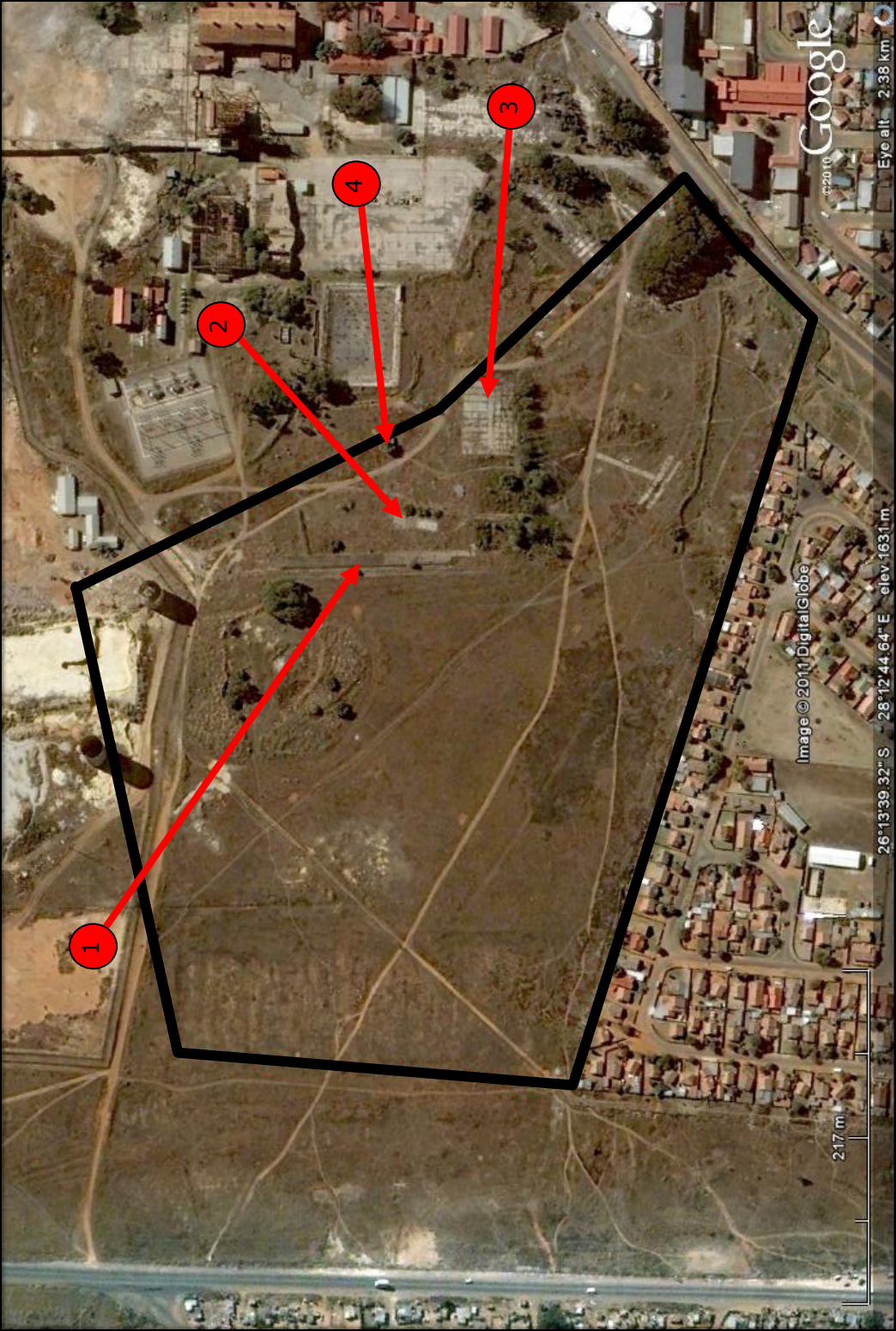
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ANNEXURE A
GOOGLE EARTH IMAGE OF STUDY
AREA SHOWING LOCATED SITES



ANNEXURE B
LEGISLATIVE FRAMEWORK

LEGISLATIVE FRAMEWORK

South Africa has a number of legislative measures in place aimed at protecting its heritage resources. Of these the most important is the National Heritage Resources Act 25 of 1999.

1. National Heritage Resources Act 25 of 1999

The promulgation of the National Heritage Resources Act 25 of 1999 brings the conservation and management of heritage resources in South Africa on par with international trends and standards.

Section 38 (3) of the act provides an outline of ideally what should be included in a heritage report. The act states:

"(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:

- (a) The identification and mapping of all heritage resources in the area affected;*
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;*
- (c) an assessment of the impact of the development on such heritage resources;*
- (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
- (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (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."*

Replacing the old National Monuments Act 28 of 1969, the Heritage Resources Act offers general protection for a number of heritage related features and objects (see below).

Structures are defined by the Heritage Resources Act as *"...any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated with it."* In section 34 of the Act the general protection for structures is stipulated. It is important to note that only structures older than 60 years are protected. Section 34(1) of the National Heritage Resources Act reads as follows: *"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 second general protection offered by the Heritage Resources Act which is of relevance for this project, is the protection of **archaeological sites and objects (as well as paleontological sites and meteorites)**. Section 35(4) of the National Heritage Resources Act states that:

"No person may, without a permit issued by the responsible heritage resources authority-

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites."*

In order to understand exactly what is protected, it is important to look at the definition of the concept "**archaeological**" set out in section 2(ii) of the Heritage Act:

- "(a) 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;*
- (b) 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;*
- (c) 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 respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), 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; and*
- (d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found;..."*

The third important general protection offered by the Heritage Resources Act that is of importance here, is the protection of **graves and burial grounds**. Section 36(3) of the National Heritage Resources Act states that:

"No person may, without a permit issued by SAHRA or a provincial heritage resources authority –

- a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or*
- c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals."*

Of importance as well is section 36 (5), which relates to the conditions under which permits will be issued by the relevant heritage authority should any action described in section 36 (3), be taken. Section 36(5) reads that:

"SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –

- a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and*
- b) reached agreements with such communities and individuals regarding the future of such grave or burial ground."*

This section of the Act refers to graves and burial grounds which are older than 60 years and situated outside of a formal cemetery administered by a local authority.

Section 36 (6) of the act refers to instances where previously unknown graves are uncovered during development and other activities.

"Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must

immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority-

- a) carry out an investigation for the purpose of obtaining information on whether or not such a grave is protected in terms of the Act or is of significance to any community; and*
- b) if such a grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangement for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any arrangements as it deems fit."*

2. Other Legislation

In terms of graves, other legislative measures which may be of relevance include the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues 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.