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**AN UPDATED PHASE I HERITAGE IMPACT ASSESSMENT
(HIA) STUDY FOR PILANESBERG PLATINUM MINE (PPM)
NEAR THE PILANESBERG IN THE NORTH-WEST PROVINCE
OF SOUTH AFRICA**

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EXECUTIVE SUMMARY

An updated Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) was done for Pilanesberg Platinum Mine (PPM) near the Pilanesberg in the North-West Province. The aims with the updated Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) (except paleontological remains) do occur in the Project Area.
- To establish if any of these heritage resources have been affected by mining activities in the past and, if so, to determine the significance of the impacts on these heritage resources.
- To establish the significance of the remaining heritage resources in the Project Area and to determine whether any impacts may occur on these heritage resources in the future.
- To recommend appropriate mitigation measures for those types and ranges of heritage resources which may be affected by future mining activities.

The updated Phase I HIA for the PPM Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (Act No 25 of 1999) in the PPM Project Area, namely:

- Clusters of stone walled sites which date from the LIA are associated with the mountains of Mogare, Mmatone, Patshwane and Mukukunupe on Witkleifontein 136JP and Tuschenkomst 135JP while three LIA stone walled sites are associated with the mountain of Thlorosane and some of its foothills on Ruighoek 169JP.
- Two isolated LIA stone walled sites are associated with the hills Mabjaneng and Motsotsodi on Witkleifontein 136JP while a single, isolated LIA stone walled site occurs on Ruighoek 169JP. A single, isolated site with limited stone walls also occurs on the flats of Witkleifontein 136JP.
- The abandoned historical graveyard which is associated with the former village of Motlhabe and a relocated graveyard on Ruighoek 169JP. (Several formal graveyards which are currently used occur in villages around the PPM Project Area).
- Historical remains such as the former village of Motlhabe occur on Witkleifontein 136JP. (A number of historical houses occur in villages such as Ngwedding, Ntsana-le-Metsing and Motlhabe which surround the PPM Project Area).

- A few isolated scattered stone tools were observed on the flats between some of the mountains on Witkleifontein 136JP.

The heritage resources in the PPM Project Area were geo-referenced, tabulated and mapped (Figures 3[a] & 3[b]; Tables 1-9).

Heritage resources affected by mining related activities

Heritage resources which have been recorded in the past but which have been affected by mining operations during the last seven years include the following:

- Evidence for early prospecting activities along the western slope of Mmatone on Witkleifontein 136JP was destroyed when PPM's tailings dam was constructed.
- A chrome mine which dated from the 1960's was destroyed when new chrome mining commenced on the older chrome mining remains (unrelated to PPM).
- A stone walled site (PTS06) along the southern foot of Patshwane was partly destroyed when a new road was constructed.
- A graveyard on Ruighoek 169JP was relocated in order to make way for chrome mining activities (unrelated to PPM).

Possible future disturbance of heritage resources

Some of the heritage resources within the PPM Project Area have been affected in the past as a result of PPM and third party mining activities. It is likely that more of these heritage resources may be affected in the future as a result of on-going mining operations or when expansions of existing mining operations are undertaken. The heritage resources that could be affected by future mining operations, as well as the significance of the potential impact and recommended mitigation measures, are listed below.

The Late Iron Age and/or historical remains

It is highly likely that the stone walled sites PA01, PA02 and PA03 will be affected (destroyed) when the footprint of the Waste Rock Dump (WRD) associated with the Tuschenkomst Open Cast Pit is increased in the future.

The significance of any possible impact on these LIA and historical remains therefore can be considered to be of very high significance (Table 10).

These remains may not be disturbed *prior* to their investigation by an archaeologist who is accredited with the Association for Southern African Professional Archaeologists (ASAPA).

PPM has to acquire a demolition permit from the SAHRA after these structures have been documented by the archaeologist before they can be demolished.

The graveyards

It is highly unlikely that either of the two graveyards in the PPM Project Area will be affected by any future mining development activities.

The significance of any possible impact on graveyards therefore can be considered to be very low (Table 11). No mitigation measures are required. However, a Conservation Management Plan for graveyards should be included in the Environmental Management Programme. This plan must provide for the following:

- Demarcation of graveyards with fences or walls and fitted with entrance gates to provide access to family and friends.
- Regulated visitor hours compatible with mine safety rules.
- Maintaining corridors of at least 30m between graveyard borders and developmental activities.

General: disclaimer

Although due consideration was given to the observing and documenting of all heritage resources in the PPM Project Area some resources may not have been detected due to various reasons (occurring beneath the surface, unmarked, inconspicuous or eroded nature, covered by vegetation, human failure to recognise, etc.).

If any heritage resources of significance are exposed during the mining project the SAHRA should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from the SAHRA to conduct the mitigation measures.

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1 BACKGROUND

This document contains an updated Phase I Heritage Impact Assessment (HIA) study done for Pilanesberg Platinum Mines (Pty) Ltd (PPM) on the farms Ruighoek 169JP, Rooderand 46JQ, Witkleifontein 136JP and Tuschenkomst 135JP in the North-West Province of South Africa.

PPM operates under an approved environmental impact assessment (EIA) and environmental management programme (EMP) report. In addition, there have been several amendments and additions to the EIA and EMP report. A summary of the assessments that have been conducted for the PPM operations since 2006 is provided in Box 1. (Also see Part 3.2 'Fieldwork and research; and Part 10, 'Select Bibliography').

Box 1. Summary of heritage assessments conducted for PPM to date (below).

Date	Project title	Status	Heritage studies undertaken
April 2007	Pilanesberg Platinum Mines – EIA and EMP for a proposed platinum mine	Approved	Dr Julius Pistorius (June 2006)
April 2009	EIA and EMP for the proposed closure of a provincial road and changes to surface infrastructure at Pilanesberg Platinum Mine	Approved	Information was used from previous studies (Pistorius 2006 and 2007)
May 2013	Pilanesberg Platinum Mine Chrome Project	Pending	Dr Julius Pistorius and Mr Sydney Miller (September 2010)
February 2012	Amending the Pilanesberg Platinum Mine EMP closure objectives	Pending	Dr Julius Pistorius (May 2011)
November 2011 (MPRDA* only)	Pilanesberg Platinum Mine EMP Amendment to extend the Tuschenkomst Pit	Pending	Dr Julius Pistorius (October 2011)
Assessment underway (NEMA** only)	Pilanesberg Platinum Mine EMP Amendment to extend the Tuschenkomst Pit	Pending	Dr Julius Pistorius (October 2011)

*MPRDA – Mineral and Petroleum Resources Development Act, 28 of 2002

**NEMA – National Environmental Management Act, 107 of 1998

The North-West Province of South Africa has a rich heritage comprised of remains dating from the pre-historic and from the historical (or colonial) periods of South Africa. Pre-historic and historical remains in the North-West Province present a record of the heritage of most groups living in South Africa today. Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' (outlined in Section 3 of the National Heritage Resources Act, Act No 25 of 1999) occur in this region (see Box 2).

Box 2: Types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999).

The National Heritage Resources Act (Act 25 of 1999, Section 3) outlines the following types and ranges of heritage resources that qualify as part of the national estate:

- a. Places, buildings structures and equipment of cultural significance;
- b. Places to which oral traditions are attached or which are associated with living heritage;
- c. Historical settlements and townscapes;
- d. Landscapes and natural features of cultural significance;
- e. Geological sites of scientific or cultural importance;
- f. Archaeological and palaeontological sites;
- g. Graves and burial grounds including-
 - i. Ancestral graves;
 - ii. Royal graves and graves of traditional leaders;
 - iii. Graves of victims of conflict;
 - iv. Graves of individuals designated by the Minister by notice in the Gazette;
 - v. Historical graves and cemeteries; and
- h. Other human remains which are not covered in terms of the Human Tissue Act (Act 65 of 1983);
- i. Sites of significance relating to the history of slavery in South Africa;
- j. Moveable objects, including -
 - i. Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, material, meteorites and rare geological specimens;
 - ii. Objects to which oral traditions are attached or which are associated with living heritage;
 - iii. Ethnographic art and objects;
 - iv. Military objects;
 - v. Objects of decorative or fine art;
 - vi. Objects of scientific or technological interest; and
 - vii. Books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act (Act 43 of 1996).

The National Heritage Resources Act (Act 25 of 1999, Sec 3) also distinguishes nine criteria for a place and/or object to qualify as 'part of the national estate if they have cultural significance or other special value ...'. These criteria are the following:

- 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/or
- i. Its significance relating to the history of slavery in South Africa.

2 AIMS OF THIS REPORT

The farms Ruighoek 169JP, Rooderand 46JQ, Witkleifontein 136JP and Tuschenkomst 135JP near the Pilanesberg in the North-West Province are all part of the PPM Project Area but mining activities are currently restricted to the last two farms. However, it should be noted that third party mining companies (unrelated to PPM) are also operating on these farms, particularly on the farm Ruighoek 169JP. Given the possibility that heritage resources may occur in or near the proposed new mining areas, Pilanesberg Platinum Mines appointed the author in 2006 to conduct a Phase I Heritage Impact Assessment (HIA) study of the Pilanesberg Platinum Mines' mining areas. This report now has been updated as new mining activities have occurred during the last eight years while new mining activities are planned for the future.

The aims of this updated Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 2) (except paleontological remains) do occur in the Project Area.
- To establish if any of these heritage resources have been affected by mining activities in the past and, if so, to determine the significance of the impacts on these heritage resources.
- To establish the significance of the remaining heritage resources in the Project Area and to determine whether any impacts may occur on these heritage resources in the future.
- To recommend appropriate mitigation measures for those types and ranges of heritage resources which may be affected by future mining activities.

3 METHODOLOGY

This Phase I HIA study was conducted by means of the following activities:

- Considering and evaluating data collected during earlier surveys for the PPM (previously Boynton Platinum) (see 'Part 10, 'Select Bibliography').
- Surveying literature relating to the pre-historical and historical context of the Pilanesberg region.
- Surveying the proposed PPM Project Area with a vehicle and on foot.
- Consulting with spokespersons that live in the PPM Project Area.
- Synthesising the information obtained from the activities outlined above in this report.

3.1 Desktop study

Literature relating to the pre-historical and the historical unfolding of the Pilanesberg District was reviewed. This review provides a broad chronological overview of the region ranging from pre-historical times to the historical period including the development of platinum and chrome mining in the region. It also refers to the Bakgatla and other Tswana clans who, together with the colonial Voortrekkers, were the most influential pre-historic and historical groups in the region.

The literature review focused particularly on local Tswana groups such as the Kgatla Kgafêla and the Tlhako who live along the Pilanesberg. (The history of the origins of the Tlôkwa who live slightly further to the west of the Pilanesberg was not reviewed). The presence and influence of Mzilikazi of the Ndebele in the Pilanesberg was also emphasised, as the remains found in the course of this study suggest that one of his village complexes, or villages occupied by Ndebele communities may have stood in what is now the proposed mining area.

This contextual evidence contributes to a better understanding of the identity and meaning of heritage sites which may occur in and near the Project Area.

A number of heritage studies which were done for developers near the Project Area also provided information regarding the general heritage characteristics of the larger Project Area (see 'Part 10, Select Bibliography').

The desktop study also involved consulting heritage data banks maintained at institutions such as the North-West Provincial Heritage Resources Agency in Mafikeng, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and the national heritage resources register at the South African Heritage Resources Agency (SAHRIS) in Cape Town.

The Project Area was also studied by means of maps (Sun City 2527CA 1: 50 000 topographical map; 2527 Pretoria 1:250 000 map and Google imagery).

3.2 Fieldwork and research

The Project Area was surveyed with a vehicle and by means of a pedestrian survey. The pedestrian survey was conducted along the foot slopes of all the major hills as well as along the base lines of individual kopjes in the PPM Project Area.



Figure 1- Track pathway registered with a mounted GPS outlines the main routes that were followed during the last field survey (above).

A track log which was registered with a mounted GPS instrument outlines the main route for the field survey from where pedestrian surveys were conducted. The pedestrian surveys were conducted from the vehicle in directions dictated by the archaeologists experience where to find stone walled sites.

The Project Area or parts of the Project Area were also surveyed several times in the past, namely (see 'Part 10, Select Bibliography'):

- Pistorius, J.C.C. 2006a. *A Phase I Heritage Impact Assessment (HIA) study for Boynton Platinum's new proposed mining areas near the Pilanesberg in the North-West Province of South Africa*. Unpublished report prepared for Metago Environmental Engineers.
- Pistorius, J.C.C. 2006b. *An extended Phase I Heritage Impact Assessment (HIA) study for Pilanesberg Platinum Mines (PPM) new proposed mining areas near the Pilanesberg in the North-West Province of South Africa*. Unpublished report prepared for Metago Environmental Engineers.
- Pistorius, J.C.C. 2006c. *A Phase I Heritage Impact Assessment (HIA) study for Boynton Platinum's new proposed mining areas near the Pilanesberg in the North-West Province of South Africa*. Unpublished report prepared for Metago Environmental Engineers (combination of first two studies).
- Pistorius, J.C.C. 2009. *A Phase I Heritage Impact Assessment (HIA) study for Pilanesberg Platinum Mine's (PPM) proposed rock waste dump extension near the Pilanesberg in the North-West Province of South Africa*. Unpublished report prepared for Pilanesberg Platinum Mine.
- Pistorius, J.C.C. 2010. *Brief report on heritage matters at Pilanesberg Platinum Mine*. Unpublished report prepared for Pilanesberg Platinum Mine.
- Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment (HIA) study for Pilanesberg Platinum Mine's (PPM) proposed amendment of the closure objectives of the Tuschenkomst Open Pit and community water supply scheme near the Pilanesberg in the North-West Province*. Unpublished report prepared for Pilanesberg Platinum Mine.
- Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment (HIA) study for a combined platinum mining operation near Pilanesberg in the North-West*

Province: the extension of the Tuschenkomst open cast pit for Pilanesberg Platinum Mine. Unpublished report prepared for LSR Consulting (Africa) (Pty) Ltd..

A number of heritage impact assessments studies have been done in the larger Project Area, some of which are listed below (also see 'Part 10, Select Bibliography'):

- Heritage Assessment 2008. Horizon Chrome Mine on portions of the farm Ruighoek 169JP, Pilanesberg North West Province. Matakoma-ARM on behalf of Wits Enterprises
- Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment (HIA) study for the proposed new Sedibelo Platinum Mine near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Barrick Platinum.
- Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment (HIA) study for Batlhako Mining Limited on the farm Ruighoek 169JP near the Pilanesberg in the North-West Province.* Unpublished report prepared for Golder Associates (Africa) Ltd..
- Pistorius, J.C.C. 2008. *A Phase I Heritage Impact Assessment (HIA) study for a proposed new sport complex and associated facilities in Saulspoort near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Metago Environmental Engineers.
- Pistorius, J.C.C. 2010. *A Phase I Heritage Impact Assessment (HIA) study for the farm Magazynskraal 3JQ near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Metago Environmental Engineers.
- Pistorius, J.C.C. 2010. Mitigating and managing heritage resources within the Horizon Chrome Mine on Portions of the farm Ruighoek 169JP near the Pilanesberg in the North-West Province. Unpublished report prepared for Natural Scientific Services (NSS).
- Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment (HIA) study for Lonmin Platinum's proposed exploration activities on the farm Vlakfontein*

207JP and Diamand 206JP near the Pilanesberg in the North-West Province. Unpublished report prepared for Lonmin Platinum.

- Pistorius, J.C.C. 2011. Follow-up report on Lonmin's exploration activities on *Vlakfontein 207JP and Diamand 206JP near the Pilanesberg in the North-West Province: completion of exploration activities during 2011.* Unpublished report prepared for Lonmin Platinum.
- Pistorius, J.C.C. 2012. *A Phase I Heritage Impact Assessment (HIA) study for chrome mining activities on various portions of the farms Groenfontein 138JP, Vlakfontein 163JP and Vogelstruisnek 174JP west of the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Golder Associates (Africa) Ltd.

3.3 Spokespersons

Several spokespersons living in villages in the PPM Project Area are intimately acquainted with the area, particularly because they were born there whilst others act as cattle herders who roam the veld and therefore do have a thorough knowledge of the area around their villages. Some of these spokespersons were consulted with regard to the possible presence of graveyards and abandoned villages whilst the indigenous names for landmarks such as mountains and hills were noted as these natural phenomena are usually associated with pre-historical and historical sites. (It turned out that nearly all the mountains in the area are particularly well remembered by their historical names) ('Part 11, Spokespersons consulted').

3.4 Mapping heritage resources

All the heritage resources that were recorded in the Project Area and some in the peripheral areas were geo-referenced using a GPS instrument and they were thereafter mapped. A relatively wide range of heritage resources occurs in the PPM Project Area. Late Iron Age sites particularly occur in exceptionally large numbers or concentrations and it is possible that not all individual sites in these clusters were geo-referenced and mapped. At least two informal graveyards were geo-referenced

and mapped in the PPM Project Area while several others occur in villages around the PPM Project Area.

3.5 Assumptions and limitations

It must be pointed out that heritage resources can be found in the most unexpected places. It must also be borne in mind that surveys may not detect all the heritage resources in a given project area. While some remains may simply be missed during surveys (observations), others may occur below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during PPM operations the South African Heritage Resources Agency (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

3.6 Some remarks on terminology

Terms that may be used in this report are briefly outlined below:

- Conservation: The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.
- Conservation (in-situ): The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.

- Cultural (heritage) resources: A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.
- Cultural (heritage) resource management: A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.
- Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage (cultural) resources include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.
- Stone Age: Refers to the prehistoric past, although Late Stone Age peoples lived in South Africa well into the Historical Period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 300 years ago).

- Iron Age: Refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the Historical Period.
- Historical period: Refers to the first appearance or use of 'modern' Western writing in a particular area or region of the world.
- Pre-historical: Refers to the time before any historical documents were written or any written language developed in a particular area or region of the world.
- Recent past: Refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.
- Maintenance: Keeping something in good health or repair.
- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.
- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems.
- Reconstruction: Re-erecting a structure on its original site using original components.
- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.

- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.
- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.
- Translocation: Dismantling a structure and re-erecting it on a new site using original components.
- Project Area: refers to the area (footprint) where the developer wants to focus its development activities (refer to plan).
- Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types and ranges of heritage resources in any given Project Area.
- Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involve permitting processes, require the input of different specialists and the co-operation and approval of SAHRA.

4 THE PILANESBERG PLATINUM MINES PROJECT AREA

4.1 Location

The PPM Project Area stretches across parts of the farms Rooderand 46JQ, Witkleifontein 136JP, Tuschenkomst 135JP and Ruighoek 169JP near the northern-western and northern perimeters of the Pilanesberg in the North-West Province of South Africa. The PPM Project Area has been affected by mining activities such as the establishment of open cast pits for the mining of platinum; the dumping of waste rock; the establishing of a mineral processing plant and other mine related infrastructure as well as the developing, upgrading and even relocation of roads, etc..

These developed areas (critical areas) as well as peripheral areas adjacent to the critical developed areas are collectively referred to as the PPM Project Area (2526BB Mabeskraal and 2527AA Saulspoort; 1: 50 000 topographical maps) (Figure 2).

4.2 The Pilanesberg as a natural heritage resource

The Pilanesberg near the PPM is a unique natural landmark and it forms part of South Africa's natural heritage. This complex of mountains consists of an eroded circular alkaline volcanic structure, 1 250 million years old, in the low-lying Bushveld Complex. This extinct volcano is 27km in diameter and it is surrounded by six rings of mountains.

The result is a circular mountainous region which stands in stark contrast to the surrounding open plains, creating a unique enclave for human occupation and utilisation from the earliest times.

During the Late Iron Age, access to the Pilanesberg was controlled by well-positioned and extensive settlements near the periphery of this circular mountain range, close to some of the entrances leading to the pathway-like valleys which criss-cross the central part of the Pilanesberg.

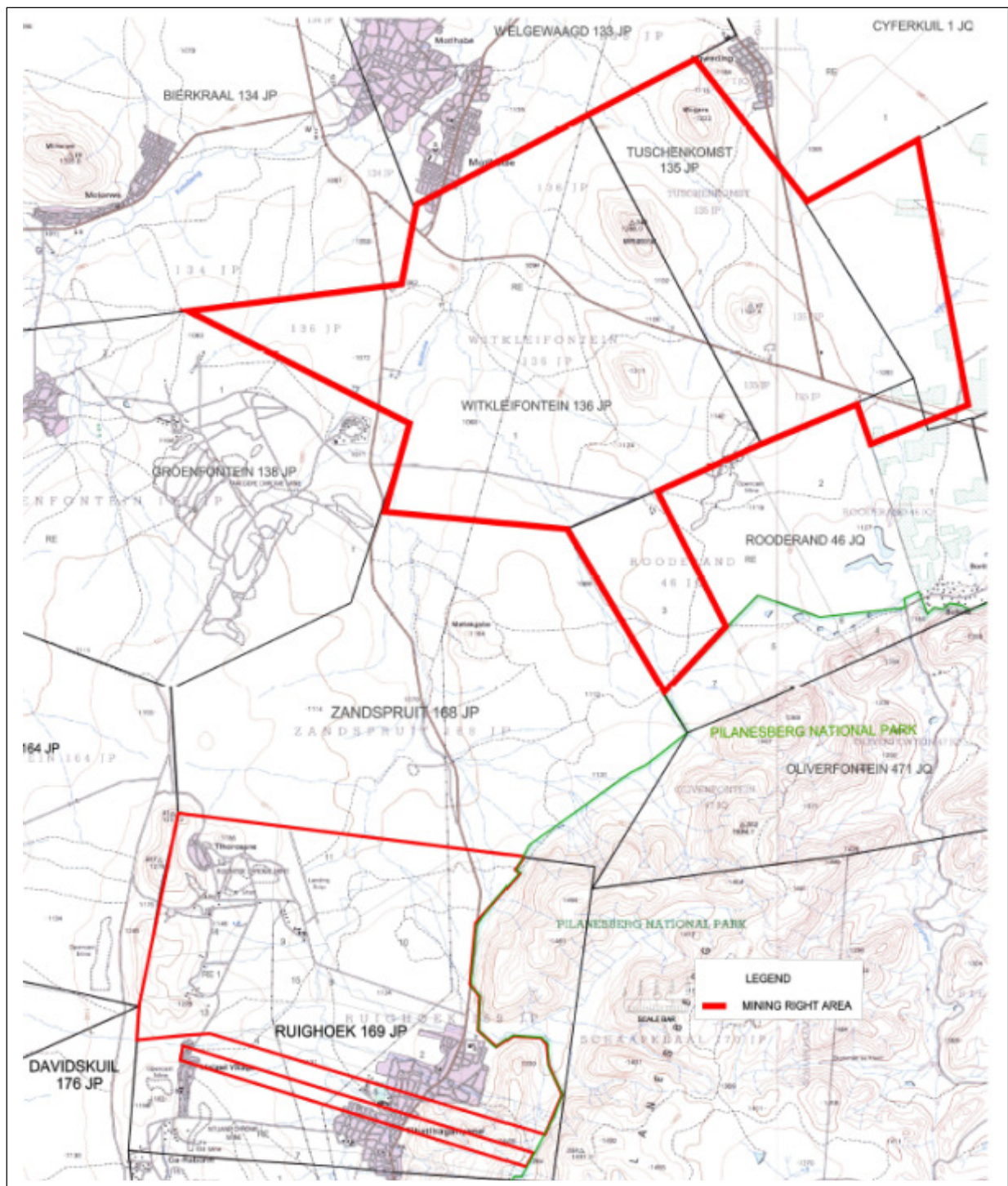


Figure 2- The Pilanesberg Platinum Mine Project Area (red boundaries) covers the farms and portions of the farms Ruighoek 169JP, Rooderand 46JQ, Witkleifontein 136JP and Tuschenkomst 135JP to the north and north-west of the Pilanesberg in the North-West Province (above).

The Pilanesberg National Park was developed in and around this extinct volcano and covers a surface of 500km². The park was opened in 1979 and it now contains examples of most southern African mammals and some 300 bird species. The central feature of the park is a man-made lake known as Mankwe on the river by the same name.

Sun City, on the edge of the Pilanesberg, was the first of several casinos and holiday resorts to be established on the South African veldt soon after the Bophuthatswana homeland was granted independence in 1977. The complex incorporates the Superbowl, a huge concert area, four luxury hotels, including the Palace of the Lost City, as well as many sporting and gambling facilities and an artificial beach, the Valley of the Waves.

4.3 How the PPM Project Area has been affected

The PPM Project Area is not a pristine area any longer as the landscape has been affected by human settlement for centuries. Stone Age people were not present in the PPM Project Area in large numbers. The few Middle Stone Age tools that were observed were probably brought into the area from outside. Large numbers of Late Iron Age communities established themselves in large village complexes near and on the slopes and spurs of most of the mountains and kopjes in the area during the last four centuries. Here, they cleared the level plains to till the soil in order to plant crops whilst their stock which numbered thousands of heads of cattle, goats and sheep grazed across extensive stretches of grass veld which surrounded the villages. The impact of these communities on natural resources such as stone, clay (soil), wood and grass to build large, extended village complexes was severe. The tilling of soils to plant domestic crops required large stretches of land to be permanently cleared from vegetation whilst domestic stock required all year round grazing.

These Late Iron Age farmers were followed by the first colonists in the second half of the 19th century. These colonists continued to practise mixed farming in the area. In the early 20th century exploration commenced and chrome mining started on the chromite zone to the north and to the west of the Pilanesberg whilst tin was mined along the south-western foot of the Pilanesberg. The impact of these mining activities can still be

seen to the west of the Pilanesberg today. During the last decade the mining for platinum commenced further to the north of the Pilanesberg.

5 CONTEXTUALISING THE PILANESBERG PLATINUM MINE PROJECT AREA

A brief overview of pre-historical and historical information is provided below in order to contextualise the region and to help to determine the significance of any heritage resources that may occur in the PPM Project Area.

5.1 Stone Age sites

Stone Age (SA) sites are marked by stone artefacts that are found scattered on the surface of the earth or that are part of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (ESA, the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA, the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA, the period from 22 000 years ago to about 2 000 years ago).

A few isolated, haphazardly scattered stone tools were observed throughout the PPM Project Area. These tools date from the MSA and include two Mousterian cores, a blade and an end-scraper. These stone tools were not geo-referenced as they were possibly carried into the area.

The LSA is associated with rock paintings and engravings done by the San, Khoi Khoi and, in more recent times, by Negroid (Iron Age) farmers. More than one spokesperson told the author that there are caves higher up the mountain of Matone. Such phenomena, if they do exist, may contain stone tools dating from the SA, Late Iron Age remains and even rock paintings. A few rock paintings have been recorded in the Pilanesberg.

5.2 Late Iron Age remains

The Pilanesberg area is dominated by stone walled sites that date from the Late Iron Age (LIA), some of which were occupied into the historical period. These sites are associated with Tswana groups such as the Kgatla Kgafêla, the Tlhako, the Tlôkwa

and Nguni-affiliated clans who were either living in the area from an earlier time, before the Sotho-Tswana arrived, or who were descended from Mzilikazi's Ndebele who temporarily occupied several settlement complexes in the area before they moved to the Zeerust-Marico area in AD1832. Large numbers of the descendants of these original Nguni-speaking people today live in Groenfontein, Rhenosterhoek and Kraalhoek, to the north of the PPM Project Area.

The following contextual evidence serves as background to the PPM Project Area: the origins of the Kgatla group; the history of the Kgatla Kgafêla and the Tlhako; the arrival of the first colonists and early chrome mining in the area.

5.2.1 Origins of the Kgatla group

The ancestral Kgatla were composed of the Kgatla, the Tlôkwa, the Makgolokwe and probably the Bahlakwana and the Basia sections. (The latter three clans no longer exist). The Kgatla also maintained that there was an early relationship with the Hurutshe (under common chiefs such as Malekele-Masilo-Legabo) which may date back to AD1450 when the Hurutshe and Kwena separated. These earliest Kgatla groups initially lived in the central part of the former Transvaal province, somewhat to the south of what is today Thabazimbi, near the Rooiberg Tin Mines.

Phohoti, the son of Mokgatle, is usually regarded as the first Kgatla chief. His son and successor was Botlholo (Mashiasebara), whose sons Mogale, Pule and Modise split up. Pule initially ruled on behalf of Mogale's son Moseitlha, who died before he could succeed, and this encouraged Pule (whose son Masego died before his father) to leave the tribe and to form a separate tribe under his grandson Kgafele. Botlholo's third son, Modise, and his son Tabane were the forefathers of the sections of the Mmakau, the Motša and the Seabe.

Today there are numerous subsections of the Kgatla. In 1953 a leading anthropologist distinguished at least eleven tribes within this group.

The totem of the Kgatla is the blue monkey (*kgabo*), although they also had another totem, the 'kgabo ya mollo', or the 'tip of the flame', which they used when the Kgatla were on the warpath.

Mogale, the ancestor of the Moseitlha, lived at a place called Dirolong/Direleng in the Bela Bela area (some say in the Rustenburg area). Mogale (Moseitlha) or Mashego (Kgafela) moved to Momuseng (the old Makapans Location). Towards the end of the 17th century, the Kgafela section broke away under Mahego (the son of the regent, Pule). However, Kgafela and his son Tebele remained east of the Crocodile River and Kgafela's grandson Masellane moved to Molokwane ('Vlieggepoort') near the confluence of the Crocodile and Pienaars Rivers. (This split was the result of a dispute whether Moseitlha, a woman, should rule the tribe). This was also the time when Tabane (the Mmakau section) broke away and settled at Mogwete (Varkfontein, in the Premier Mining area).

While the Kgatla Moseitlha remained one section, Tabane's branch later broke up into several tribes. Modise or Moptsha had a young wife who left the tribe while she was pregnant, as she was accused of witchcraft, saying that her child was crying in her womb. It was called 'lelela teng' ('crying inside'). This child later became the great Pedi chief Thulare, who was also called 'Thulare a Mmakau'. Further divisions of the Kgatla were caused by internal strife during the time of Mzilikazi (Breutz 1954, 1986; Schapera 1942, 1952, 1955).

5.2.2 Brief history of the Kgatla Kgafêla

After the Kgafêla broke away from the Moseitlha at Momusweng (Makapans Location, Hammanskraal), probably during the first half of the 17th century, they settled in various places on their way to the north-west and the Crocodile River. Known places of settlement were Ntuane (to the north-west of Makapans Location near the Pienaars River), Momoseu (near Ntwane), and Tshekane (Leeuwpoort, south of the Rooiberg Tin Mine). Tshekane proved to be unhealthy, so they dwelt at Matone (Tuschenkomst) for a while and then settled at Molokwane ('Vlieggepoort', at the confluence of the Crocodile and Pienaars Rivers) near Ramakokas Location.

At the start of the 18th century, they lived at Mabule, Kruidfontein (near Saulspoort). During the first half of the 18th century, Kgwefane lived at Saulspoort in the Dithubaruba section of Moruleng. Molefe lived at Maramapong at Saulspoort. Towards the end of the 18th century, Phetso lived at Sefikile (Spitskop, 8km to the west of Northam). Letsebe ruled at Mabule (Kruidfontein) at the confluence of the Modderkuil and Middelkuil. When Senwelo was invested as chief, he moved from Mabule to Tlokwane (Rhenosterkop). Motlotle ruled at Magakwe or Dithubarubu (Kruidfontein).

Pilane built his village at Monamaneng (Kafferskraal). Later he moved to Bogopana (Witfonteinrand), to the north-east of Witfontein, and from there to Mmamodimokwana (Schilpadsnest) near the Crocodile River.

After the Matabele invasion in AD1827 Pilane went to live at Motsitle (Mabeskraal). After AD1837 he settled at the Elands River at Mmasebudule (Rhenosterfontein).

During the Matabele invasion, the Kgatla were too weak to defend them against enemies. Consequently, they paid a tribute to the Ndebele. Nevertheless, their villages were destroyed and the young men were incorporated into the Ndebele army. After the Ndebele had left the Pilanesberg area (AD1832) Ndebele raiders returned to the area and took three of Pilane's sons with them in AD1842. Molefi Pilane's uncle negotiated their release. Molefi, who maintained good relations with the Ndebele took charge of the tribe when Pilane fled to the Langa Ndebele.

The far northern part of Kgatla territory, incorporating the farms Holfontein, Cyferfontein and Rhenosterkraal was a separate tribal section for some years under the authority of a sub-chief, Dikema Pilane. He played an important role in the times of Paul Kruger. It was also in this far northerly area that the descendants of one of Mzilikazi's sons lived.

Kgamanyana lived at Moruleng the present tribal headquarters at Saulspoort. In 1869 Kgamanyana and many tribesmen left the country to settle at Mochudi on the banks of the Nkgotwane River in Botswana, after camping one year at Tshwene-

Tshwene (near Vleesfontein). The other part of the tribe remained at Saulspoort and acquired most of the farms to the north of the Pilanesberg.

Many of these Tswana clans were uprooted during the *difaqane* when Mzilikazi's Matabele (Ndebele) entered the North-West Province, crossing the Magaliesberg at Mpame (Kommandonek) in the middle of August 1832 (Breutz 1954, 1986; Schapera 1942, 1952, 1955).

From this brief historical overview, it is clear that the mountain Matone was occupied by the Kgatla while the PPM Project Area to the north of the Pilanesberg covers much of the sphere of influence of one section of the Kgatla. This group probably intermarried with Mzilikazi's Ndebele, especially given that some of his sons remained in the area after the Ndebele moved westwards. Descendants of this mixed Ndebele/Tswana population still live in the area today (Breutz 1954, 1986; Schapera 1952, Schapera 1955). A similar situation occurred to the north of Rustenburg, south of Phokêng, where the Ndebele intermarried with their Tswana neighbours, the Fokeng) (Pistorius 1997a, 1997b).

5.2.3 Brief history of the Tlhako

The Tlhako is one of the numerous Nguni-related clans who lived in the central part of the former Transvaal province from early on. They branched off from the Ndzundza-Ndebele who lived near what is today the Premier Mine (Cullinan, Mangolwana) and Wonderboom (Pretoria). Thereafter they dwelt in the Boshhoek (Pharami) area for some time, before settling along the Thulani River near Pella towards the end of the 17th century.

Chief Seutlwane settled on the northern slope of Pilwe Mountain. His son, Mabe, who lived about the middle of the 18th century, moved six kilometres further to the north to Mothoutlung on the eastern part of Palmietfontein. Mabe's youngest son, Motsisi, went to live at Legatalle, to the north-east of Ruighoek 426, where he became involved with a long struggle with the Kgatla Kgafêla. His son, Molotsi, also lived and died at Legatalle, probably around AD1820 to AD1830.

Mabe became chief in 1820 and settled at Motsitle, today known as Mabieskraal. When Mzilikazi invaded the region, the Tlhako did not leave the area, but were subjugated by the Ndebele. Many of the Tlhako later accompanied the Ndebele and crossed the Marico River to settle with the Ndebele at Silkaatskop. However, when the Ndebele were defeated by the Voortrekkers in the far North-Western Transvaal, many returned to their old home at Motsitle in 1837.

Maabe and the Voortrekkers' relationship deteriorated. After he was flogged by the Boers in AD1860, the tribe moved to Molepolole and settled at Magagarape, where Maabe died in 1869. His sons Moetle, Mokgatele, Leotwane and Setadi returned to Mabieskraal.

Moetle Mabe became chief in 1870. He raided the cattle of the local white farmers and also supplied labour to surrounding white farmers. He died on 15 May 1908.

The Tlhako's sphere of influence overlaps the southern and western parts of the PPM Project Area. Stone walled sites on Ruighoek 169JP can therefore possibly be associated with this group (Breutz 1954, 1986).

5.3 Arrival of the first colonists

During the first half of the 19th century, the first colonial traders who operated between the far north-west and the central part of the Bankeveld used the gap between the northern tip of the Magaliesberg and the south-western edges of the Pilanesberg, near the PPM Project Area as a corridor. Wagons passed through this corridor on their way to Rustenburg and further to the east. Traders such as Schoon and McLuckie (1829), missionaries such as Robert Moffat (1829), the scientific expedition of Andrew Smith (1835) (Lye 1975), and adventurers such as Cornwallis Harris (1836) moved between the Magaliesberg and the Pilanesberg where they observed numerous Late Iron Age communities living in this part of the north-west (Horn 1996).

Rustenburg, to the far south of the PPM Project Area, was the first colonial town to be established by Europeans (Voortrekkers) during the first half of the 19th century

(Pretorius 1967). Closer to Pilanesberg, Boshhoek was established along the railway line from Pretoria, and the town initially served as a terminus (Erasmus 1995).

5.4 Early chrome mining

It has long been known that there were chrome ores in the Bushveld Igneous Complex. They were indicated on Carl Mauch's geological map of the area close to the Hex River near Rustenburg, which he visited in 1865. Chromite is also mentioned in official reports that were compiled by a certain Molengraaf. The first exploration for chrome occurred in 1917 and general production of the metal began in 1924 when 4 570 tons were mined.

Chromite is present in the Bushveld Igneous Complex as layers in the piroxinite, norite and anorthosite units and to a certain extent also in the harzburgiet unit. The deposits in the Complex can be divided into a Western Zone and an Eastern Zone.

The deposits in the Western Zone stretch for approximately 200km from Brits to Rustenburg, further northwards to the west of the Pilanesberg, and from there, with some interruptions of seven to thirteen kilometres, to near the Crocodile River. The Eastern Complex starts near Draaikraal at the upper reaches of the Dwars River in the Lydenburg district. Further northwards the deposit crosses the Steelpoort River near the Steelpoort station and gradually turns north-westwards as far as Scheiding – a total distance of 120 kilometres.

The Western Zone can be divided into four sections, namely a sector to the north of Rustenburg, two sectors to the west and to the north of the Pilanesberg, and a sector in the Brits-Rustenburg area.

The sector to the west of the Pilanesberg seems to have been exploited the most. Here two distinct layers were distinguished, namely the Groenfontein layer and the Main Layer higher up in the sequence. These layers vary in thickness on farms such as Palmietfontein 208JP, Groenfontein 138JP and Ruighoek 169JP.

By the start of 1974 seventeen chrome mines were already operating: eight in the Western Zone, six in the Eastern Zone, two in Marico and one near Mokopane (Viljoen & Reimold 1999; Wagner 1973).

6 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY (HIA)

6.1 Types and ranges of heritage resources

The updated Phase I HIA for the PPM Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (Act No 25 of 1999) in the PPM Project Area, namely:

- Clusters of stone walled sites which date from the LIA are associated with the mountains of Mogare, Mmatone, Patshwane and Mukukunupe on Witkleifontein 136JP and Tuschenkomst 135JP while three LIA stone walled sites are associated with the mountain of Thlorosane and some of its foothills on Ruighoek 169JP.
- Two isolated LIA stone walled sites are associated with the hills Mabjaneng and Motsotsodi on Witkleifontein 136JP while a single, isolated LIA stone walled site occurs on Ruighoek 169JP. A single, isolated site with limited stone walls also occurs on the flats of Witkleifontein 136JP.
- The abandoned historical graveyard which is associated with the former village of Motlhabe and a relocated graveyard on Ruighoek 169JP. (Several formal graveyards which are currently used occur in villages around the PPM Project Area).
- Historical remains such as the former village of Motlhabe occur on Witkleifontein 136JP. (A number of historical houses occur in villages such as Ngweding, Ntsana-le-Metsing and Motlhabe which surround the PPM Project Area).
- A few isolated scattered stone tools were observed on the flats between some of the mountains on Witkleifontein 136JP.

The heritage resources in the PPM Project Area were geo-referenced, tabulated and mapped (Figures 3[a] & 3[b]; Tables 1-9).

These heritage resources are now briefly described. As the LIA stone walled settlements are too numerous only a few of these settlements are illuminated by means of photographs.

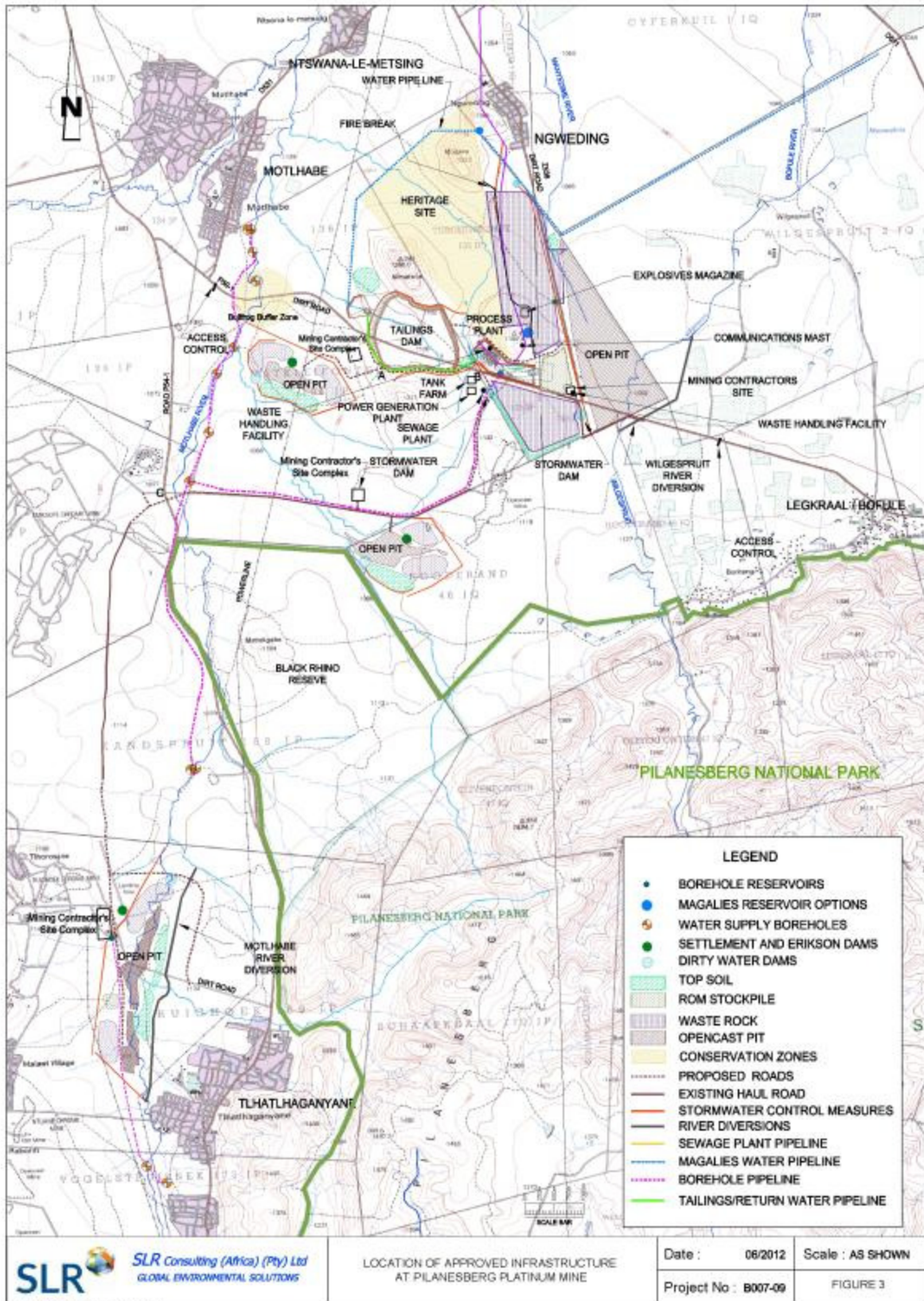


Figure 3(a) - The mine infrastructure associated with Pilanesberg Platinum Mine in the North-West Province (above).

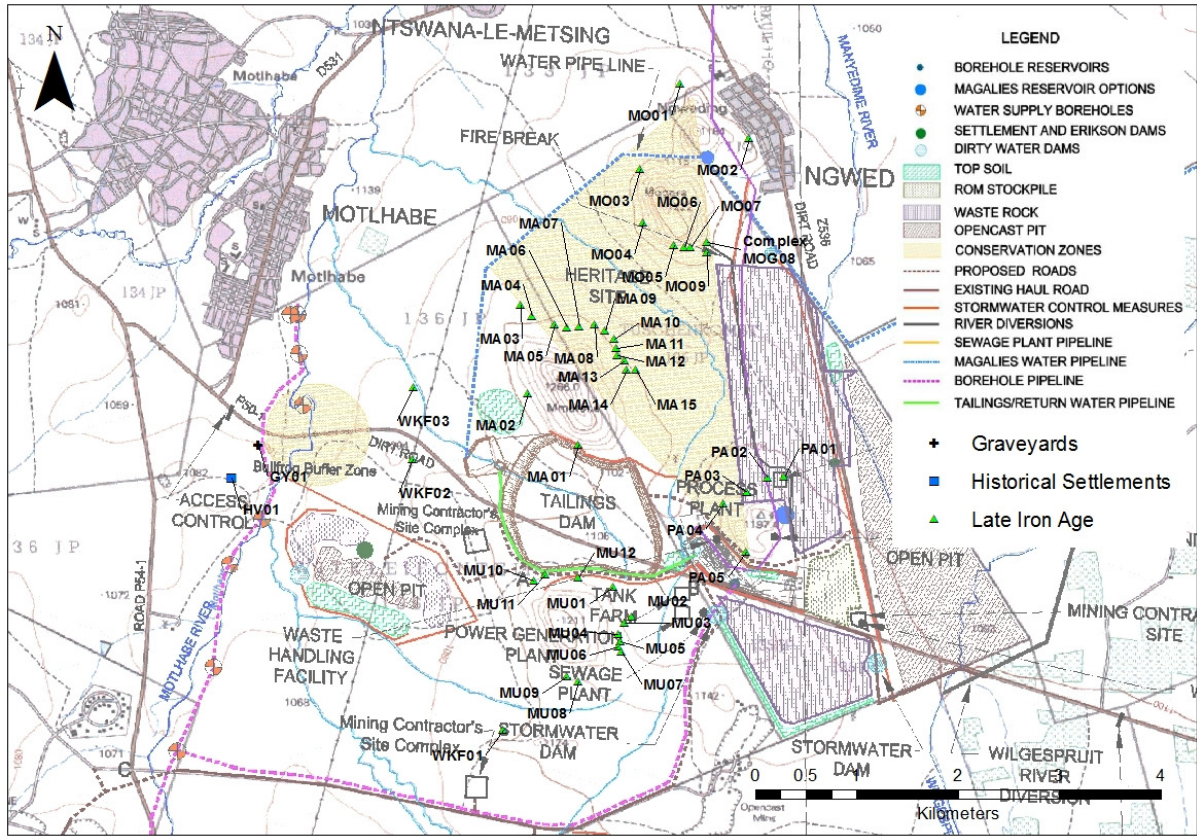
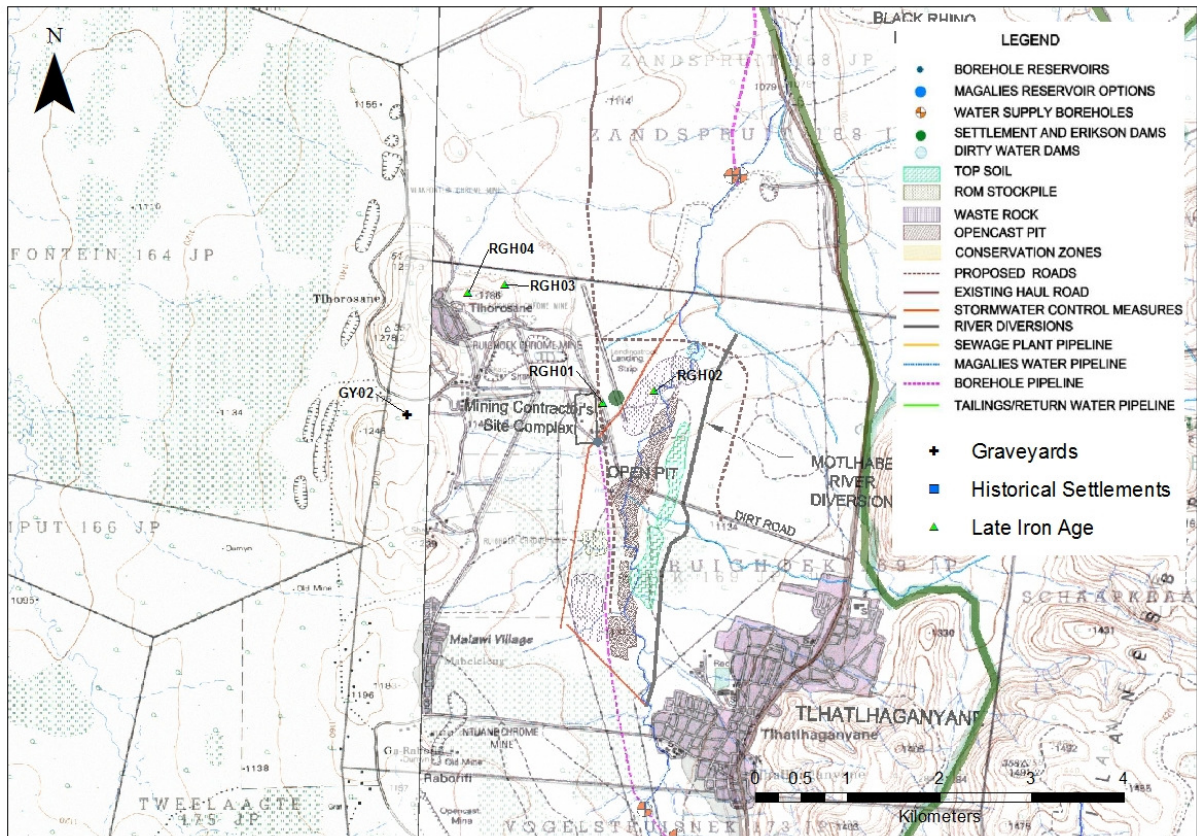


Figure 3(b & c) - The PPM Project Area to the north and west of the Pilanesberg. Notice stone walled sites, historical village and graveyards (above and below).



6.1.1 Clusters of Late Iron Age sites

Clusters of LIA stone walled sites occur along the lower slopes of mountains where dolerite was used in the construction of these sites. These clusters of sites are composed of varying numbers of individual sites (*dikgôrô* or *imisi*) that were grouped together to form villages which covered large surface areas. All these clusters are located along the lower contours or along the spurs of mountains. The majority of sites are confined to mountains such as Mogare, Mmatone, Patshwane and Mukukunupu on Tuschenkomst 135JP and Witkeifontein 136JP. At least three remaining stone walled sites were recorded along the base of Tlhorosane on Ruighoek 169JP.

The following settlement types can be distinguished:

- Zulu or Ndebele villages (singular *umuzi*, plural *imizi*) were composed of oval outer walls that enclosed an inner set of structures consisting of several isolated or linked (cattle) enclosures and dwellings for the various *ezigabeni* (regiments) on opposite sides of centrally situated cattle enclosures, as well as an upper *isigodlo* area, where the village chief (*induna*) lived. Several of these Zulu (Ndebele) *imizi* were observed on the mountains of Mogare, Mmatone and Mukukunupu.
- Tswana villages (singular *motse*, plural *metse*) were composed of a single village (*kgôrô*) or a conglomeration of villages (*dikgôrô*). A typical *kgôrô* is characterized by an outer scalloped wall that encircles central kraal complexes that were usually linked together. The outer scalloped walls still contain the remains of dwellings (huts) within their surrounding yards (*malapa*) that were occupied by the various family groups (*masika*), central kraal complexes composed of courts (*makgotla*) and enclosures for domestic stock. Tswana sites are common on the mountain Patshwane, but also occur on Mmatone, Mogare, Mukukunupu and possibly Tlhorosane as well.
- There are some sites that are composed of long terrace walls that are 'stepped' down the slopes of mountains. The terrace walls are associated with a few small and large enclosures. These sites are not demarcated with clear outer boundary walls. It is possible that these sites, which also occur elsewhere in the Rustenburg and Brits areas, may have been built by Ndebele people.

- Sites were found that display a combination of Zulu (Ndebele) and Tswana features, such as Site MOG07 on Mogare, which has well-defined regimental quarters (*ezigabeni*). Such quarters are a characteristic feature of Zulu villages. These quarters occur in one half of the settlement and *malapa*, a Tswana feature, occur in the other half of the site. It seems as if sites with mixed Tswana and Zulu features also occur on Mmatone.



Figure 4- LIA stone walled sites on Tlhorosane on Ruighoek 169JP to the west of the Pilanesberg in the former sphere of influence of the Batlhako (above).

Two LIA stone walled sites (RGH02, RGH03) occur on the northern edge of Tlhorosane whilst a single stone walled site occurs along a foothill of this mountain on Ruighoek 169JP (RGH01). This site reveals an outer wall with scallops. This site was damaged years ago when a road was constructed through the site. This settlement is associated with archaeological remains such as middens and potsherds on its surface.

It is expected that settlement types not previously described in the literature may occur in the clusters which area associated with Mmatone, Magore, Patshwane, Mukukunupu and Tlhorosane.



Figures 5, 6 & 7- Mountains such as Mmatone (above), Mogare (centre) and Mukukunupu (bottom) are associated with large numbers of stone walled sites which reveal settlement features of Tswana and Nguni styled villages.

6.1.2 Isolated Late Iron Age sites

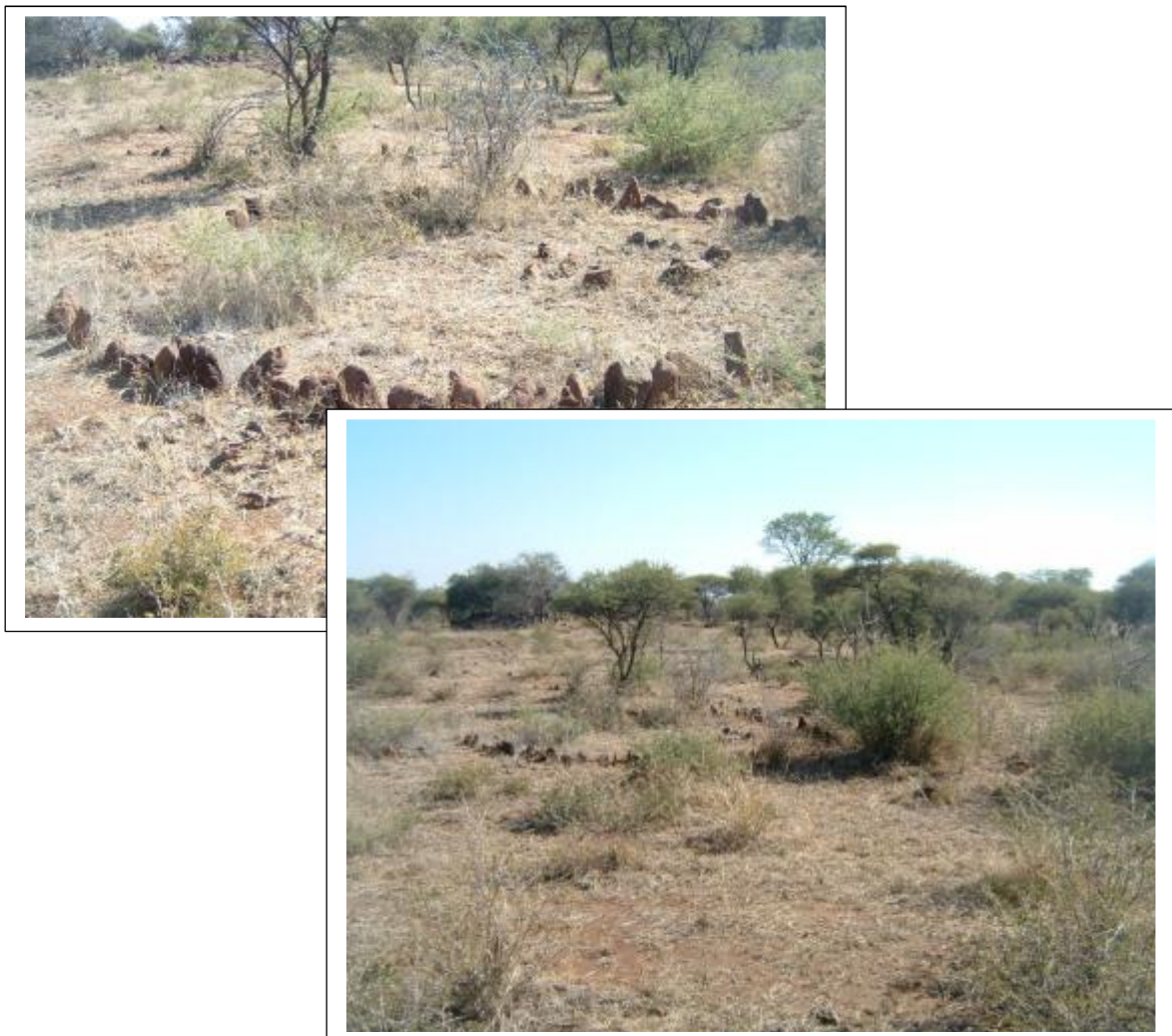
Isolated stone walled sites or villages which date from the LIA are located at hills such as Mabjaneng (WKF01) and Motsotsodi (WKF02) on Witkleifontein 136JP whilst a settlement with limited stone walls occur on Witkleifontein 136JP (WKF03).



Figures 8 & 9- Isolated, single LIA stone walled sites at hills such as Motsotsodi (above) and Mabjaneng (below) on Witkleifontein 136JP. The sites are part of a former Kgatla Kgafela sphere of influence.

Mabjaneng is historically associated with the Kgatla Kgafêla and it was occupied from at least the second half of the 19th century. Mabjaneng was still occupied during the Transvaal Anglo War [1899-1902]) according to a reliable spokesperson. Both sites are excellently preserved and contain an abundance of archaeological material such as potsherds, middens and artefacts which are spread across the surfaces of both sites.

A single site occurs on the flats near the western banks of a tributary of the Motlhabe River on Witkleifontein 136JP (WTK03). This site dates from the LIA and/or the Historical Period and is marked by upright standing stones which occur on circular ground plans where they outline the basis of dwellings such as huts.



Figures 10 & 11- Site WTK03 is located on level ground on Witkleifontein 169JP (above and below). The site is marked by limited stone walls and probably dates from the LIA and/or the Historical Period.

Site RGH02 on Ruighoek 169JP is an isolated settlement which is located in open veld. It is marked by limited stone walls and no visible surface archaeological remains.

6.1.3 Graveyards

An abandoned historical graveyard occurs on Witkleifontein 136JP (GY01) and a second formal graveyard on Ruighoek 169JP (GY02).

Graveyards within the boundaries of villages outside the PPM Project Area include the following (numbers in brackets) Motlhabe (5), Ngweding (1), Legkraal (1?) Ruighoek (2) and Ntsana-le-metsing (2).

6.1.3.1 Graveyard 01

This informal graveyard on Witkleifontein 136JP (GY01) was used by the inhabitants of the old (historical) village of Motlhabe. This village was abandoned around 1932 when the occupants of the village moved to several new villages in the area. GY01 was no longer used from this time onwards.



Figure 12- GY01 on Witkleifontein 136JP is associated with the former and now abandoned village of Motlhabe (above).

Most of the graves consist of piles of stones that are randomly scattered in the veldt. A dense stand of trees with tall grass has grown up in the graveyard, covering the majority of the graves. According to spokespersons there may be as many as one hundred graves in this graveyard.

At least one grave with an inscription on its tombstone was observed. The inscription reads as follows:

- 'Nondozanelo D Ntsaku, *1912 †27-12-1940'

6.1.3.2 Graveyard 02

This graveyard on Ruighoek 169JP (GY02) amongst others contains the remains of individuals which have been relocated as a result of third party mining activities (i.e. unrelated to PPM) in the area.



Figure 13- GY02 on Ruighoek 169JP is used to hold the remains of individuals which have exhumed elsewhere to be buried in this graveyard (above).

6.1.4 Historical remains

The remains of the former and now abandoned village of Motlhabe (HV01) occur on Witkleifontein 136JP. This village was occupied by a section of the Kgatla but was

abandoned in 1932. The remains of the village consist of foundations and parts of walls of houses that were scattered from east to west along the dirt road running to Saulspoort. The abandoned village is also associated with the abandoned GY01.



Figure 14- Remains of the former and now abandoned Motlhabe village on Witkleifontein 136JP (above).

Numerous houses older than sixty years still stand in villages such as Motlhabe, Ntsana-le-Metsing, Ngweding and in Legkraal outside the PPM Project Area. Many of these houses are severely dilapidated and some are of little historical significance.

6.1.5 Stone tools that occur haphazardly

A few stone tools were observed and along the slope of Mmatone and as isolated phenomena in the PPM Project Area.

All the stone tools were manufactured from hornfels and they include Moustierian cores, an end-scraper and a point.



Figure 15- Two Mousterian stone tool cores dating from the MSA (200 000 to 22 000 years old) were observed between kopjes on Witkleifontein (136JP). A few other stone tools mostly manufactured from hornfels were observed as isolated phenomena in the PPM Project Area (above).

6.2 Heritage resources affected by mining related activities

Heritage resources which have been recorded in the past but which have been affected by mining operations during the last seven years include the following:

- Evidence for early prospecting activities along the western slope of Mmatone on Witkleifontein 136JP was destroyed when PPM's tailings dam was constructed.
- A chrome mine which dated from the 1960's was destroyed when new chrome mining commenced on the older chrome mining remains (unrelated to PPM).
- A stone walled site (PTS06) along the southern foot of Patshwane was partly destroyed when a new road was constructed.
- A graveyard on Ruighoek 169JP was relocated in order to make way for chrome mining activities (unrelated to PPM).

These heritage resources are now briefly described, namely:

6.2.1 Rudimentary prospecting activities

Early prospecting activities which primarily consisted of shallow trenches, potholes and scars on the surface were confined to the lower slopes of Mmatone and Mukukunupu on Witkleifontein 136JP. These prospecting activities were limited and inconspicuous and seemed to include two main types of prospecting occurrences, namely trenches and potholes.

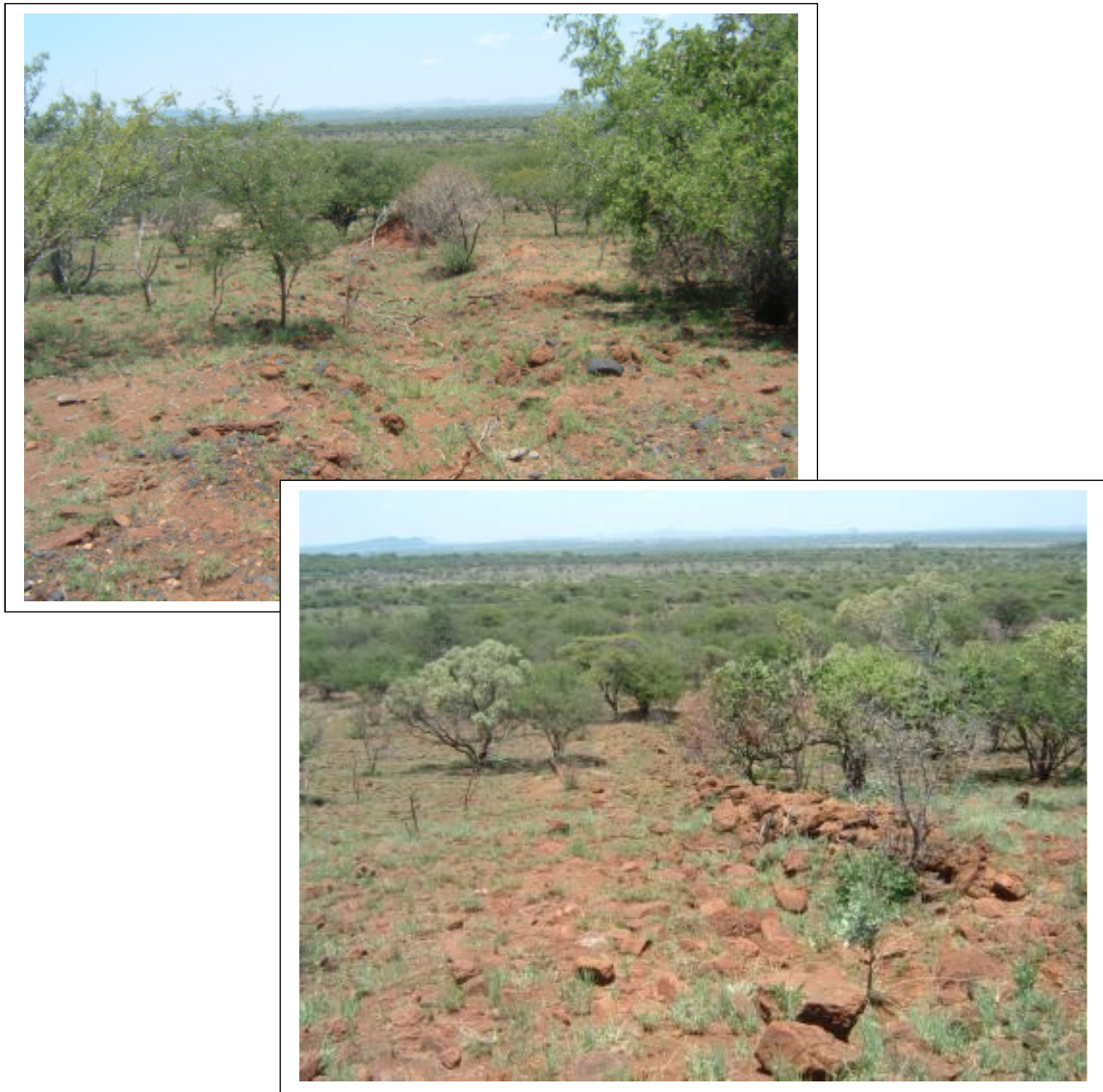


Figure 16 & 17- Evidence for rudimentary prospecting consisting of a shallow, long narrow trench along the north-western slope of Mmatone (above). The trench in the photograph above is located next to the stone wall (below).

The prospecting trenches comprised of a few trenches which ran down the north-western slope of Mmatone and a single long trench that stretched along the north-western slope of this mountain. This trench is conspicuous and can be seen from a distance such as when travelling with the main road that runs through the village of Motlhabe.

The potholes were barely visible and merely consisted of a few shallow holes that were sunk along the low north-western slope of Mmatone.

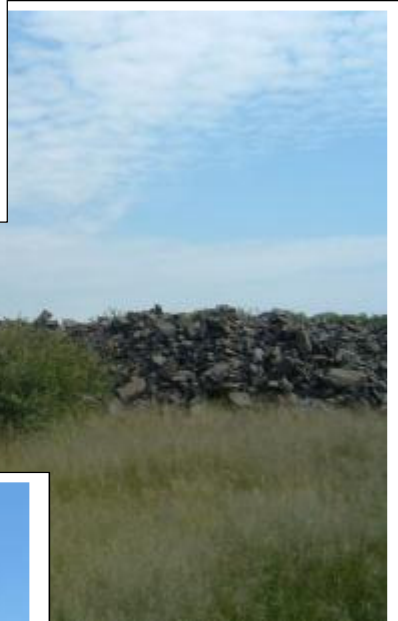
6.2.2 A chrome mine from the 1960's

The remains of an early chrome mine (CM) with limited infrastructure exist along the border between Witkleifontein 136JP and Rooderand 46JQ. These remains were investigated by the author and a civil engineer as these chrome mining remains will be destroyed in order to make way for PPM's new chrome mining activities which have yet to commence. The results of the study were published in a report:

- Pistorius, J.C.C. and Miller, S. 2010. A Phase II Heritage Impact Assessment (HIA) for chrome mining remains on the farm Witkleifontein 136JP and Rooderand 46JQ near the Pilanesberg in the North-West Province of South-Africa. Unpublished report for Metago Environmental Engineers.

The investigation concluded '...that the mining remains possibly date from the 1960's or the 1970's and therefore may be as old as four to five decades. Consequently, the mining remains have no historical significance, considered from a chronological point of view, and therefore do not require any permit before being demolished by modern (contemporary) mining activities. Neither do any other criteria exist which qualify the remains to have some form of cultural, historical or technical significance'.

Some of the chrome mine infrastructure and chrome mining activities are illuminated in the Phase II report (Figures 18-20).



Figures 18, 19 & 20- An incline shaft running into a chrome mine (above). Anchor concrete block on which the mine's head gear rested (centre) and pulleys with cables which hoisted coco pans from the underground mine to the surface where the chrome ore was stock-piled (above).

6.2.3 A stone walled site at Patshwane

Part of a stone walled site (PTS06) along the southern foot of Patshwane was destroyed in 2008 after consultation with this author (an archaeologist) and after SAHRA issued a permit (Permit No 80/08/04/005/51) for the destruction of the site.

The purpose with the partial destruction of Site PTS06 was to make way for the construction of a haul road near the southern foot of Patshwane which served as a link between PPM's Tailings Dam and the Tuschenkomst Pit.

6.2.4 Possible historical remains

Remains which may be approaching sixty years of age consisting of the extensive dilapidated homestead (HV01) of Mr. Selala on Witkleifontein 136JP was destroyed when PPM's Tailings Dam was constructed.



Figure 21- The concrete ruins of a homestead which dated from the more recent past along the southern foot of Mmatone was destroyed when a tailings dam was constructed (above).

When these remains were investigated in 2006 it was stated that the remains ‘cannot be considered to be of any historical significance’ as these ‘remains offer no exceptional research potential. Nor do they have aesthetic, architectural, historical, educational or any cultural significance’.

Nevertheless, it was recommended that SAHRA should be approached for a permit before these remains are destroyed. It seems as if these remains were destroyed without *prior* consultation with an archaeologist or with SAHRA.

6.2.5 Graveyard

A graveyard which was located in the central part of Ruighoek164JP was relocated in order to make way for an open cast chrome mine (unrelated to PPM).

6.2.6 LIA stone walled sites on Ruighoek 164JP

At least one stone walled site which was located along the eastern foot of Tlhorosane on Ruighoek 164JP was destroyed when a new open cast mine was established (unrelated to PPM). This site was documented when a Phase I HIA study was done for Batlokwa Mining (Pistorius 2007).

6.3 Tables

Heritage resources which still exist in the PPM Project Area were geo-referenced and tabulated, namely:

LATE IRON AGE SITES MMATONE	CO-ORDINATES	DESCRIPTION
MA01	25° 05.774' 26° 58.770'	Medium-sized <i>umuzi</i> on western slope.
MA02	25° 05.498' 26° 58.501'	Site with terraces on western slope.
MA03	25° 05.026' 26° 58.462'	Large site on northern spur.

MA04	25° 05.088' 26° 58.526'	Site with inferior walls, differ from other sites.
MA05	25° 05.130' 26° 58.647'	Extensive site next to northern spur.
MA06	25° 05.149' 26° 58.709'	<i>Umuzi</i> next to stream, below kloof.
MA07	25° 05.143' 26° 58.776'	Composed of long terraces. Niches with quartzite and iron ore.
MA08	25° 05.129' 26° 58.860'	Extensive walls.
MA09	25° 05.164' 26° 58.916'	Extensive and elaborate walls.
MA10	25° 05.206' 26° 58.962'	Below saddle in mountain. Could be the main site.
MA11	25° 05.255' 26° 58.973'	Inferior walls, next to stream.
MA12	25° 05.297' 26° 58.978'	Extensive, seems to contain scalloped walls.
MA13	25° 05.321' 26° 59.016'	Covers very large surface. Could be the main site with large open spaces.
MA14	25° 05.371' 26° 59.027'	Large site.
MA15	25° 05.372' 26° 59.075'	Inferior, compared with the cluster.

Table 1- Co-ordinates for Late Iron Age sites along the foot of Mmatone on the farms Witkleifontein 136JP and Tuschenkomst 135JP.

LATE IRON AGE SITES MOGARE	CO-ORDINATES	COMMENTS
MO01	25° 03.852' 26° 59.314'	Located on northern spur of Mogare. Square dwellings and enclosures (historical).
MO02	25° 04.139' 26° 59.678'	Located on southern spur of Mogare (probably historical).
MO03	25° 04. 306' 26° 59.101'	On northern slope of Mogare.
MO04	From: 25 04. 590' 26° 59.115' To: 25° 04. 504'	Single, large <i>umuzi</i> as part of a cluster of sites.

	26° 59.085'	
MO05	25° 04.710' 26° 59.279'	Possible <i>umuzi</i> .
MO06	25° 04.721' 26° 59.335'	<i>Umuzi</i> with <i>izigabeni</i> on one side and <i>malapa</i> on other side.
MO07	25° 04.721' 26° 59.366'	No clear spatial composition.
MO08	From: 25° 04.695' 26° 59.453' To: 25° 04.605' 26° 59.529'	This complex is composed of numerous sites with no definite settlement style.
MO09	25° 04.749' 26° 59.454'	Situated on south-western spur of mountain.

Table 2- Co-ordinates for Late Iron Age sites along the slopes and spurs of Mogare on Tuschenkomst 135JP and part of Cyferkuil 1.

LATE IRON AGE SITES PATSHWANE	CO-ORDINATES	DESCRIPTION
PA01	25° 05.943' 26° 59.864'	Large terraced site. Tswana <i>kgoro</i> with extensive <i>malapa</i> .
PA02	25° 05.945' 26° 59.780'	Terraced site. Tswana <i>kgoro</i> .
PA03	25° 06.024' 26° 59.669'	Tswana <i>kgoro</i> .
PA04	25° 06.087' 26° 59.543'	Large Tswana <i>motse</i> , probably composed of several <i>dikgoro</i> .
PA05	25° 06.343' 26° 59.661'	Tswana <i>kgoro</i> .

Table 3- Co-ordinates for Late Iron Age sites along the foot of and higher up on Patshwane on Tuschenkomst 135JP.

LATE IRON AGE SITES	CO-ORDINATES	COMMENTS

MUKUKUNUPU		
MU01	25° 06.526' 26° 58.959'	Probably part of Site MU02. Partly damaged by a homestead erected in the recent past.
MU02	25° 06.685' 26° 59.058'	May be part of Site MU01.
MU03	25° 06. 718' 26° 59.020'	This site may be a fully flexed <i>kgôô</i> .
MU04	25° 06. 779' 26° 58.987'	Composed of a single wall.
MU05	25° 06.816' 26° 58.996'	Seems to be a large <i>kgôô</i> .
MU06	25° 06.848' 26° 58.986'	Seems to be a large <i>kgôô</i> .
MU07	25° 06.875' 26° 59.002'	Seems to be a large <i>kgôô</i> .
MU08	From: 25° 07.034' 26° 58.770' To: 25° 07.028' 26° 58.770'	Southern side of mountain. This site may be an <i>umuzi</i> .
MU09	25° 07.002' 26° 58.708'	Southern side of Mukukunupu in a valley.
MU10	25° 06.493' 26° 58.538'	On a plateau on top of Mukukunupu
MU11	25° 06.464' 26° 58.594'	A few scattered walls. May be part of a site without any conspicuous stone walls. Currently covered with vegetation.
MU12	25° 06.502' 26° 59.908'	Excellent example of a <i>kgoro</i> .

Table 4- Co-ordinates for Late Iron Age sites along the lower northern, eastern and southern slopes of Mukukunupu. At least one site is located on a plateau on top of this mountain (above).

LATE IRON AGE SITES	CO-ORDINATES	DESCRIPTION
RUIGHOEK 169JP		
Along foothill of Thlorosane and on plains		
RGH01	25° 11.454' 26° 55.827'	Large terraced site along foot of kopje. Bisected by a dirt road.
RGH02	25° 11.377'	Site with stone lines on level ground close

	26° 56.127'	to stream.
As clusters on Thlorosane		
RGH03	25° 10 45.37' 26° 55 15.14'	Extensive remains near northern edge of Thlorosane
RGH04	25° 10 48.43' 26° 55 02.14'	Extensive remains near northern edge of Thlorosane

Table 5- Co-ordinates for two Late Iron Age sites on Ruighoek 169JP.

LATE IRON AGE SITES ON HILLS	CO-ORDINATES	COMMENTS
WKF01 (Mabjaneng)	25° 07.290' 26° 58.372'	Isolated site located on kopje.
WKF02 (Motsotsodi)	25° 05. 851 26° 57.888'	Isolated site located on kopje.

Table 6- Co-ordinates for Late Iron Age sites on the hills Mabjaneng and Motsotsodi on the level plains of Witkleifontein 136JP.

WKF03 (Motlhabe River)	25° 05. 465 26° 57.893'	Upright stones on circles and on elongated plan forms on the flats near river.
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Table 7- Co-ordinates for a Late Iron Age and/or historical sites on level terrain on Witkleifontein 136JP.

GRAVEYARDS	FARM	COORDINATES
GY01 (At old Motlhabe village)	Witkleifontein 136JP	25° 05.771' 26° 57.068'
GY02	Ruighoek 169JP	25° 15.141' 26° 56.178'

Table 8- Co-ordinates for abandoned informal graveyard associated with historical Motlhabe village and a graveyard on Ruighoek 169JP.

HISTORICAL SETTLEMENTS (WITKLEIFONTEIN)	CO-ORDINATES	COMMENTS
HV01	25° 05.948'	Remains of old Motlhabe village on

	26° 56.928'	Witkleifontein 136JP, associated with GY01.
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Table 9- Co-ordinates for the historical Motlhabe village on Witkleifontein 136JP.

7 FUTURE PILANESBERG PLATINUM MINE PROJECTS

PPM intends to undertake the following two projects in the near future. Both these projects fall within the PPM Project Area. As such, both the areas required by these two projects, namely a chrome mining venture and a housing development scheme, have been scrutinized for heritage resources during the different surveys that have been conducted in the PPM Project Area during the past eight years. These two projects entail the following, namely:

7.1 Chrome project

PPM proposes to access chrome seams by establishing additional open pits, topsoil stockpiles, a waste rock dump, crushing and screening plant, a mining contractor's camp and stormwater dams within the existing mining right area on the farms Witkleifontein 136JP and Tuschenkomst 135JP.

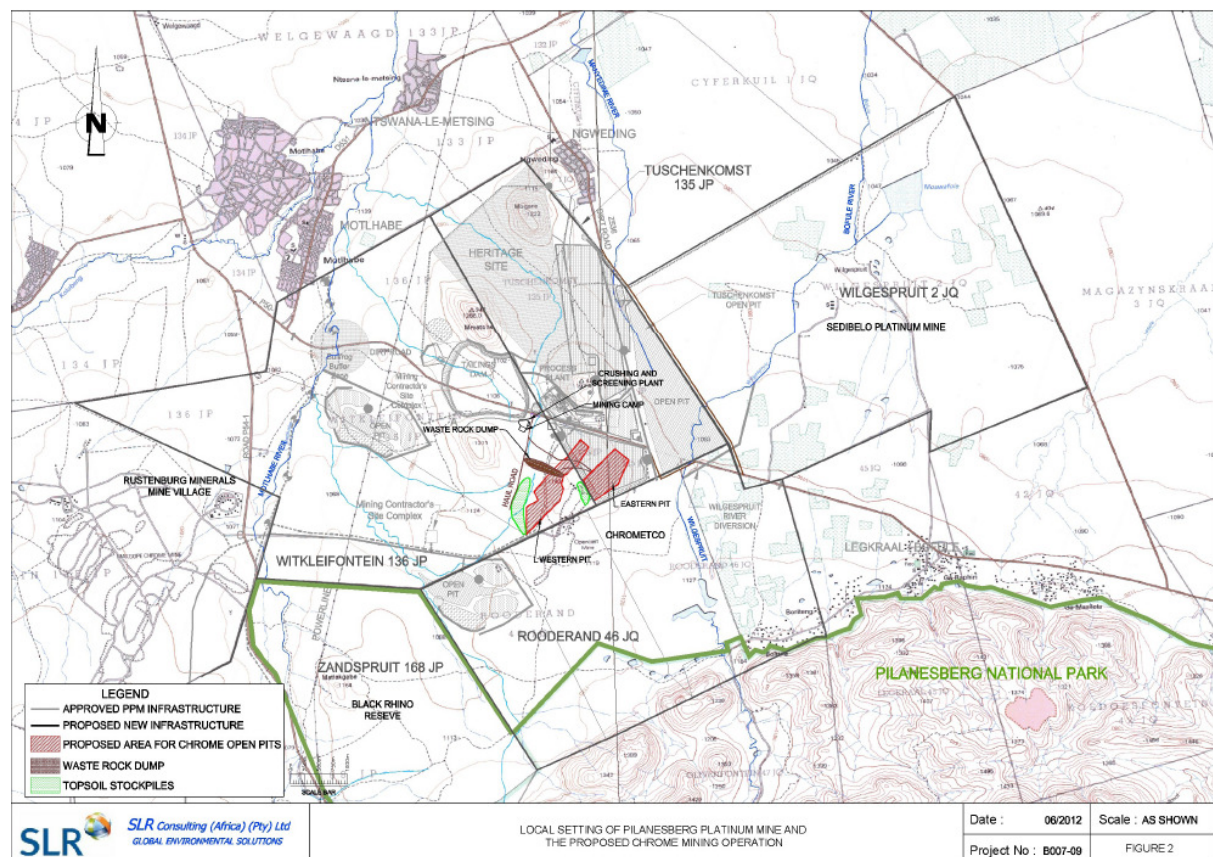


Figure 22- Local setting for PPM's proposed chrome mining operation (above).

The chrome project will largely utilise the mine's existing infrastructure such as water and power supply, waste management facilities and sewage treatment plant. Internal gravel haul roads will be constructed for the open pit chrome mining operation and will be used to transport ore and waste rock to the appropriate stockpiles or to the plant (Figure 22).

The ore from the chrome operation will be processed at an on-site chrome crushing and screening plant which would be located in close proximity to the existing platinum processing plant. Crushing and screening will be done to achieve a desired material size before selling the ore to a third party as 'lumps'. The fines will be treated for platinum group metals (PGMs) in the existing PPM processing plant. The waste from the platinum processing plant will be disposed on the existing facilities as is the current practice

7.2 Housing development

PPM proposes to construct a housing development for use by management employees and visitors on the farm Witkleifontein 136JP. The housing scheme will largely utilise the mine's existing infrastructure such as roads, water and power supply, waste management facilities and sewage treatment plant. The housing development would comprise 40 housing units with a total development footprint of approximately 6 hectares. It is expected that approximately 2 hectares of vegetation will be cleared for project related infrastructure. Three alternative sites are currently under consideration with Alternative C being the mine's preferred site (Figure 23).

7.3 Summary

Both the proposed chrome and housing development projects proposed development areas were surveyed when the various surveys for PPM were conducted during the last eight years. Heritage resources that used to exist in the proposed chrome mining area have been dealt with before these remains have been demolished (see Part 6.2.2 A chrome mine from the 1960's).

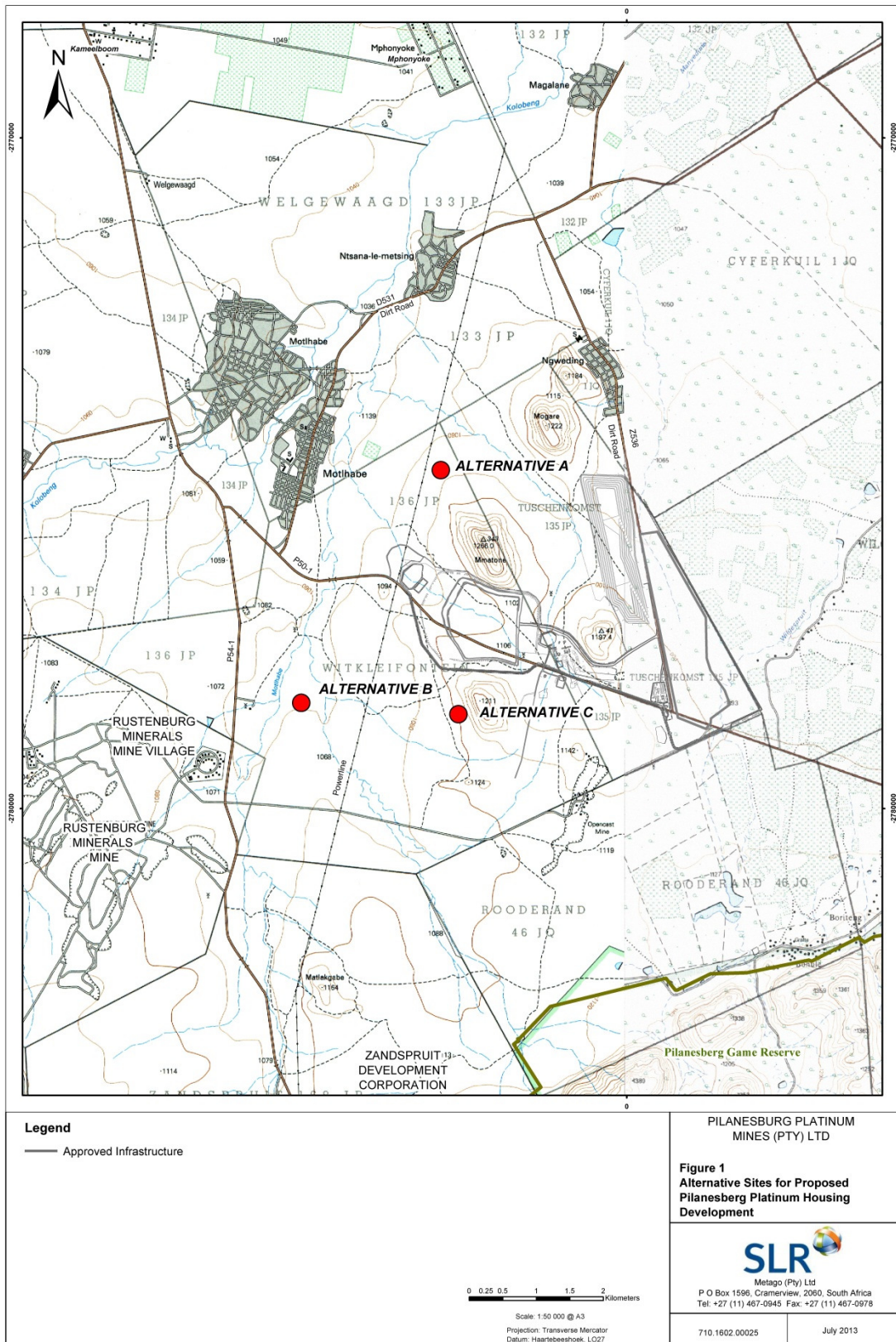


Figure 23- Three possible sites for PPM’s proposed housing scheme on the farm Witkleifontein 136JP (above).

However, if any heritage resources of significance are exposed during the implementation of these two projects the SAHRA should be notified immediately and all development activities must be stopped. An archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds.

8 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND MITIGATION OF HERITAGE RESOURCES

8.1 Types and ranges of heritage resources

The most common types and ranges of heritage resources which do occur are the following:

- Late Iron Age and/or historical remains.
- Graveyards and graves.

It is therefore necessary to indicate the significance of these heritage resources, the significance of any potential impacts on these heritage resources and to outline what mitigation measures must be followed when any of these heritage resources may be affected by future mining activities.

8.2 The significance of the heritage resources

8.2.1 The Late Iron Age and/or historical remains

The LIA and historical remains are older than sixty years and therefore qualify as heritage resources with possible significance (Tables 1-7 & 9). All remains older than sixty years are protected by the National Heritage Resources Act (No 25 of 1999).

These remains can also be considered of significance when considering criteria such as the following:

- The stone walled sites associated with Mogare, Mmatone, Patswana and Mukukunupu as well as individual kopjes such as Mabjaneng and Motsotsodi are historical beacons as they are associated with human occupation during the last four hundred years.
- The complexes of sites associated with these mountains represent different villages (towns) which were occupied simultaneously by several thousands of people who lived in these towns from pre-historical times (AD1650) well into the historical period (AD1850).

- The villages with their surroundings represent a 'cultural landscape or townscape' which is unique as it reflects a regional history, in particular that of the Kgatla and the impact of Mzilikazi's Ndebele on this clan.
- This townscape reflects intangible heritage attributes such as a sense of place; the majesty of mountains associated with the social (political) importance of rulers; activity areas which served as pastures for stock; wood and water collecting spots; possible places of sacrifice and worship, etc.
- These site complexes are unique in the context of the Late Iron Age as they contain settlements that are characteristic of Tswana, Zulu (Ndebele) and mixed Tswana/Zulu (Ndebele) populations.
- It seems, according to archaeological observations and historical information, that some of these village complexes may have been occupied, temporarily at least, by Mzilikazi's Ndebele (Matabele) from AD1827 to AD1832. (At least four other village complexes between Pretoria and Rustenburg have been occupied by Mzilikazi's Ndebele. The Pilanesberg complex therefore may represent a fifth Ndebele complex).
- The village complexes are in an excellent (pristine) condition and have not been affected by any development in the past. (This is in contrast with numerous other Late Iron Age sites which have been affected in one way or another by mining or other development activities in the North-West Province).
- These sites offer outstanding research opportunities as they represent archaeological 'laboratories' which can be utilised for decades to come. Tangible heritage remains in the form of artefacts, structures and features are in abundance in the archaeological deposits that are associated with the sites.
- The village complexes offer exceptional educational and tourism potential, if they are developed according to correct scientific and museological principles.

8.2.2 The graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 8). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (Act No 25 of 1999) whenever graves are older than sixty years. It seems as if both graveyards are older than sixty years. Other

legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

8.3 The significance of possible impact on the heritage resources

A relatively wide range of heritage resources occur in the PPM Project Area. Some of these heritage resources have been affected in the past. It is likely that more of these heritage resources may be affected in the future as a result of on-going mining operations or when expansions of existing mining operations are undertaken.

The significance of possible impacts on the heritage resources therefore can be determined using a ranking scale, based on the following:

- Occurrence
 - Probability of occurrence (how likely is it that the impact may/will occur?), and
 - Duration of occurrence (how long may/will it last?)
- Severity
 - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and
 - Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?).

Each of these factors has been assessed for each potential impact using the following ranking scales:

Probability: 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability 1 – Improbable 0 – None	Duration: 5 – Permanent 4 - Long-term (ceases with the operational life) 3 - Medium-term (5-15 years) 2 - Short-term (0-5 years) 1 – Immediate
Scale:	Magnitude:

5 – International	10 - Very high/don't know
4 – National	8 – High
3 – Regional	6 – Moderate
2 – Local	4 – Low
1 – Site only	2 – Minor
0 – None	

The environmental significance of each potential impact was assessed using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

The maximum value is 100 Significance Points (SP). Potential environmental impacts are rated as very high, high, moderate, low or very low significance on the following basis:

- More than 80 significance points indicates VERY HIGH environmental significance.
- Between 60 and 80 significance points indicates HIGH environmental significance.
- Between 40 and 60 significance points indicates MODERATE environmental significance.
- Between 20 and 40 significance points indicates LOW environmental significance.
- Less than 20 significance points indicates VERY LOW environmental significance.

8.3.1 The Late Iron Age and/or historical remains

It is highly likely that the stone walled sites PA01, PA02 and PA03 will be affected (destroyed) when the footprint of the Waste Rock Dump (WRD) associated with the Tuschenkomst Open Cast Pit is increased in the future.

The significance of any possible impact on these LIA and historical remains therefore can be considered to be of very high significance (Table 10).

LIA/Historical settlements	Probability of impact	Magnitude of impact	Duration of impact	Scale of impact	Significance points	Significance rating
LIA and historical settlements	5	10	5	1	90	VERY HIGH

Table 10: Significance of potential impacts on LIA and historical settlements in the PPM Project Area (above).

8.3.2 The graveyards

It is highly unlikely that any of the two graveyards in the PPM Project Area will be affected by any future mining development activities.

The significance of any possible impact on graveyards therefore can be considered to be very low (Table 11).

Grave-yards	Probability of impact on site	Magnitude of impacts on site	Duration of impacts on site	Scale of impacts on site	Significance points	Significance rating
Graveyards	1	1	1	1	3	Very low

Table 11: Significance of potential impacts on graveyards in the Project Area (above).

8.4 Mitigating the heritage resources

8.4.1 The LIA and historical structure impacts

The LIA and historical remains may not be affected by any development activities *prior* to their investigation by an archaeologist who is accredited with the Association for

Southern African Professional Archaeologists (ASAPA). PPM has to acquire a demolition permit from the SAHRA after these structures have been documented by the archaeologist before they can be demolished.

8.4.2 The graveyard impacts

It is highly unlikely that any of the two graveyards in the PPM Project Area will be affected by future mining development activities. Consequently no mitigation measures are required for the graveyards.

A Conservation Management Plan for the ongoing protection of the graveyards must be included in the Environmental Management Plan for PPM.

8.5 Long term management of the heritage resources

The complexes of sites which are associated with Mmatone, Mogare, Phatswane and Mukukunupu are located against the lower slopes and higher up these mountains. The conservation of these sites is currently promoted by the fact that mine infrastructure and mining related activities are confined to the flatter areas further away from these mountains. Although PPM is attempting to conserve a conceptualised (demarcated) cultural landscape between the mountains of Mogare, Mmatone and Phatswane this pre-historical and historical landscape's integrity and authenticity has been affected as it is now has to co-exist next to a 21st century platinum mine landscape. Due to the inherent expansive nature of mining it is possible that some of these sites may be affected in the future, e.g. when the existing Tuschenkomst Open Cast Mine and its associated waste rock dump is extended.

PPM is located in the heartland of the proposed Heritage Park Corridor, an area which is situated between the Madikwe and the Pilanesberg Nature Reserves with the Pilanesberg as a recognised international heritage resource. The archaeological remains in PPM's mine lease area therefore are part of a wider sphere of natural and cultural significance. Those living and working in the heritage corridor will inevitably and on an increasing scale be drawn into the protection, promotion and utilization of the natural and cultural heritage of the area. PPM's responsibility towards the natural

and cultural heritage resources in the mine lease area may increase rather than diminish in the future. The mine therefore must approach the conservation of heritage resources in a pro-active way and must get involved with cultural heritage management according to accepted national and international standards and guidelines as this obligation will last for as long as the mine is operational.

9 CONCLUSION AND RECOMMENDATIONS

The updated Phase I HIA for the PPM Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (Act No 25 of 1999) in the PPM Project Area, namely:

- Clusters of stone walled sites which date from the LIA are associated with the mountains of Mogare, Mmatone, Patshwane and Mukukunupe on Witkleifontein 136JP and Tuschenkomst 135JP while three LIA stone walled sites are associated with the mountain of Thlorosane and some of its foothills on Ruighoek 169JP.
- Two isolated LIA stone walled sites are associated with the hills Mabjaneng and Motsotsodi on Witkleifontein 136JP while a single, isolated LIA stone walled site occurs on Ruighoek 169JP. A single, isolated site with limited stone walls also occurs on the flats of Witkleifontein 136JP.
- The abandoned historical graveyard which is associated with the former village of Motlhabe and a relocated graveyard on Ruighoek 169JP. (Several formal graveyards which are currently used occur in villages around the PPM Project Area).
- Historical remains such as the former village of Motlhabe occur on Witkleifontein 136JP. (A number of historical houses occur in villages such as Ngweding, Ntsana-le-Metsing and Motlhabe which surround the PPM Project Area).
- A few isolated scattered stone tools were observed on the flats between some of the mountains on Witkleifontein 136JP.

The heritage resources in the PPM Project Area were geo-referenced, tabulated and mapped (Figures 3[a] & 3[b]; Tables 1-9).

Heritage resources affected by mining related activities

Heritage resources which have been recorded in the past but which have been affected by mining operations during the last seven years include the following:

- Evidence for early prospecting activities along the western slope of Mmatone on Witkleifontein 136JP was destroyed when PPM's tailings dam was constructed.

- A chrome mine which dated from the 1960's was destroyed when new chrome mining commenced on the older chrome mining remains (unrelated to PPM).
- A stone walled site (PTS06) along the southern foot of Patshwane was partly destroyed when a new road was constructed.
- .A graveyard on Ruighoek 169JP was relocated in order to make way for chrome mining activities (unrelated to PPM).

Possible future disturbance of heritage resources

Some of the heritage resources within the PPM Project Area have been affected in the past as a result of PPM and third party mining activities. It is likely that more of these heritage resources may be affected in the future as a result of on-going mining operations or when expansions of existing mining operations are undertaken. The heritage resources that could be affected by future mining operations, as well as the significance of the potential impact and recommended mitigation measures, are listed below.

The Late Iron Age and/or historical remains

It is highly likely that the stone walled sites PA01, PA02 and PA03 will be affected (destroyed) when the footprint of the Waste Rock Dump (WRD) associated with the Tuschenkomst Open Cast Pit is increased in the future.

The significance of any possible impact on these LIA and historical remains therefore can be considered to be of very high significance (Table 10).

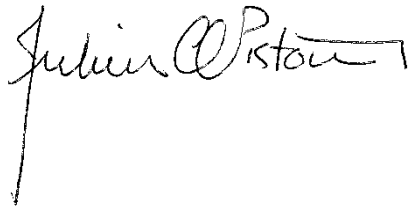
These remains may not be disturbed *prior* to their investigation by an archaeologist who is accredited with the Association for Southern African Professional Archaeologists (ASAPA). PPM has to acquire a demolition permit from the SAHRA after these structures have been documented by the archaeologist before they can be demolished.

The graveyards

It is highly unlikely that either of the two graveyards in the PPM Project Area will be affected by any future mining development activities.

The significance of any possible impact on graveyards therefore can be considered to be very low (Table 11). No mitigation measures are required. However, a Conservation Management Plan for graveyards should be included in the Environmental Management Programme. This plan must provide for the following:

- Demarcation of graveyards with fences or walls and fitted with entrance gates to provide access to family and friends.
- Regulated visitor hours compatible with mine safety rules.
- Maintaining corridors of at least 30m between graveyard borders and developmental activities.

A handwritten signature in black ink, reading "Julius CC Pistorius". The signature is written in a cursive style with a long vertical line extending downwards from the first letter 'J'.

Dr Julius CC Pistorius
Archaeologist & Heritage Consultant
Member ASAPA

10 SELECT BIBLIOGRAPHY

Breutz, P.L. 1953. *The tribes of the Rustenburg and Pilanesberg districts*. Pretoria: Government Printer.

Breutz, P.L. 1986. *A history of the Batswana and origin of Bophuthatswana*. Margate, Natal: Thumbprint.

Bergh, J.S. 1992. Die vestiging van die Voortrekkers noord van die Vaalrivier tot 1840. *Historia*, 37(2); 38-42.

Coetzee C.B. 1976. *Delfstowwe van die Republiek van Suid-Afrika*. Geologiese Opname. Departement van Mynbou. Pretoria: Die Staatsdrukker.

Erasmus, B.P.J. 1995. Oppad in Suid Afrika. 'n Gids tot Suid Afrika, Streek vir Streek. Jonathan Ball Uitgewers Bpk.

Harris, C. 1963. *The wild sports of Southern Africa*. London:John Murray.

Horn, A. C. 1996. Okkupasie van die Bankeveld voor 1840 n.C.: 'n sintese. *Suid Afrikaanse Tydskrif vir Etnologie*, 19(1):17-27.

Lye, W.F. (ed.) 1975. *Andrew Smith's journal of his expedition into the interior of South Africa, 1834-1836*. Cape Town: Balkema.

Mason, R.J. 1968. Iron Age settlement in the Transvaal and Natal revealed by aerial photography and excavation. *African Studies*, 27(4)

Pistorius, J.C.C. 2006. A Phase I Heritage Impact Assessment (HIA) study for Boynton Platinum's new proposed mining areas near the Pilanesberg in the North-West Province of South Africa. Unpublished report for Boynton Platinum Mine and Metago Environmental Engineers.

Pistorius, J.C.C. 2006. An extended Phase I Heritage Impact Assessment (HIA) study for the Pilanesberg Platinum Mine's new proposed mining areas near the Pilanesberg in the North-West Province of South Africa. Unpublished report for Pilanesberg Platinum Mine and Metago Environmental Engineers.

Pistorius, J.C.C. 1997. The Matabele village which eluded history, Part I. *South African Journal of Ethnology*, 20(1):26-38.

Pistorius, J.C.C. 1997. The Matabele village which eluded history, Part II. *South African Journal of Ethnology*, 20(2):43-55.

Pistorius, J.C.C. 1998. EmHlalandlela, a Matabele settlement in the Bankeveld. *South African Journal of Ethnology*, 21(2):55-65.

Pistorius, J.C.C. 2000. An Archaeological scoping report on possible cultural resources on a part of the farm Boschoek 103JQ in the Rustenburg District of the North West: Proposed development of a new town by Amplats. Unpublished report prepared for Landscape Dynamics and Amplats.

Pistorius, J.C.C. 2000. An Archaeological scoping report supplemented with a Phase I Archaeological survey for SA Chrome's proposed new Ferrochrome Smelter on the farm Boschhoek 103JQ in the Rustenburg District of the Central Bankeveld in the North West Province. Unpublished report prepared for Metago Environmental Engineers.

Pistorius, J.C.C. 2000. New Late Iron Age spatial identities in the Bankeveld. *South African Journal of Ethnology*. 23 (4),150-163.

Pistorius, J.C.C. 2003. A Heritage Impact Assessment (HIA) for SA Ferrochrome's new proposed expansion operations in Boschoek north of Rustenburg in in the North West Province. Unpublished report prepared for Metago Environmental Engineers.

Pistorius, J.C.C. 2006. *A Phase I Heritage Impact Assessment (HIA) study for Boynton Platinum's new proposed mining areas near the Pilanesberg in the North-West*

Province of South Africa. Unpublished report prepared for Metago Environmental Engineers.

Pistorius, J.C.C. 2006. *An extended Phase I Heritage Impact Assessment (HIA) study for Pilanesberg Platinum Mines (PPM) new proposed mining areas near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Metago Environmental Engineers.

Pistorius, J.C.C. 2006. *A Phase I Heritage Impact Assessment (HIA) study for Boynton Platinum's new proposed mining areas near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Metago Environmental Engineers (combination of first two studies).

Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment (HIA) study for the proposed new Sedibelo Platinum Mine near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Barrick Platinum.

Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment (HIA) study for Batlhako Mining Limited on the farm Ruighoek 169JP near the Pilanesberg in the North-West Province.* Unpublished report prepared for Golder Associates (Africa) Ltd..

Pistorius, J.C.C. 2008. *A Phase I Heritage Impact Assessment (HIA) study for a proposed new sport complex and associated facilities in Saulspoort near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Metago Environmental Engineers.

Pistorius, J.C.C. 2009. *A Phase I Heritage Impact Assessment (HIA) study for Pilanesberg Platinum Mine's (PPM) proposed rock waste dump extension near the Pilanesberg in the North-West Province of South Africa.* Unpublished report prepared for Pilanesberg Platinum Mine.

Pistorius, J.C.C. 2010. *A Phase I Heritage Impact Assessment (HIA) study for the farm Magazynskraal 3JQ near the Pilanesberg in the North-West Province of South Africa*. Unpublished report prepared for Metago Environmental Engineers.

Pistorius, J.C.C. 2010. *Brief report on heritage matters at Pilanesberg Platinum Mine*. Unpublished report prepared for Pilanesberg Platinum Mine.

Pistorius, J.C.C. 2010. *Mitigating and managing heritage resources within the Horison Chrome Mine on Portions of the farm Ruighoek 169JP near the Pilanesberg in the North-West Province*. Unpublished report prepared for Natural Scientific Services (NSS).

Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment (HIA) study for Lonmin Platinum's proposed exploration activities on the farm Vlakfontein 207JP and Diamand 206JP near the Pilanesberg in the North-West Province*. Unpublished report prepared for Lonmin Platinum.

Pistorius, J.C.C. 2011. *Follow-up report on Lonmin's exploration activities on Vlakfontein 207JP and Diamand 206JP near the Pilanesberg in the North-West Province: completion of exploration activities during 2011*. Unpublished report prepared for Lonmin Platinum.

Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment (HIA) study for Pilanesberg Platinum Mine's (PPM) proposed amendment of the closure objectives of the Tuschenkomst Open Pit and community water supply scheme near the Pilanesberg in the North-West Province*. Unpublished report prepared for Pilanesberg Platinum Mine.

Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment (HIA) study for a combined platinum mining operation near Pilanesberg in the North-West Province: the extension of the Tuschenkomst open cast pit for Pilanesberg Platinum Mine*. Unpublished report prepared for LSR Consulting (Africa) (Pty) Ltd..

Pistorius, J.C.C. 2012. *A Phase I Heritage Impact Assessment (HIA) study for chrome mining activities on various portions of the farms Groenfontein 138JP, Vlakfontein 163JP and Vogelstruisnek 174JP west of the Pilanesberg in the North-West Province of South Africa*. Unpublished report prepared for Golder Associates (Africa) Ltd..

Pretorius, Z.L. 1967. *Die Geskiedenis van Rustenburg, 1851-1918*. MA verhandeling. Potchefstroom: PU vir CHO.

Rasmussen, R.K. 1978. *Migrant Kingdom: Mzilikazi's Ndebele in South Africa*. David Philip: Cape Town.

Schapera, I. 1952. *The ethnic composition of Tswana tribes*. Monographs on Social Anthropology, No 11. London School of Economics and Political Science.

Schapera, I. 1942. A short history of the Bakgatla Bagakgafela of Bechuanaland Protectorate. *Communications from the School of African Studies. University of Cape Town*.

TNAD 1905. Short History of the Native Tribes of the Transvaal. *Government Printer: Pretoria*.

Môkgatle, N. 1971. *Autobiography of an unknown South African*. London: University of California Press.

Schapera, I. 1955. A handbook of Tswana law and customs. Oxford University Press: London.

Schapera, I. 1976. *The Tswana*. Great Britain: Clarke, Doble & Brendon.

Viljoen, M.J. & Reimold, W.U. 1999. *An introduction to South Africa's geological and mining heritage*. The Geological Society of South Africa. Mintek. Randburg.

Wagner, P.A. 1973. *The platinum deposits and mines of South Africa*. Struik: Cape Town.

11 SPOKESPERSONS CONSULTED

Elias Pilane, local chief and community leader living in Motlhabe village.

Sameul Sebole (Mponyane), member of the Kgatla community in Motlhabane

Seti (surname unknown), employee of Pilanesberg Platinum Mines and community member in the village of Ntsana-le-metsing.

Numerous *badisa* (cattle herders) working in the Pilanesberg Platinum Mines mining area.

APPENDIX A: DETAILS OF THE SPECIALIST

Profession: Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer and Heritage Consultant

Qualifications:

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

Work experience:

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

Independent Archaeologist and Heritage Consultant (2003-)

Accreditation: Member of the Association for Southern African Professional Archaeologists. (ASAPA)

Summary: Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has excavated more than twenty LIA settlements in North-West and twelve IA settlements in the Lowveld and has mapped hundreds of stone walled sites in the North-West. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact

assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol, PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources etc. as well as with several environmental companies.

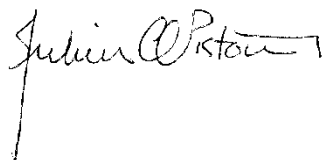
APPENDIX B: DECLARATION OF INDEPENDENCE

I, Julius CC Pistorius, declare that:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010.



Signature of the environmental practitioner:

Private Consultant

Name of company:

16 September 2013

Date:

Signature of the Commissioner of Oaths:

Date:

Designation: