Exploration Results and Mineral Resource Estimate for the Waterberg Platinum Project, South Africa
(Latitude 23° 21’ 53”S, Longitude 28° 48’ 23”E)

Prepared by Coffey Mining Pty Ltd on behalf of:

Platinum Group Metals (RSA) (Pty) Ltd

Effective Date: 1 September 2012

Qualified Person: Kenneth Lomberg Pr.Sci.Nat.
Date and Signature Page

This report titled Exploration Results of the Waterberg Platinum Project, South Africa with an effective date of 1 September 2012 was prepared on behalf of Platinum Group Metals (RSA) (Pty) Ltd by Kenneth Lomberg and signed:

Dated at Roodepoort, South Africa, this 1 September 2012

Senior Principal
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1 SUMMARY

1.1 Introduction

Coffey Mining (South Africa) Pty Limited (Coffey Mining) has been requested by Platinum Group Metals (RSA) (Pty) Ltd (PTM) to complete an Independent Technical Report on the Waterberg Project. This project is targeting a previously unknown extension to the northern limb of the Bushveld Complex and may have the potential for Platinum Group Metals (PGMs) and base metals (Cu, Ni). This report complies with disclosure and reporting requirements set forth in the Toronto Stock Exchange Manual, National Instrument 43-101 Standards of Disclosure for Mineral Project (NI 43-101), Companion Policy 43-101CP to NI 43-101, and Form 43-101F1 of NI 43-101.

This report reviews the geology and the previous exploration activities on the project areas based on documentation related to the project, site visit (16-18 April 2012, 16–18 August 2012 and 21–22 August 2012) and discussions with project management.

1.2 Project Area and Location

The Waterberg Project is a part of a group of exploration projects that came from a regional target initiative of PTM over the past two years. Platinum Group Metals targeted this area based on its own detailed geophysical, geochemical and geological work along trend, off the northern end of the mapped North Limb of the Bushveld Complex in South Africa. The detailed geophysical and other work indicated potential for a package of Bushveld Complex rocks under the Waterberg formation cover rocks.

The Waterberg Project is some 70km north of the town of Mokopane (formerly Potgietersrus) (Figure 4.1_1). The project consists of registered Prospecting Right number LP 30/5/1/1/2/ 1265 PR in respect of the following properties: Kirstenspruit 351LR, Niet Mogelyk 371LR, Carlsruhe 380LR, Bayswater 370LR, Disseldorp 369LR, Ketting 368LR.

The license area is a contiguous area of 137km² centred at 28°48’23”E 23°21’53”S. The current prospecting right expires on the 1st September 2012. An application together with the required supporting documentation for the renewal of the current prospecting right for a further period of three years commencing on the 2nd September 2012 to 1st September 2015 was filed and duly acknowledged by the Regional Manager, Limpopo Region, Department of Mineral Resource (DMR). PTM has a prospecting right which allows it to apply for the conversion of the current prospecting right into a mining right within the renewal period of three years.

1.3 Geological Setting, Deposit Type and Mineralisation

PGM-dominated deposits occur in large layered intrusions, such as the Bushveld Complex (South Africa), the Stillwater Complex (Montana) and the Great Dyke (Zimbabwe). The Waterberg
Project is located on the northern limb of the Bushveld Complex. The 2,060 million year old Bushveld Complex, with a total extent of approximately 66,000km², is one of the world’s largest layered mafic intrusions. The mafic rocks of the Bushveld Complex host layers rich in PGM, chromium and vanadium, and constitute the largest known resource of these metals. In addition, nickel and copper are generally associated with the PGM’s and are significant by-products.

The mafic rocks are collectively termed the Rustenburg Layered Suite and have been divided into five zones known as the Marginal, Lower, Critical, Main and Upper Zones.

The Critical Zone is characterised by regular rhythmic layering of cumulus chromite within pyroxenites, anorthosites, norites and olivine-rich rocks. It hosts virtually all the economic mineralisation encountered in the Bushveld Complex.

The first economically significant cycle from a PGM perspective is the UG2 Chromitite Layer. The two uppermost cycles of the Critical Zone are the Merensky and Bastard cycles. The former is of great economic importance as it contains at its base the PGM-bearing Merensky Reef. In the western part of the Bushveld Complex, several metres below the Merensky Reef, a unit known as the Pseudo Reef occurs and is known to be mineralised with PGMs.

In the Northern Limb, the Platreef mineralisation occurs proximal to the basal contact of the Bushveld Complex with the country rock, typically as a thicker zone (up to 30m wide) containing disseminated sulphides. Where the Bushveld Complex is in contact with the Archaean granite and sediments of the Transvaal Supergroup floor rocks the Platreef is developed. The contact between the RLS and footwall rocks in the northern limb is transgressive, with the Platreef in contact with progressively older rocks of different lithologies from south to north.

The Platreef is a series of pyroxenites and norites, containing xenoliths/rafts of footwall rocks. It is irregularly mineralised with PGE, Cu and Ni. The Platreef (senso stricto) has a strike extent of some 30km, whereas Platreef-style mineralisation occurs over the 110km strike length of the northern limb (Kinnaird et al, 2005). The Platreef varies from 400m thick in the south of the northern limb to <50m in the north. The overall strike is NW or N, with dips 40–45° to the W at surface with the dip becoming shallower down dip. The overall geometry of the southern Platreef appears to have been controlled by irregular floor topography.

The Waterberg Project appears to be an extension of the Bushveld Complex. The mineralisation has a different setting to the Platreef.

1.4 Local Geology

The drilling programme by PTM has identified an extension to the Bushveld Complex beneath the sedimentary rocks of the Proterozoic Waterberg Group which is covered by a veneer of
Quaternary sand. Further north, the Waterberg Group thickens to more than 700m and typically displays a downward coarsening with pebble beds and conglomerates towards the base.

The PGE mineralisation at the Waterberg Project is hosted in modified felsic rocks: gabbros, anorthosites as well as pyroxenites, troctolites, harzburgites and norite of the Bushveld Complex. Layers of PGE mineralisation are generally accompanied by significant concentrations of base metal sulphides, with pyrrhotite and chalcopyrite being dominant over pentlandite.

A geological model was developed for the project area based on the data from the various boreholes, structural interpretation from aerial photographs and geophysics (Figure 1_1). A general dip of 28º towards the northwest is observed from borehole core for the layered units intersected on Waterberg property within the Bushveld Package. However, some blocks may be tilted at different angles depending on structural and/or tectonic controls. And generally the Bushveld package strikes south-west to north-east.

The early interpretation by company geologists is that in this area the Bushveld Complex intruded into the bottom of the sedimentary sequence of the Waterberg Group based on:

- cross cutting relationships and
- inclusion of remnants of the Waterberg in the top of the Bushveld intrusives
- No evidence of a thermal metamorphosis at the base of the Waterberg
- the lack of erosion of a significant part of the underlying Bushveld rocks

Typical/traditional isotope dating suggests

However, the SHRIMP U-Pb dating of the Waterberg Group suggests that quartz porphyry lavas near the base have ages between 2054±4 and 2051±8 Ma. It has been interpreted that sedimentation begun immediately after the intrusion of the Bushveld Complex (Dorland et al., 2006). The Nebo granite forms the immediate roof of the Bushveld Complex and has been dated at 2054±2Ma (Cawthorn et al, 2006) indicating that an intrusive relationship can be supported by current scientific evidence.
1.5 Exploration Status

Previous mineral exploration activities were limited due to the extensive sand cover and the understanding that the area was underlain by the Waterberg Group. Surface mapping has been undertaken but it is noted that most of the area surrounding the Waterberg Mountains is covered by Waterberg sands and as such mapping in these areas has provided no information as the Bushveld Complex is sub outcropped below Waterberg sediments.

In March 2010 (two north-south sampling lines) and later During December 2011 and January 2012 (two additional north-south lines), geochemical soil sampling was undertaken. A total of 601 samples of which 255 were soil samples, 277 stream sediment samples and 79 rock chip samples were collected during this process.
Approximately 60 lines of geophysical survey for 488 line km using gravity and magnetics were traversed in March 2010. A second phase of Geophysical Survey was also conducted on the farm Ketting from August 2011 to September 2011.

Anomalous soil results in platinum group elements in areas that were thought, in the regional mapping to be covered by thick sediments younger than the Bushveld Complex, provided initial interest to the property. The geochemistry added to the geophysical results which suggested a Bushveld Complex extension in the property area, potentially at reasonable depth. Based on the exploration combined with the target generation, diamond drilling commenced in 2010. The drilling confirmed the presence of the rocks of the Bushveld Complex. Exploration has thus been largely driven by drilling. The relationship between the Bushveld Complex and Waterberg Group is the subject of discussion between PTM and geologists from various universities. The age of the rocks of the Bushveld Rocks relative to the sedimentary cover is not considered critical to the geological model of the mineralized rocks in the Bushveld Complex.

1.5.1 Drilling

Based on the target generation and the results of the geochemical sampling and Geochemical Surveys, two boreholes WB001 and WB002 were initially drilled between July and October 2010 on the farm Disseldorp 369 LR. A total of 1934.77m was drilled for the first two boreholes in 2010. Drilling resumed in 2011 with a third borehole WB003 was drilled on the farm Ketting. The geological information revealed by this borehole lead to the extension of the drilling campaign such that in 2012 drilling with up to 10 diamond drill rigs was undertaken. At the end of July 2012 a total of 32,093m had been drilled with 27 boreholes being completed or in progress and 58 deflections on the F or T-layers completed or being drilled.

Drilled core is cleaned, de-greased and packed into metal core boxes by the drilling company. The core is collected from the drilling site on a daily basis by a PTM geologist and transported to the coreyard by PTM personnel. Before the core is taken off the drilling site, the depths are checked. Core logging is done by hand on a pro-forma sheet by qualified geologists under supervision of the Project Geologist.

1.5.2 Sample Preparation

The sampling methodology accords with PTM protocol based on industry best practice. The quality of the sampling is monitored and supervised by a qualified geologist. The sampling is done in a manner that includes the entire potentially economic unit.

1.5.3 Analysis

For the present database, field samples have been analyzed by two different laboratories: the primary laboratory is currently Set Point laboratories (South Africa) and Genalysis (Australia) is used for round robin test work to confirm the accuracy of the primary laboratory.
Samples are received, sorted, verified and checked for moisture and dried if necessary. Each sample is weighed and the results are recorded. Rocks, rock chips or lumps are crushed using a jaw crusher to less than 10mm. The samples are then milled for 5 minutes in a Labtech Essa LM2 mill to achieve a fineness of 90% less than 106μm, which is the minimum requirement to ensure the best accuracy and precision during analysis.

Samples are analysed for Pt (ppb), Pd (ppb) Rh (ppb) and Au (ppb) by standard 25g lead fire-assay using a silver collector. After pre-concentration by fire assay the resulting solutions are analysed using ICP-OES (Inductively Coupled Plasma–Optical Emission Spectrometry).

The base metals (copper, nickel, cobalt and other base metals) are analysed using ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry) after a four acid digest. This technique results in “almost” total digestion.

The drilling, sampling and analytical aspects of the project are considered to have been undertaken to industry standards. The data is considered to be reliable and suitable for mineral resource estimation.

1.5.4 Quality Control and Quality Assurance

PTM have instituted a complete QA/QC programme including the insertion of blanks and certified reference materials as well as referee analyses. The programme is being followed and is considered to be to industry standard. The data is as a result, considered reliable.

1.6 Mineral Resources

Mineral resources have been declared for the T- and F-layer mineralisation on the property Ketting 368LR.

The data that formed the basis of the estimate are the boreholes drilled by PTM which consisted of geological logs, the borehole collars, the downhole surveys and the assay data. The area where each layer was present was delineated after examination of the intersections in the various boreholes (Figure 14.1_1).

The data was used to define the characteristics of the various layers based on their geochemical signatures. However, it was necessary to check the procedure against the core. As a result a validation was undertaken on the core with the intention of finding diagnostic features to identify the layers directly from the core. This was successfully achieved for the T layer but due to the pervasive alteration, proved too difficult in the F layer. The F layer was therefore distinguished based on its stratigraphic position at the base of the magmatic sequence and on geochemical data.
All the intersections were checked on the core to ensure that the layer designation was true to the core and consistency for all the deflections form a borehole. These cuts formed the basis of the Mineral Resource Estimate. The cuts were also defined based on the geology, a marginal cut off grade of 0.01g/t PGM and a minimum thickness of 2m. Basic statistics were undertaken on the data noting that the data was clustered due to the number of deflections for each borehole.

Data from the drilling completed by PTM in the estimate which consists of over a 100 intersections from 16 boreholes. Each drillhole was examined for completeness in respect of data (geology, sampling, collar) and sample recovery prior to inclusion in the estimate.

The borehole intersections were composited for Pt, Pd, Au, Cu and Ni. A common seam block model was developed into which the estimate was undertaken. An inverse distance weighted (power 2) was undertaken using the 3D software package Datamine™.

Coffey Mining considers that the mineral resource of the various layers should be classified as an Inferred Mineral Resource. The data is of sufficient quality and the geological understanding and interpretation are considered appropriate for this level of mineral resource classification. The resource estimate has been classified based on the criteria set out in Table 14.10.1.

Geological loss of 25% was estimated based on the knowledge of the deposit. The geological losses are made up of areas of where the layers are absent due to faults, dykes, potholes and mafic/ultramafic pegmatites.

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<th>Pd (g/t)</th>
<th>Au (g/t)</th>
<th>2PGE+Au (g/t)</th>
<th>Pt:Pd:Au</th>
<th>2PGE+Au (koz)</th>
<th>Cu (%)</th>
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<td></td>
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<td>3.33</td>
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</table>
Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.

The quantity and grade of reported Inferred Mineral Resources in this estimate are conceptual in nature. There is no guarantee that all or any part of the Mineral Resource will be converted to a Mineral Reserve.

The independent Qualified Person responsible for the mineral resource estimate in this report and summarized in Table 14.11_1 is Kenneth Lomberg, a geologist with some 27 years’ experience in mine and exploration geology, resource and reserve estimation and project management in the minerals industry (especially platinum and gold). He is a practising geologist registered with the South African Council for Natural Scientific Professions (Pr.Sci.Nat.) and is independent of Platinum Group Metals Ltd as that term is defined in Section 1.5 of the Instrument.

1.7 Interpretation and Conclusions

Exploration drilling by PTM has intersected layered magmatic PGM mineralization in what is interpreted to be the northern extension of the northern limb of the Bushveld Complex.

Based on the available data a mineral resource estimate has been undertaken. Prior to declaration of the mineral resource an economic analysis to confirm that the mineral resource “has reasonable prospects for economic extraction”, was undertaken.

It is recommended that drilling continue and that more detailed logging be undertaken to improve the geological understanding and allow better layer definition.

The scale of the inferred mineral resource and the fact that the mineralization is open to the north and east (area under application) would suggest that a drill program is warranted. A budget of R80million for this program is recommended for the current phase of infill drilling to be completed and for drilling the extensions to the current area including the area to the east for which an application for a prospecting right has been applied.
2 INTRODUCTION

2.1 Scope of the Report

Coffey Mining (South Africa) Pty Limited (Coffey Mining) has been requested by Platinum Group Metals (RSA) (Pty) Ltd (PTM) to complete an Independent Technical Report on the exploration results and mineral resource estimate for the Waterberg Project. This project is targeting a previously unknown extension to the northern limb of the Bushveld Complex and may have the potential for Platinum Group Metals (PGMs) and base metals (Cu, Ni). This report complies with disclosure and reporting requirements set forth in the Toronto Stock Exchange Manual, National Instrument 43-101 Standards of Disclosure for Mineral Project (NI 43-101), Companion Policy 43-101CP to NI 43-101, and Form 43-101F1 of NI 43-101.

This report reviews the geology and the previous exploration activities on the project areas based on documentation related to the project, a site visit and discussions with project management. This report also presents the results of an initial mineral resource estimate.

2.2 Principal Sources of Information

The sources of information and data include both public domain data (conventional publications, “Open File” and Internet) and information gathered or otherwise acquired by PTM, which are not generally available in the public domain. Where possible, published and/or generally available data on “Open File” in the Council of Geoscience, Pretoria, South Africa, was used.

The public domain sources and documents that were supplied by PTM are listed in Section 19 - References.

2.3 Qualifications and Experience

Coffey Mining is part of Coffey International Limited which is one of the top 300 companies on the Australian Stock Exchange. Coffey International Limited consists of a range of specialist companies working in social infrastructure and physical infrastructure and operates in more than 60 countries around the world.

Coffey Mining is an integrated Australian-based consulting firm, which has been providing services and advice to the international mineral industry and financial institutions since 1987. Coffey Mining, previously Coffey Mining, has maintained a fully operational office at Accra in Ghana since 1996, providing an operational base for consulting and contracting assignments throughout the West African region. An additional African office was established in Johannesburg, South Africa, in 1999 to support expanding activities within southern and eastern portions of the continent. In 2007 an additional office was established in Lusaka, Zambia to provide consulting services to the Zambian mineral industry.
The following personnel were nominated to the project team and their specific areas of responsibility are shown below. The qualifications and appropriate experience of the author are detailed in the attached Authors’ Certificates. Mr K G Lomberg visited site on 16-18 April 2012, 16–18 August 2012 and 21–22 August 2012.

PTM personnel on site facilitated the technical review by providing documentation, overview presentations, a field visit, access to the exploration and drilling already completed, and access to the project database.

The overall report was compiled by Mr Lomberg.

Kenneth Lomberg, Principal Consultant Resources, Coffey Mining – Southern Africa
Project management, site visit, geological review and interpretation, mineral resource estimation, report preparation.

Mr Lomberg has the relative experience to the type of deposit and resource estimation that is the subject of this report. Mr Lomberg has done consultant work on various projects on the Bushveld Complex including Aurora, Kransplaats, Atok Mine, Mecklenburg, Smokey Hills, Kalplats, Garatau, Kennedy's Vale, Kalkfontein, Blue Ridge Mine, Eland Mine, WBJV, Palmietfontein, Stellite, Townlands and Tharisa. Mr Lomberg has assisted with approximately 15 of the estimated 20 Junior Platinum Exploration and Mining in South Africa. These assignments have ranged from listings documents, CPRs, ITRs, feasibility studies, NI43-101 compliant resource estimations and valuations.

Norman Lock, Manager Geology, Coffey Mining - Canada
Supervising Principal, Peer review.

2.4 Independence

Neither Coffey Mining, nor the key personnel nominated for the completed and reviewed work, have any material interest in PTM or its mineral properties. The proposed work, and any other work done by Coffey Mining for PTM, is strictly in return for professional fees. Payment for the work is not in any way dependent on the outcome of the work, or on the success or otherwise of PTM’s own business dealings. As such there is no conflict of interest in Coffey Mining undertaking the Independent Qualified Person’s Report as contained in this document.
3 RELIANCE ON OTHER EXPERTS

This report was prepared as a National Instrument 43-101 Technical Report, in accordance with Form 43-101F1, for Platinum Group Metals (RSA) (Pty) Ltd (PTM) by Coffey Mining (South Africa) Proprietary Limited (Coffey Mining). The quality of information and conclusions contained herein is consistent with the level of effort involved in Coffey Mining’s services and based on:

i) information available at the time of preparation by PTM,

ii) third party technical reports prepared by Government agencies and previous tenements holders, along with other relevant published and unpublished third party information, and

iii) the assumptions, conditions and qualifications set forth in this report. This report is intended to be used by PTM, subject to the terms and conditions of its contract with Coffey Mining. This contract permits PTM to file this report as a Technical Report with Canadian Securities Regulatory Authorities pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects. Any other use of this report by any third party is at that party’s sole risk.

A final draft of this report was provided to PTM, along with a written request to identify any material errors or omissions, prior to lodgement.

Neither Coffey Mining, nor the authors of this report, are qualified to provide extensive comment on legal facets associated with ownership and other rights pertaining to PTM’s mineral properties described in Section 4. Coffey Mining did not see or carry out any legal due diligence confirming the legal title of PTM to the properties.

Similarly, neither Coffey Mining nor the authors of this report are qualified to provide extensive comment on environmental issues associated with PTM’s mineral properties, as discussed in Section 4.
4 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Description and Location

The Waterberg Project is some 70km north of the town of Mokopane (formerly Potgietersrus) (Figure 4.1_1). The project consists of a prospecting license to the following properties: Kirstenspruit 351LR, Niet Mogelyk 371LR, Carlsruhe 380LR, Bayswater 370LR, Disseldorp 369LR, Ketting 368LR. The prospecting license area (LP 30/5/2/1/1/ 1265 PR) is a contiguous area of 137km² centred at 28°48'23"E 23°21'53"S.

![Figure 0_1](Location of the Waterberg Project Properties)

4.2 Mining Tenure

A summary of the mineral exploration and mining rights regime for South Africa is provided in Table 4.2_1. It should be noted that PTM have a prospecting right which allows them should they meet the requirements in the required time, to have the sole mandate to file an application for the conversion of the registered prospecting right to a mining right.
**Table 4.2.1**

Summary of Mineral Exploration and Mining Rights
(South Africa)

<table>
<thead>
<tr>
<th>South Africa</th>
<th>Mineral Exploration and Mining Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining Act</td>
<td>Mineral and Petroleum Resources Development Act, No. 28 of 2002 (Implemented 1 May 2004)</td>
</tr>
<tr>
<td>State Ownership of Minerals</td>
<td>State custodianship</td>
</tr>
<tr>
<td>Negotiated Agreement</td>
<td>In part, related to work programmes and expenditure commitments.</td>
</tr>
</tbody>
</table>

**Mining Title/Licence Types**

<table>
<thead>
<tr>
<th>Name</th>
<th>Purpose</th>
<th>Maximum Area</th>
<th>Duration</th>
<th>Renewals</th>
<th>Area Reduction</th>
<th>Procedure</th>
<th>Granted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconnaissance Permit</td>
<td>Geological, geophysical, photo geological, remote sensing surveys. Does not include &quot;prospecting&quot;, i.e. does not allow disturbance of the surface of the earth.</td>
<td>Not limited.</td>
<td>Maximum 2 years.</td>
<td>No and no exclusive right to apply for prospecting right.</td>
<td>No.</td>
<td>Apply to Regional Department of Mineral Resources.</td>
<td>Minister.</td>
</tr>
<tr>
<td>Prospecting Right</td>
<td>All exploration activities including bulk sampling.</td>
<td>Not limited.</td>
<td>Up to 5 years.</td>
<td>Once, for 3 years.</td>
<td>No.</td>
<td>Apply to Regional Department of Mineral Resources.</td>
<td>Minister.</td>
</tr>
<tr>
<td>Mining Right</td>
<td>Mining and processing of minerals.</td>
<td>Not limited.</td>
<td>Up to 30 years.</td>
<td>Yes, with justification.</td>
<td>Yes</td>
<td>Apply to Regional Department of Mineral Resources.</td>
<td>Minister.</td>
</tr>
</tbody>
</table>
4.3 License Status

Platinum Group Metals (RSA) (Pty) Ltd was granted a Prospecting Right (LP 30/5/1/1/2/ 1265 PR) with effect from the 2 September 2009 to the 1 September 2012 for a period of three years for the Waterberg Project. The Prospecting Right was duly registered in Mineral Titles and Registration Office Pretoria on the 11 July 2011 under registration number MPT Table 4.3_1 and shown in Figure 4.3_1. An application for the extension of the Prospecting Right for a further three years, as provided for in the MRPDA, was accepted by the Regional Manager prior to September 1 2012.

<table>
<thead>
<tr>
<th>Registered Prospecting Right</th>
<th>Expiry Date</th>
<th>Commodities</th>
<th>Area km²</th>
<th>Centre point of License</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platinum Group Metals (RSA) Pty Ltd</td>
<td>1 Sept 2012*</td>
<td>PGM, Au, Cr, Ni, Cu, Mo, Rare Earths, Ag, Co, Zn, Pb</td>
<td>137.146 km²</td>
<td>28º48'31.225&quot;E 23º21'52.733&quot;S</td>
</tr>
</tbody>
</table>

* An application for an extension for 3 years has been filed in accordance with the MPRDA

The prospecting right covers the properties Disseldorp 369 LR, Kirstenspruit 351 LR, Bayswater 370 LR, Niet Mogelyk 371 LR and Carlsruhe 390 LR (Figure 4.3_1), and an additional amended prospecting right which includes the property Ketting 368 LR.
Figure 4.3_1
Locations of the Waterberg Project Properties

Waterberg
1:250 000 Topocadastral

Legend
Waterberg_Boundary
4.4 **Holdings Structure**

PTM holds a 74% share in the project with Mnombo Wethu (Pty) Ltd (Mnombo), a BEE partner, holding the remaining 26% share (Figure 4.4_1).

In October 2009, PTM entered an agreement with the Japanese Oil, Gas and Metals National Corporation (JOGMEC) and Mnombo whereby JOGMEC may earn up to a 37% interest in the project for an optional work commitment of US$3.2 million over 4 years, while at the same time Mnombo is required to match JOGMEC’s expenditures on a 26/74 basis. If required, the Company agreed to loan Mnombo their first $87,838 in project funding. JOGMEC has completed the expenditure of their earn-in amount.

On November 7, 2011 the Company entered into an agreement with Mnombo whereby the Company will acquire 49.9% of the issued and outstanding shares of Mnombo in exchange for cash payments totalling R 1.2 million and paying for Mnombo’s 26% share of project costs to feasibility. When combined with the Company’s 37% direct interest in the Waterberg Project (after JOGMEC earn-in), the 12.974% indirect interest to be acquired through Mnombo will bring the Company’s effective project interest to 49.974%.

4.5 **Royalties and Agreements**

Coffey Mining is not aware of any royalties, back-in rights, payments or other encumbrances that could prevent PTM from carrying out its plans or the trading of its rights to its license holdings at the Waterberg Project.
4.6 Environmental Liabilities

All environmental requirements on the properties are subject to the terms of a current Environmental Management Plan (EMP) approved by the Department of Minerals Resources (DMR) prior to commencement of work on the properties. All rehabilitation of drillhole sites and access roads required in terms of this EMP has been completed or are on-going. In addition the required deposits into the approved environmental rehabilitation trust in respect of related potential liabilities are up to date. There are no other environmental liabilities on the properties.

All the necessary permissions and permits in terms of the environmental liabilities have been obtained. There are no known encumbrances of an environmental nature that may restrict the exploration of the properties.
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access
The Waterberg Project is some 70km north of the town of Mokopane (formerly Potgietersrus) in Seshgo and Mokerong 2 districts of the Limpopo Province. Mokopane provides a full spectrum of local and urban infrastructure.

The Waterberg Project is situated some 13.5km from the N11 national road that links Mokopane with the Groblers Bridge border post to Botswana. The current drilling area is some 32km from the N11 National Road. Access to the area from the national road is by unpaved roads that are generally in a reasonable condition.

5.2 Climate
The climate is semi-arid with moderate winter temperatures and warm to hot in the summer. The majority of the 350-400mm of average annual rainfall occurs in the period November to March. Climatic conditions have virtually no impact on potential mining operations in the project area. Mining and exploration activities can continue throughout the year.

5.3 Physiography
The project area to the west is relatively flat but the area on the eastern part of the project area is more mountainous with some steep near vertical cliffs and an elevation difference of 160 - 200m (Figure 5.3_1). The lowest point in the project area is at 880m amsl and the highest point at 1365m amsl. The drilling has been undertaken in a flat area with an elevation of approximately 1000m amsl. The area is framed by the local people who grow crops on a limited scale and farm various cattle. The vegetation is typically bushveld vegetation. The Seepabana river cuts across the south-western side of the project area from east to west. The remainder of the area has non-perennial rivers.
5.4 Local Resources and Infrastructure

Mining services and recruitment are readily available from Mokopane which has a long history of mining with the Potgietersrust Platinum Ltd’s Mine (Anglo Platinum) situated north of the town. Furthermore, drilling contractors, mining services and consultants are readily sourced within the greater Gauteng area.

Power, sewage and water infrastructure are poorly developed in this area. The infrastructural requirements of a mine would require additional planning to provide suitable infrastructure to the site. The current activity in the area is in the form of local people undertaking small scale farming on a subsistence basis for cattle and crops. The major restriction is water although the Glen Alpine dam is located 2km to the NW of the project area and 23km NW of the area of current activity.
6 HISTORY

The Waterberg Project is a part of a group of exploration Projects that came from a regional target initiative of the Company over the past two years. Platinum Group Metals targeted this area based on its own detailed geophysical, geochemical and geological work along trend, off the north end of the mapped North Limb.

6.1 Ownership History

PTM developed the exploration concept for the Waterberg Project and filed for a prospecting right application which was granted in 2009. In October 2009, the Company entered an agreement with JOGMEC and Mnombo whereby JOGMEC may earn up to a 37% interest in the project for an optional work commitment of US$3.2 million over 4 years, while at the same time Mnombo is required to match JOGMEC’s expenditures on a 26/74 basis. If required, the Company agreed to loan Mnombo their first $87,838 in project funding. JOGMEC completed their earn-in expenditure in 2012.

On November 7, 2011 the Company entered into an agreement with Mnombo whereby the Company will acquire 49.9% of the issued and outstanding shares of Mnombo in exchange for cash payments totalling R 1.2 million and paying for Mnombo’s 26% share of project costs to feasibility. When combined with the Company’s 37% direct interest in the Waterberg Project (after JOGMEC earn-in), the 12.974% indirect interest to be acquired through Mnombo will bring the Company’s effective project interest to 49.974%.

6.2 Exploration History

Previous work that has been conducted over the property was the regional mapping by the Johannesburg Consolidate Investments Company Limited (JCI) and Council for Geoscience as presented on the 1:250,000 scale – Map No 2328 – Pietersburg. This sheet is the published geological map of the area and the basis for the metallurgical sheets, as well as regional aeromagnetic and gravity surveys that now form part of the public domain dataset.

There is no publically available detailed exploration history available for the area. As a result of the cover on the Bushveld Complex there is no record of exploration for platinum group elements and the extensive exploration for platinum group elements on the Platreef targets to the south did not extend this far north. There are undocumented reports of a borehole through the Waterberg Group into the Bushveld Complex on a farm immediately north of the Waterberg Project.

The original exploration models for the property involved a potential of paleo placer at the base of the Waterberg Group sediments or an embayment to the west. Both of these models have been discarded with the current discovery and drilling data showing a strike to the north-east.
6.3 Resource History

No resource or reserve estimates are known to have been declared for the Waterberg Project area.

6.4 Production History

There has been no production from the Waterberg Project.
7 GEOLOGICAL SETTING AND MINERALISATION

7.1 Regional and Local Setting

The stable Kaapvaal and Zimbabwe Cratons in southern Africa are characterised by the presence of large mafic to ultramafic layered complexes, the best known of which are the Great Dyke in the Zimbabwe Craton and the Bushveld and Molopo Complexes in the Kaapvaal Craton. By far the largest, best-known and economically most important of these is the Bushveld Complex (Figure 2.1.1), which was intruded about 2,060 million years ago into rocks of the Transvaal Supergroup, largely along an unconformity between the Magaliesberg quartzite of the Pretoria Group and the overlying Rooiberg felsites. The total estimated extent of the Bushveld Complex is some 66,000 km², of which about 55% is covered by younger formations. The mafic rocks of the Bushveld Complex host layers rich in Platinum Group Elements (PGE), chromium and vanadium, and constitute the world's largest known resource of these metals.

The Waterberg Project is situated off the northern end of the previously known northern limb, where the mafic rocks have a different sequence to those of the eastern and western limbs. Furthermore the Bushveld rocks transgress the Transvaal Supergroup from the Smelterskop and Magaliesberg formations in the south to the ironstones of the Penge formation further north, the dolomites of the Malmani Subgroup, and eventually resting on the Turfloop granite in the north (Vermaak and Van der Merwe, 2000).

The geology of the northern limb of the Bushveld Complex is characterised by the existence of the platiniferous Platreef which was first described by Van der Merwe (Van der Merwe, 1976). The Platreef is typically a wide pyroxenite hosted zone (up to 100s of metres), of elevated Cu and Ni mineralisation with associated anomalous PGE concentrations. The sulphide mineralisation is typically pyrrhotite, chalcopyrite and pentlandite. It has been postulated that the interaction with the basement rocks and in particular the dolomites has been instrumental in the formation of the mineralisation (Vermaak and Van der Merwe, 2000).

The Waterberg Project is an extension of the Northern Limb of the Bushveld Complex. The mineralised layers are considered have a different setting to the Platreef.
7.1.1 Bushveld Complex Stratigraphy

The mafic rocks (collectively termed the Rustenburg Layered Suite) can be divided into five zones known as the Marginal, Lower, Critical, Main and Upper Zones from the base upwards (Figure 2.1._1).

The **Marginal Zone** is comprised of generally finer grained rocks than those of the interior of the Bushveld Complex and contains abundant xenoliths of country rock. It is highly variable in thickness and may be completely absent in some areas and contains no known economic mineralisation.

The **Lower Zone** is dominated by orthopyroxenite with associated olivine-rich cumulates in the form of harzburgites and dunites. The Lower Zone may be completely absent in some areas.

The **Critical Zone** is characterised by regular and often fine-scale rhythmic, or cyclic, layering of well-defined layers of cumulus chromite within pyroxenites, olivine-rich rocks and plagioclase-rich rocks (norites, anorthosites etc). The economically important PGE deposits are part of the Critical Zone.

The Critical Zone hosts all the chromitite layers of the Bushveld Complex, of which up to 14 have been identified. The first important cycle is the Upper Group Chromitite Layer (UG1 Chromitite Layer and UG2 Chromitite Layer). The UG1 Chromitite Layer, which is lower unit, consists of a chromitite layer and underlying footwall chromitite layers that are interlayered with anorthosite. The most important of the chromite cycles for PGE mineralisation is the upper unit, the UG2 Chromitite Layer, which averages some 1m in thickness.
Underlying the UG Chromitite Layers are the Middle Group Chromitite Layers which consists of four groups of chromitite layers over an overall thickness of 15 – 80m.

The two uppermost units of the Critical Zone are the Merensky and Bastard units. The former is also of great economic importance as it contains at its base the PGE-bearing Merensky Reef, a feldspathic pyroxenitic assemblage with associated thin chromitite layers that rarely exceeds 1m in thickness. The top of the Critical Zone is generally defined as the top of the robust anorthosite (the Giant Mottled Anorthosite) that forms the top of the Bastard cyclic unit.

The Critical Zone may be subdivided into the Upper and Lower Critical Zones based on the last appearance of cumulus feldspar. This boundary is considered to be between the Upper and Middle Group Chromitite Layers.

The economically viable chromite reserves of the Bushveld Complex, most of which are hosted in the Critical Zone, are estimated at 68% of the world's total, whilst the Bushveld Complex also contains 56% of all known platinum group metals. The Merensky Reef, which developed near the top of the Critical Zone, can be traced along strike for 280km and is estimated to contain 60,000t of PGE to a depth of 1 200m below surface. The pyroxenitic Platreef mineralisation, north of Mokopane (formerly Potgietersrus), contains a wide zone of more disseminated style platinum mineralisation, along with higher grades of nickel and copper than occur in the rest of the Bushveld Complex.

The well-developed Main Zone consists of norites grading upwards into gabbronorites. It includes several mottled anorthosite layers in its lower sector and a distinctive pyroxenite layer two thirds of the way up, termed the Pyroxenite Marker.

The base of the overlying Upper Zone is defined by the first appearance of cumulus magnetite above the Pyroxenite Marker. In all, 25 layers of cumulus magnetite punctuate the Upper Zone, the fourth (Main Magnetite layer) being the most prominent. This is a significant marker, some 2m thick, resting upon anorthosite, and is exploited for its vanadium content in the eastern and western limbs of the Bushveld Complex.
7.1.2 The Northern Limb

The northern limb is a slightly sinuous, north-west striking sequence of igneous rocks of the Bushveld Complex with a length of 110km and a maximum width of 15km (Figure 7.1.2_1). It is generally divided up into three different sectors namely the Southern, Central and Northern sectors which have characteristic footwalls:

- The Southern Sector is characterised by a footwall of the Penge Formation of the Transvaal Supergroup
- The Central Sector generally has a footwall of Malmani Subgroup and
- The Northern Sector has a footwall consisting of Archaean granite
Figure 7.1.2_1
General Geology of the Northern Limb of the Bushveld Complex

Source: Sharman-Harris (2006)
Figure 7.1.2_2
Geology of the Northern Limb of the Bushveld Complex showing the Various Footwall Lithologies

Source: Sharman-Harris (2006)
7.1.3 The Platreef and its Mineralisation

In the northern limb of the Bushveld Complex, the Lower and the Critical Zones of the Bushveld Complex are poorly developed. Where the Bushveld Complex is in contact with the Archaean granite and sediments of the Transvaal Supergroup floor rocks the Platreef is developed. The contact between the RLS and footwall rocks in the northern limb is transgressive, with the Platreef in contact with progressively older rocks of different lithologies from south to north.

The Platreef is a series of pyroxenites and norites, containing xenoliths/rafts of footwall rocks. It is irregularly mineralised with PGE, Cu and Ni. The Platreef (senso stricto) has a strike extent of some 30km, whereas Platreef-style mineralisation occurs over the 110km strike length of the northern limb (Kinnaird et al, 2005). The Platreef varies from 400m thick in the south of the northern limb to <50m in the north. The overall strike is NW or N, with dips 40–45° to the W at surface with the dip becoming shallower down dip. The overall geometry of the southern Platreef appears to have been controlled by irregular floor topography.

The Platreef is also highly geochemically variable unit, with research suggesting that lateral variations in the geochemistry of the Platreef are the result of interaction with and incorporation of different types of footwall rock. The Platreef consists of a complex assemblage of pyroxenites, serpentinites and calc-silicates. The nature of these rocks, is related to interaction of the Bushveld magma with the lime-rich floor rocks which resulted in the formation of abundant lime-rich minerals (calc-silicates) as well as the serpentinisation of the overlying pyroxenites. Base metal and PGE concentrations are found to be highly irregular, both in value as well as in distribution. The mineralisation in places reaches a thickness of up to 40m.

Lithologically, the southern Platreef is heterogeneous and more variable than sectors further north and, although predominantly pyroxenitic, includes dunites, peridotites and norite cycles with anorthosite in the mid to upper portion. Zones of intense serpentinisation may occur throughout the package. Country rock xenoliths, <1500m long, are common. In the south these are typically quartzites and hornfelsed banded ironstones, shales, mudstones and siltstones whereas further north dolomitic or calc-silicate xenoliths also occur.

Faults offset the strike of the Platreef: a N–S, steeply dipping set is predominant with secondary ENE and ESE sets dipping 50–70°S. The fault architecture was pre-Bushveld and also locally controlled thickening and thinning of the succession.

Although the major platinum group minerals consist of PGE tellurides, platinum arsenides and platinum sulphides, there appears to be a link between the rock type and the type of platinum group minerals with the serpentinites being characterised by a relative enrichment in sperrylite ($\text{PtAs}_2$), the upper pyroxenites generally being characterised by more abundant PGE sulphides and alloy (Schouwstra et al 2000). PGE alloys typically dominate the mineralisation closer to the floor rocks. Sulphides may reach >30% in some intersections. These are dominated by pyrrhotite, with lesser pentlandite and chalcopyrite, minor pyrite and traces of a wide compositional range of sulphides. The presence of massive sulphides is localised, commonly, but not exclusively towards the contact with footwall metasedimentary rocks. The magmatic sulphides are disseminated or have a net-texture with a range of a few microns to 2cm sized grains. Much of the sulphide mineralisation is associated with intergranular plagioclase, or
quartz-feldspar symplectites, along the margins of rounded cumulus orthopyroxenes. The PGEs in the southern sector occur as tellurides, bismuthides, arsenides, antimonides, bismuthoantimonides and complex bismuthotellurides. PGM are rarely included in the sulphides but occur as micron-sized satellite grains around interstitial sulphides and within alteration assemblages in serpentinised zones. The Pt:Pd ratio ±1 with the PGE concentration not necessarily linked to either the sulphur or base metal abundance.

In the southern sector, mineralised zones have grades of 0.1–0.25% Cu and 0.15–0.36% Ni.

7.2 Age Relationship

The age relationship of the Waterberg Group and the Bushveld Complex is being re-examined as a result of this data.

Conventional understanding is that the Bushveld Complex is dated at 2060Ma. The Waterberg Group is dated at 1879 - 1872Ma based on dolerite intrusions into the upper strata. Other references in the literature are made to the relationship:

- An unconformity resting on rocks including the Bushveld granites and mafic rock of the Bushveld (Barker et al, 2006)
- The Swaershoek Formation which is at the base of the Nylstroom Subgroup is reported to be deposited penecontemporaneous with the Bushveld granites (Barker et al, 2006)
- The Nebo Granite which are recognised to form the roof to the Bushveld have been dated at 2054±2Ma (Cawthorn et al, 2006)

The early interpretation by company geologists is that in this area the Bushveld Complex intruded into the bottom of the sedimentary sequence of the Waterberg Group based on:

- cross cutting relationships and
- inclusion of remnants of the Waterberg in the top of the Bushveld intrusives
- evidence of a thermal contact at the base of the Waterberg
- the lack of erosion of a significant part of the underlying Bushveld rocks

However, the SHRIMP U-Pb dating of the Waterberg Group suggests that quartz porphyry lavas near the base have ages between 2054±4Ma and 2051±8Ma. It has been interpreted that sedimentation begun immediately after the intrusion of the Bushveld Complex (Dorland et al., 2006).

It should be noted that the age relationship between the Waterberg Group and the Bushveld Complex does not impact on the discussion relating to the potential of the mineralised zones. It is anticipated that in time, the data available will be used to further understand the age relationship and conclude on this debate.
7.3 Project Geology

The Waterberg Project consists predominantly of the Bushveld Main Zone gabbros, gabbro-norites, norites, pyroxenites and anorthositic rock types with more mafic rock material such as harzburgite and troctolites that partially grade into dunites towards the base of the package. In the southern part of the project area, Bushveld Upper Zone lithologies such as magnetite gabbros and gabbronorites do occur as intersected in borehole WB001 and WB002. The Lower Magnetite Layer of the Upper Zone was intersected on the south of the project property (Disseldorp) where borehole WB001 was drilled and intersected a 2.5m thick magnetite band.

A general dip of 28º towards the west is observed from borehole core for the layered units intersected on Waterberg property within the Bushveld Package. However, some blocks may be tilted at different angles depending on structural and/or tectonic controls. And generally the Bushveld package strikes south-west to north-east

The Bushveld Upper Zone is overlain by a 120m to 620m thick Waterberg Group which is a sedimentary package predominantly made up of sandstones, and within the project area the two sedimentary formations known as the Setlaole and Makgabeng Formations constitute the Waterberg Group. The Waterberg package is flat lying with dip angles ranging from 2º to 5º.

The base of the Bushveld Main Zone package is marked by the presence of a transitional zone that constitutes a mixed zone of Bushveld and altered sediments/quartzites before intersecting the Transvaal Basement Quartzite and Metasediments.

Structurally, the area has abundant intrusives in form of thick dolerite and granodiorite sills or dykes predominantly in the Waterberg package. A few and thin sills or dykes were intersected within the Bushveld package. Faults have been interpolated from the aerial photographs, geophysics and sectional interpretation. The faults generally trend (east-west across the property and some are north-west and south-west trending (Figure 7.3_1).
7.3.1 Stratigraphy

The initial phase of diamond exploration drilling (WB001 and WB002) intersected Waterberg Group Sediments (sandstones) and Bushveld Upper Zone and Main Zone lithologies in the western portion of Disseldorp property. The follow-up drilling campaign revealed a generalised schematic stratigraphic section that has been adopted for use in this property as presented in Figure 7.3.1_1.

Floor Rocks

The floor rocks underlying the Transitional zone are predominantly quartzite, metaquartzite, and metasediments. Some boreholes within the project area have shown dolerite intrusions within the floor rocks, such is borehole WB028.

Bushveld Complex

Igneous Bushveld lithologies underlie the Waterberg Group starting with the Upper Zone and underlain by the Main Zone. The Main Zone is the PGE mineralisation host in its cyclic sequences of mafic and felsic rocks.
The Main Zone
The Main Zone which hosts the PGE mineralised layers is 150m to 900m thick. It is predominantly composed of gabbronorite, norite, pyroxenite, harzburgite, troctolite with occasional anorthositic phases.

Abundant alteration occurs in these lithologies including chloritisation, epidotisation and serpentinisation. Parts of the F-layer are magnetic due to the serpentinisation of the olivines. The F-layer forms the base of the Main Zone, and it is usually underlain by a transitional zone of intermixed lithologies such as metasediments, metaquartzite/quartzite, and Bushveld lithologies.

The Upper Zone
The Southern part of the project area (west of the farm Ketting towards farm Disseldorp) has a thick package of Upper Zone lithologies. The package in the project consists of magnetite gabbro, mela-gabbronorite and magnetite seams and may be as thick as 350m. Borehole WB001 on farm Disseldorp collared in Upper zone and drilled to the depth of 322m and while still in the Upper Zone intersected a 2.5m thick magnetite seam.

The appearance of the first non-magnetic felsic igneous lithologies indicates the start of the underlying Main Zone.

Waterberg Group
The Waterberg Sedimentary package occurs with mostly two formations within the project area i.e. the Makgabeng and Setlaole Formations. The whole package may have a thickness ranging from 120m to just over 600m. Generally the Waterberg Sedimentary package has shown thickens from the southwest and shallows towards the centre of the project area before thickening to the north of the east-west trending fault cutting through the middle part of the farm.

Setlaole Formation
This is the sedimentary formation underlying the Makgabeng Formation and sits at the base of the Waterberg Group sedimentary succession. It is this formation that overlies the Bushveld igneous rocks, and has been intersected in more than 90% of the boreholes within the project area.

Lithologically, the Setlaole Formation consists of medium to coarse grained sandstones that have a general purple colour and usually the package displays a coarsening down sequence. Towards the base of the formation, pebbles may be seen that will eventually appear to be forming conglomerates. The rocks are frequently intruded by dolerite and granodiorite sills.

Makgabeng Formation
This sedimentary formation overlies the Setlaole Formation and is mostly exposed in the mountain cliffs in the northern part of the project area. The formation is composed of light-red coloured banded sandstone rocks and generally displays a horizontal inclination.
## General Stratigraphy of the Waterberg Project Area

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LOG m</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overburden</td>
<td>0</td>
<td>Weathered Rock material</td>
</tr>
<tr>
<td>Waterberg</td>
<td>120 - 600</td>
<td>Makgabeng Formation – reddish purple coloured, thinly laminated sandstone</td>
</tr>
<tr>
<td>Group Sediments</td>
<td></td>
<td>Setlaole Formation – medium to coarse grained purple red sandstone, mudstone and basal conglomerate</td>
</tr>
<tr>
<td>BUSHVELD</td>
<td>0 - 350</td>
<td>Magnetite gabbros, gabbronorite, and cumulus magnetite seams</td>
</tr>
<tr>
<td>Upper Zone</td>
<td></td>
<td>A sequence of norite, gabbros and gabbronorites with occasional anorthositic phase underlying (AN – Layer)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T – Layer: hosted in a Pyroxenite (partial mineralisation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A sequence of gabbronorite, norite and gabbros with underlying pyroxenitic band (T0 – Layer)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pegmatoidal gabbro / pegmatoidal anorthosite</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T1 – Layer – Pyroxenite grading into a troctolite / harzburgite</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T2 – Layer – Sulphides hosted in a gabbronorite &amp; norite</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3 – Layer – Partially mineralised gabbronorite &amp; norite</td>
</tr>
<tr>
<td>BUSHVELD</td>
<td>150 - 900</td>
<td>A Thick Sequence of Gabbronorite, Norite, Gabbros and Gabbronorites with occasional alternating bands of Pyroxenites towards the bottom contact</td>
</tr>
<tr>
<td>Main Zone</td>
<td></td>
<td>F – Layer - predominantly troctolite and mineralised bands hosted in harzburgite and pyroxenitic bands named FH and FP respectively</td>
</tr>
<tr>
<td>FOOTWALL</td>
<td>5 - 25</td>
<td>Transitional Zone – Mixed up lithologies: metasediments / Quartzites &amp; metasediments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Metasediments, metaquartzite and quartzite</td>
</tr>
</tbody>
</table>
7.3.2 Structure

The Waterberg Sedimentary package has been intersected by numerous criss-crossing dolerite or granodiorite sills or dykes. These usually range from as thin as 5cm to as thick as 90m.

An east west trending fault is inferred based on boreholes towards the southern part of the Ketting property. This fault has divided this farm into two blocks:

- the T-layer in the southern block and
- the F-layer in the northern block.

The south western portion of Ketting is structurally complex due to faulting with less complexity towards the central east-west trending fault. On average, there are fault-throws of about 200m to 300m on the south-western parts of Ketting.

7.4 Mineralised Layers

PGE mineralisation within the Bushveld package underlying the Waterberg Project is hosted in two main layers: the ‘T-layer’ and the ‘F-layer’. The T-layer is mainly composed of anorthosite, gabbroic pegmatoid, pyroxenite, troctolite, harzburgite, gabbronorite and norite. The F-layer is hosted in a thick package of troctolite towards the base of the Main Zone and the mineralisation in this package concentrated in pyroxenitic / pegmatoidal pyroxenitic and harzburgitic bands. The mineralisation in the Waterberg Project area generally comprises sulphide blebs, net-textured to interstitial sulphides and disseminated sulphides within gabbronorite and norite, pyroxenite, harzburgite.

The T-layer includes five lithologically different and separate layers which referred to from the top down as the AN-layer, T-layer, T0-layer, T1-layer, T2-layer and T3-layer (Figure 7.3_1). The F-layer includes two lithologically different and separate layers referred to from the top down as FH (harzburgitic) and FP (pyroxenitic) (Figure 7.3_1).
Description of Mineralised Zones

Mineralisation within the AN – layer occurs mostly within the anorthosite underlying a sequence Main Zone norite and gabbronorite. Mineralogically the sulphides occurring in this An – Zone are mainly pyrrhotite and chalcopyrite with minimal pentlandite. Thickness of the mineralised varies between 0.5 to 2m. The 3PGE+Au grade (g/t) is typically 1-2g/t with a Pt:Pd ratio of about 1:0.6. The Cu and Ni grades are typically 0.06% and 0.03% respectively.

Mineralisation within the T – layer is associated with the first pyroxenitic band underlying the An – layer. The layer ranges from 2 to 3m in thickness. The 3PGE+Au grade (g/t) is typically 1-2g/t with a Pt:Pd ratio of about 1:0.6. The Cu and Ni grades are typically 0.08% and 0.04% respectively.
**Mineralisation** within the **T0 – layer** is also associated with a pyroxenite package that overlies the pegmatoidal anorthosite / pegmatoidal gabbro. The thickness of this zone ranges from 1 to 4m. The 3PGE+Au grade (g/t) is typically 1-3g/t with a Pt:Pd ratio of about 1:0.6. The Cu and Ni grades are typically 0.05% and 0.04% respectively.

The middling between T1 and the underlying T2 layer is a distinctive unit. This unit ranges in thickness from 1.5m to 44m with an average of 18m.

**Mineralisation** within the **T1 – layer** is hosted in a Pyroxenite grading into a Harzburgite to a Harzburgitic Pyroxenite, and towards the bottom contact of the unit, a Troctolite also occurs as one of the hosting rock lithologies. The 3PGE+Au grade (g/t) is typically 1-6g/t with a Pt:Pd ratio of about 1:0.6. The Cu and Ni grades are typically 0.18% and 0.10% respectively.

The unit is mineralised with blebbby to net-textured Cu-Ni sulphides (chalcopyrite/pyrite and pentlandite) with very minimal Fe-sulphides (pyrrhotite). Thickness of the layer varies from 2m to 7m and generally the thickness reduces going up dip towards the east.

The middling between T1 and the underlying T2 layer is mainly composed of gabbronorite, pyroxenite and occasionally pegmatoidal pyroxenite. One notable factor across all the intersection boreholes is the alteration of the middling lithologies.

**Mineralisation** within the **T2 –layer** is hosted in Main Zone Norite and gabbronorite that shows a distinctive elongated texture of milky feldspars. Lithologically, the T2 layer is generally thicker than the T1 layer, however the high grade zone ranges from 1m to approximately 6m within these lithologies. Sulphide mineralisation in T2 is net textured to disseminated with higher concentration of sulphides compared to the overlying T1. The 3PGE+Au grade (g/t) is typically 1-6g/t with a Pt:Pd ratio of about 1:0.6. The Cu and Ni grades are typically 0.16% and 0.08% respectively.

The **T3 – layer** underlies the high-grade T2 - layer. This layer is also hosted in a gabbronorite and usually identified with grade correlation after assaying. The 3PGE+Au grade (g/t) is erratic within a range of 1-5g/t with an average of about 1.5g/t. The Pt:Pd ratio is about 1:0.6. The Cu and Ni grades are typically 0.10% and 0.06% respectively.

Footwall to T3 - layer is a gabbronorite that lacks the presence of the elongated milky feldspars and is usually barren.

A thick package of norite and gabbronorite ranging from 100m to about 350m underlies the T-layer and overlies the F - layer.

**F- layer mineralisation** is hosted in a thick package of troctolite which usually has small-sized bands of pyroxenite and/or pegmatoidal pyroxenite and harzburgite. The lower FP - layer is hosted in a pyroxenite has a thickness of 2 to 10m just like the FH - layer which is hosted in a harzburgite within this thick troctolitic unit. This is the unit that forms the base of the main zone lithologies before intersecting the transitional zone that leads into the floor rocks.
The FH – layer has a 3PGE+Au grade (g/t) in the range of <1-4g/t with a Pt:Pd ratio of about 1:0.55. The Cu and Ni grades are typically 0.02% and 0.12% respectively.

The FP – layer has a 3PGE+Au grade (g/t) of up to 7g/t with a Pt:Pd ratio of about 1:0.5. The Cu and Ni grades are typically 0.03% and 0.11% respectively.
8 DEPOSIT TYPES

The Platreef (senso stricto) as described in Section 7.1.2 has a strike extent of some 30 km, whereas Platreef-style mineralisation, which is the anticipated target of the Waterberg Project, occurs over the 110km strike length of the northern limb (Kinnaird et al, 2005).

The Platreef comprises a layered deposit hosted by a combination of norite, pyroxenite, and harzburgite lithologies and is present towards the base of the Bushveld Complex, in contact with metasedimentary and granitic floor rocks. The Platreef varies from 400m thick in the south of the northern limb to <50m in the north. The overall strike is NW or N, with dips 40–45° to the W at surface with the dip becoming shallower down dip. The overall geometry of the southern Platreef appears to have been controlled by irregular floor topography.

The Platreef-type deposits can include the following features:

- Sulphide hosted nickel, copper and PGE mineralization considered to be of magmatic origin
- A deposit hosted by a composite a combination of norite, pyroxenite, and harzburgite rocks.
- Contact style mineralization along the base of the intrusion; which may be several hundreds of metres in thickness
- The mineralized rocks contain locally abundant xenoliths of floor rocks (typically dolomite and shale) suggesting interaction of the magma with relatively reactive floor rocks
- Thick mineralized intervals greater than 5 m and locally tens to hundreds of metres thick.

The mineralised layers of the Waterberg Project meet some these criteria:

- The mineralisation is hosted by sulphides that are apparently magmatic in origin
- The mineralised layers are relatively thick up to 10m

The other criteria relating to the Platreef have yet to be demonstrated. As a result this mineralisation is considered to be similar to be Platreef-like but its stratigraphic position, geochemical and lithological profiles suggest a type of mineralisation not previously recognised on the Bushveld Complex.
EXPLORATION

9.1 Current Exploration

A multidisciplinary project team established by PTM identified and ranked 108 Southern African targets through an interactive process using an expert ranking system. These are located in mafic to ultramafic rocks and have the potential, or have already been shown, to host PGE and Ni deposits. Targets were characterised by varying maturity. In addition, an innovative approach has been adopted, which also resulted in the identification and definition of “out of the box” targets defining some 12 targets. Four of these targets were applied for as prospecting rights.

Farm boundaries were defined for these various targets areas. Project activities began with the deed searches, detailed desk top studies of the selected areas, and the subsequent compilation of prospecting right applications.

The shape and extent of the extension to the Bushveld Complex below younger rocks and cover, was not known. Regional gravity and magnetics indicated potential existence of rocks of the Bushveld Complex that had not been explored. Detailed gravity and magnetic surveys by PTM, funded by JOGMEC indicated the possibility of Bushveld Complex rocks.

Previous mineral exploration activities were limited due to the extensive sand cover and the understanding that the area was underlain by the Waterberg Group. Initial exploration was driven by detailed gravity and magnetics. Subsequently exploration was driven by drilling and has been undertaken by PTM.

9.1.1 Surface Mapping

Topographical and aerial maps for Waterberg at a scale of 1:10000 were used for surface mapping. A combination of the surface maps and the public aeromagnetic and gravity maps formed the basis for the structural map.

Data for any outcrop observed (or control point) was recorded. Each of such outcrop points had the following recorded in the field book: point’s name, description of the outcrop’s rock, identified rock name, XY coordinate points, and if well oriented the dip and strike for the outcrop.

It is noted that most of the area surrounding the Waterberg Mountains is covered by Waterberg sands and as such mapping in these areas has provided minimal information. Access to some parts of the Waterberg Mountains is problematic due to high steep angles of the mountains.

9.1.2 Geochemical Soil Sampling

In March 2010 and two north-south sampling lines (Figure 9.1.2_1) were undertaken. Sampling stations were made at intervals of 25m. Each sample hole was allowed to go to a minimum depth of 50cm to 1.00m at most.

During December 2011 and January 2012 two additional north-south lines on the property Niet Mogelyk 371 LR were also sampled (Figure 9.1.2_1). These two lines were done to target the
east-west trending dykes that are running through this property and the sampling stations were set at 50m apart.

A total of 601 samples of which 255 were soil samples, 277 stream sediment samples and 79 rock chip samples were collected during this process.

Geochemical sampling of the soils was also partially compromised due to very thin overburden because of sub cropping rock formations.
Figure 9.1.2_1
Locations of Geochemical Sampling
9.2 **Geophysical Surveys**

Approximately 60 lines of geophysical survey for 488 line km using gravity and magnetics were traversed in March 2010 (Figure 9.1.2_1). These were east – west trending lines and were traversed on the farms Disseldorp 369 LR, Kirstenspruit 351 LR, Bayswater 370 LR, Niet Mogelyk 371 LR and Carlsruhe 390 LR. At this time, farm Ketting prospecting right was still pending.

As soon as Ketting was granted, a second phase of Geophysical Survey was also conducted on the farm from mid August 2011 to September 2011 (Figure 9.1.2_1)

9.3 **Conclusion**

Based on the exploration combined with the target generation, diamond drilling commenced in 2010.

9.4 **Coffey Mining: Technical Review**

Suitable exploration has been undertaken with appropriate conclusions and follow-up work completed.
10 DRILLING

10.1 Drilling in 2010

Based on the target generation and the results of the geochemical sampling and Geochemical Surveys, two boreholes WB001 and WB002 were initially drilled between July and October 2011 on the farm Disseldorp 369 LR. A total of 1934.77m was drilled for the first two boreholes in 2010.

10.2 Drilling in 2011 to 2012

Drilling resumed in 2011 with a third borehole WB003 was drilled on the farm Ketting. The geological information revealed by this borehole lead to the extension of the drilling campaign such that in 2012 drilling with up to 10 diamond drill rigs was undertaken.

A total of 32,094m of core had been drilled by the end of July 2012 (Figure 10.2_1). NQ core size (47.6mm) has been drilled. This constitutes 27 boreholes that are completed or in progress and 58 deflections that are either completed or in progress. The results of 16 boreholes were available as of the effective date of this report and thus constitute the database for this mineral resource estimate. A basic 250mx250m grid drilled grid has been used to place the boreholes where possible.

Drilling in some areas proved to be difficult due to bad ground formations particularly in the Waterberg sediments and so some boreholes had to be re-drilled a few metres away or totally abandoned or moved. An example of such a borehole is WB007 which had highwater pressure to the extent that the drilling rods were being pushed out of the hole. This borehole is located outside the current mineral resource area.

10.3 Drilling Quality

Coffey Mining has examined randomly selected drillhole cores. The core recovery and core quality meet or exceed industry standards.
10.4 Diamond Core Sampling

Sample selection was undertaken by qualified geologists based on a minimum sample length of approximately 25cm. Not all core has been sampled, but all core with visually identifiable sulphide mineralization has been analysed, and low grade to waste portions straddling these layers has also been sampled. A maximum sample length of 1m has been applied.

The sampled core is split using an electric powered circular diamond blade saw.

10.5 Sample Recovery

Core recoveries, RQD (Rock Quality Designation) and a note of core quality, are recorded continuously for each drillhole. Minimum core recovery accepted 95% measured over a 6m run. This was achieved for all drillholes.

10.6 Sample Quality

Coffey Mining has examined selected boreholes and has assessed the quality of sampling to meet or exceed industry standards.

10.7 Interpretation of Results

The results of the drilling and the general geological interpretation are digitally captured in SABLE and a GIS software package named ARCVIEW. The borehole locations, together with the geology and assay results, are plotted on plan. Regularly spaced sections are drawn to
assist with correlation and understanding of the geology. This information was useful for interpreting the sequence of the stratigraphy intersected as well as for verifying the borehole information.

10.8 Coffey Mining: Technical Review

Suitable drilling has been undertaken with appropriate standards in place to ensure that the data is suitable for use in geological modelling and mineral resource estimation. Appropriate conclusions and follow-up work is being completed.
11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Core Handling

Drilled core is cleaned, de-greased and packed into metal core boxes by the drilling company. The core is collected from the drilling site on a daily basis by a PTM geologist and transported to the coreyard by PTM personnel. Before the core is taken off the drilling site, the depths are checked and entered on a daily drilling report, which is then signed off by PTM. The core yard manager is responsible for checking all drilled core pieces and recording the following information:

- Drillers' depth markers (discrepancies are recorded);
- Fitment and marking of core pieces;
- Core losses and core gains;
- Grinding of core;
- One-meter-interval markings on core for sample referencing; and
- Re-checking of depth markings for accuracy

An example of the marking of a borehole is presented in Figure 11.1_1.
11.2 Core Logging and Identification of Mineralized Layers

Core logging is done by hand on a pro-forma sheet by qualified geologists under supervision of the Project Geologist. This data is entered into an electronic logging program, SABLE, by data capturers under supervision of the Database Manager. Electronic data is backed up daily and the entire database is backed up on a weekly basis and duplicated off-site.

A printout of the logging is handed back to the relevant geologists, who then verify their logging for precision and accuracy.

If the geologist is satisfied with the validity of the data, the logging is signed off and filed in a designated borehole file. The borehole files are stored in a filing cabinet on site and will ultimately contain all relevant information pertaining to a particular borehole and all activities relating to it. A control matrix forms part of the borehole file QA&QC and only when completed, will be signed off by the Project Geologist, the Internal QP as well as the External QP.

11.3 Sampling Methodology

Sampling tests are usually conducted at the beginning of exploration programs to determine the heterogeneity of mineralization in order to eliminate sampling error and to determine proper sampling protocol. Deposit type, lithologies encountered, style of mineralization and heterogeneity all play a role in the method of sampling.
The sampling methodology is applied is based on industry accepted “Best Practices”. The sampling is done in a manner that includes the entire economic unit together with hanging wall and foot wall sampling.

The first step in the sampling of the diamond core is to mark the core from the distance below collar in 1m units. The lithologies are logged and an initial stratigraphy interpreted. The potential mineralised layers are marked for sampling. Thereafter the core is oriented using the layering or stratification as a reference and to ensure a consistent approach to the sampling. A centre cut line is then drawn lengthways for cutting. After cutting, the material is replaced in the core trays (Figure 11.3_1). The sample intervals are then marked as a line and a distance from collar.

The sample intervals are typically 25-50cm in length. In areas where potential mineralisation is less likely, the sampling interval could be as much as a metre. The sample intervals are allocated a sampling number, which is written on the core for reference purposes. The half-core is then removed and placed into high-quality plastic bags together with a sampling tag containing the sampling number, which is entered onto a sample sheet. The start and end depths are marked on the core with a corresponding line (Figure 11.3_2). The duplicate tag stays as a permanent record in the sample booklet, which is secured on site. The responsible project geologist then seals the sampling bag. The sampling information is recorded on a specially designed sampling sheet that facilitates digital capture into the SABLE system (commercially available logging software). The sampling extends to core which is considered to be of less economic potential in order to verify the bounds of mineralization.
11.4 **Sample Quality and Sample Bias**

The sampling methodology accords with PTM protocol based on industry best practice. The quality of the sampling is monitored and supervised by a qualified geologist. The sampling is done in a manner that includes the entire potentially economic unit. Sampling over-selection and sampling bias is minimised by rotating the core so that the stratification is vertical and by inserting a cutline down the centre of the core and removing one side of the core only.

11.5 **Supervision of Sample Preparation**

Core sampling is undertaken by qualified geologists under the supervision of the project geologist, who is responsible for timely delivery of the samples to the relevant laboratory. The supervising and project geologists ensure that samples are transported in accordance with the PTM protocols.

11.6 **Sample Preparation**

When samples are prepared for shipment to the analytical facility the following steps are followed:

- Samples are sequenced within the secure storage area and the sample sequences examined to determine if any samples are out of order or missing;
- The sample sequences and numbers shipped are recorded both on the chain-of-custody form and on the analytical request form;
The samples are placed according to sequence into large plastic bags. (The numbers of the samples are enclosed on the outside of the bag with the shipment, waybill or order number and the number of bags included in the shipment);

The chain-of-custody form and analytical request sheet are completed, signed and dated by the project geologist before the samples are removed from secured storage. The project geologist keeps copies of the analytical request form and the chain-of-custody form on site; and

Once the above is completed and the sample shipping bags are sealed, the samples may be removed from the secured area. The method by which the sample shipment bags have been secured must be recorded on the chain-of-custody document so that the recipient can inspect for tampering of the shipment.

11.7 Sample Security

Half core samples are and labelled twice, once in the bag and again on the top of the bag. Batches of approximately 20 samples are packed into large poly-weave bags and sealed with a plastic cable tie. The batch submission number, sample numbers and number of samples are recorded on the outside of the bag.

Sample batches are collected by the laboratory. Duplicate sample forms, bearing the batch lot number, sample numbers and number of samples are delivered with each batch. One copy is signed for by the laboratory receiving personnel and the duplicate is returned to the Mokopane office for incorporation into the database.

Crushed coarse fraction of the samples and the balance of the pulp is eventually returned and stored at the Mokopane office. These are bagged together, labelled and stored in plastic crates in a dry storage area.

All drill core is stored in galvanised steel core trays in a secure under cover core racking system.

Assay results from the SetPoint laboratory are transmitted electronically in a standard format to the Mokopane office. They are imported to an Access database directly from the laboratory files. Certified assay certificates and a CD containing PDF versions of the certificates are filed at the Mokopane office.

The database has been customised to site specific use and all logging data, core recoveries and sampling data are captured. Assays are electronically matched and joined on sample number.

11.8 Chain of Custody

Samples are subject to a chain of custody which is tracked at all times. Samples are not removed from their secured storage location without the chain of custody documentation being completed to track the movement of the samples and persons responsible for the security of the samples during the movement. Ultimate responsibility for the safe and timely delivery of the
samples to the chosen analytical facility rests with the Project Geologist and samples are not transported in any manner without his written permission.

During the transportation process between the project site and analytical facility the samples are inspected and signed for by each individual or company handling the samples. It is the mandate of both the Supervising and Project Geologist to ensure safe transportation of the samples to the analytical facility. The Project Geologist ensures that the analytical facility is aware of the PTM requirements. A photocopy of the chain of custody letter, signed and dated by an official from the analytical facility, is faxed to PTM’s offices in Johannesburg upon receipt of the samples by the analytical facility and the original signed letter is returned to PTM along with the signed analytical certificate/s.

11.9 Analytical Procedure

For the present database, field samples have been analyzed by two different laboratories: the primary laboratory is currently Set Point laboratories (South Africa) and Genalysis (Australia) is used for round robin test work to confirm the accuracy of the primary laboratory. Both laboratories are independent of PTM.

Samples are collected by Set Point Laboratory, a laboratory accredited with the South African National Accreditation System (SANAS), and sample preparation undertaken at the local preparation facility at Mokopane. Transportation of prepared sample pulps from their preparation laboratory in Mokopane to their laboratory in Johannesburg was done under secure conditions as required by PTM.

11.9.1 Sample Preparation

Samples are received, sorted, verified and checked for moisture and dried if necessary. Each sample is weighed and the results are recorded. Rocks, rock chips or lumps are crushed using a jaw crushe to less than 10mm. The samples are then milled for 5 minutes in a Labtech Essa LM2 mill to achieve a fineness of 90% less than 106μm, which is the minimum requirement to ensure the best accuracy and precision during analysis.

11.9.2 Precious Metal Determination

Samples are analysed for Pt (ppb), Pd (ppb) Rh (ppb) and Au (ppb) by standard 25g lead fire-assay using silver as requested by a co-collector to facilitate easier handling of prills as well as to minimise losses during the cupellation process. Although collection of three elements (Pt, Pd and Au) is enhanced by this technique, the contrary is true for rhodium (Rh), which volatilises in the presence of silver during cupellation. Palladium is used as the co-collector for Rh analysis. The resulting prills are dissolved with aqua regia for Inductively Coupled Plasma ("ICP") analysis.

After pre-concentration by fire assay and microwave dissolution, the resulting solutions are analysed for Au and PGE’s by the technique of ICP-OES (Inductively Coupled Plasma–Optical Emission Spectrometry).
11.9.3 **Base metals Determination**

The base metals (copper, nickel, cobalt and other base metals) are analysed using ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry) after a four acid digest. This technique results in “almost” total digestion.

11.9.4 **Laboratory QA/QC**

**Precious Metals**

A calibration range contains at least 4 data points for all elements. The correlation coefficient of the calibration must be greater than 0.999. If this fails, the instrument is recalibrated. If it fails again new standards are to be made up to calibrate with.

After the instrument is calibrated, the Drift control standard is read back to ensure that the calibration is correct. Thereafter, this standard is read at the end of every worksheet to check for instrument drift. The limits for this standard are not be greater than 10% (in the range from 1 to 25ppm) for Au, Pt or Pd or else the batch fails.

**Base Metals**

After the ICP-OES instrument is calibrated, the QC control standard is read back to ensure that it has been calibrated correctly. Thereafter, this standard is read at intervals of 35 samples or less to check for instrument drift. Each batch of samples shall contain at least one blank sample, one QC sample and a duplicate. The duplicate is a repeat of a randomly chosen sample from the batch.

11.10 **Adequacy of Procedures**

The assay techniques used are considered appropriate for style of mineralisation and the anticipated concentrations of the metals of interest. The techniques are certified and sufficient laboratory QA/QC is undertaken to ensure the results can be relied upon.

11.11 **Coffey Mining: Technical Review**

The drilling, sampling and analytical aspects of the project are considered to have been undertaken to industry standards. The data is considered to be reliable and suitable for mineral resource estimation.
12 DATA VERIFICATION

The Quality Assurance and Quality Control program of PTM addresses all aspects of the exploration project to ensure high integrity of data obtained through drilling, sampling, assaying and recording of geological observations for the purpose of attaining an accurate geological model and a reliable mineral resource estimate. The data has been verified by Coffey Mining to a level satisfactory for inferred resource estimation.

12.1 Accurate Placement and Survey of Borehole Collars

Boreholes were sited with a handheld GPS (Garmin GPSMAP 62) by the Project Geologist on an initial grid of 250m by 250m. This grid was designed and laid out using ArcView GIS onto the known 1:250 000 Geological Map of the area along strike with section lines approximately perpendicular to the dip. Coordinates were determined in ArcView GIS and electronically communicated to the Project Geologist. The projected coordinate system, WG27, is a Transverse Mercator projection with the central meridian at 29, the D_Hartebeesthoek_1994 datum and WGS_1984 spheroid. All borehole collar positions are permanently marked on completion and surveyed by an accredited surveyor. This photograph illustrates the concrete block and steel rod marking the collar position of a drilled borehole (Figure 12.1.1).

The borehole casings installed in all boreholes are left in the borehole and the boreholes are plugged and marked steel rod. This provides access to the borehole if, at a later stage, it is
needed for any reason e.g. geophysical down-hole surveys or drilling of more deflections. The borehole number is welded onto the rod.

12.2 Downhole Surveys
The original boreholes as well as all deflections when applicable are surveyed with a down-hole survey instrument in order to accurately determine the coordinates of intersections and plot the deflection (off the vertical) of the original borehole. Down-hole surveys have been conducted by the company, BCR Surveys, using a Reflex EZ-AQ/EMS down-hole survey instrument.

A random down-hole check survey is being conducted by Digital Borehole Surveying Pty Ltd using a Gyro Smart™ instrument to confirm the accuracy of the reflex instrument.

12.3 Quality Assurance and Quality Control (QA/QC) Procedures and Results
The PTM protocols for quality control are as follows:

1. The core yard manager oversees the core quality control;
2. The project geologist oversees the sampling process;
3. The exploration geologists and the sample technician is responsible for the actual sampling process;
4. The project geologist oversees the chain of custody;
5. The internal QP verifies both processes and receives the laboratory data;
6. The internal resource geologist and the database manager merge the data and produce the SABLE sampling log with assay values;
7. The second external database auditor verifies the SABLE database and highlights QA&QC failures;
8. The responsible person runs the QA&QC analysis including graphs of the standards, blanks and duplicates) and reports anomalies and failures to the internal QP;
9. The internal QP requests re-assays; and
10. Check samples are sent to a second laboratory to verify the validity of data received from the first laboratory.
11. Together with the project geologist, the resource geologist determines the initial resource cut;
12. The external auditor verifies the sampling process and signs off on the resource cut;

12.3.1 Standards
Certified reference standards are inserted into the sampling sequence to check the accuracy and to monitor potential bias of the analytical results. Generally the standards are inserted in place of the tenth sample in the sample sequence. The standards are stored in sealed containers and considerable care is taken to ensure that they are not contaminated in any manner (i.e. through storage in a dusty environment, being placed in a less than pristine sample bag or being sprayed/dusted by core saw contamination).
12.3.2 Blanks

The insertion of blanks provides an important check on the laboratory practices, especially potential contamination or sample sequence mis-ordering. Blanks consist of a selection of Transvaal Quartzite pieces (devoid of platinum, palladium, copper and nickel mineralisation) of a mass similar to that of a normal core sample. The blank being used is always noted to track its behaviour and trace metal content. Typically the first blank is sample 5 in a given sampling sequence.

12.3.3 Duplicates

The purpose of having field duplicates is to provide a check on possible sample over-selection. The field duplicate contains all levels of error – core or reverse-circulation cutting splitting, sample size reduction in the prep lab, sub-sampling at the pulp, and analytical error. No duplicate samples were submitted for analysis.

12.3.4 Assay Validation

Although samples are assayed with reference materials, an assay validation programme is being conducted to ensure that assays are repeatable within statistical limits for the styles of mineralisation being investigated. It should be noted that validation is different from verification; the latter implies 100% repeatability. The assay validation programme entails:-

- a re-assay programme conducted on standards that failed the tolerance limits set at two and three standard deviations from the Round Robin mean value of the reference material;
- ongoing blind pulp duplicate assays at Set Point Laboratory;
- check assays conducted at an independent assaying facility (Ganalysis).

12.4 Adequacy of Sampling Procedures, Security and Analytical Procedures

An examination of the procedures and their implementation confirms that the procedures are to industry standards and that the procedures are being implemented as required.
12.5 Quality Control

12.5.1 Certified Reference Material

Table 12.5.1_1 provides the detail of the Certified Reference Material (CRM) used for the project.

<table>
<thead>
<tr>
<th>Element</th>
<th>AMIS110 Witwatersrand Gold</th>
<th>AMIS124 Platreef, low grade</th>
<th>AMIS277 Platreef Ore</th>
<th>AMIS278 Platreef Ore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt</td>
<td>0.82 ± 0.10 g/t*</td>
<td>1.33 ± 0.08 g/t</td>
<td>1.69 ± 0.16 g/t</td>
<td></td>
</tr>
<tr>
<td>Pd</td>
<td>0.85 ± 0.06 g/t</td>
<td>1.52 ± 0.12 g/t</td>
<td>2.10 ± 0.02 g/t</td>
<td></td>
</tr>
<tr>
<td>Au</td>
<td>2.30 ± 0.18 g/t</td>
<td>0.154 ± 0.02 g/t*</td>
<td>0.20 ± 0.02 g/t</td>
<td>0.26 ± 0.02 g/t</td>
</tr>
<tr>
<td>Cu</td>
<td>1324 ± 106 ppm</td>
<td>1318 ± 58 ppm</td>
<td>1294 ± 80 ppm</td>
<td></td>
</tr>
<tr>
<td>Ni</td>
<td>1917 ± 136 ppm</td>
<td>2305 ± 241 ppm</td>
<td>2026 ± 236 ppm</td>
<td></td>
</tr>
</tbody>
</table>

* Provisional Certification

It is noted that the CRMs used have been selected from what is commercially available as there are not completely matrix similar standards available. It has been recommended to PTM that the performance of the standards be monitored closely.

12.5.2 Standards

The analysis of the standards indicates that the analytical accuracy is within acceptable limits.

12.5.3 Blanks

The analysis of the blanks indicates no significant contamination during the sample preparation.

12.5.4 Duplicates

No duplicates were inserted but referee analysis was undertaken.

12.6 Data Quality Summary

The data is considered suitable for mineral resource estimation.
13 MINERAL PROCESSING AND METALLURGICAL TESTING

No mineral process and metallurgical work has been conducted to date.
14 MINERAL RESOURCE ESTIMATES

Mineral resources have been declared for the T- and F-layer mineralisation on the property Ketting 368LR.

The four main mineralised layers for which a Mineral Resource Estimate is declared are presented in Table _1_.

<table>
<thead>
<tr>
<th>Layer Designation</th>
<th>Depth of modelling</th>
<th>Depth of intersection</th>
<th>No of boreholes</th>
<th>No of Intersections</th>
<th>Mineral Resource Declared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min Depth (m)</td>
<td>Max Depth (m)</td>
<td>Min Depth (m)</td>
<td>Max Depth (m)</td>
<td></td>
</tr>
<tr>
<td>AN</td>
<td>187</td>
<td>1000</td>
<td>5</td>
<td>11</td>
<td>No</td>
</tr>
<tr>
<td>T</td>
<td>158</td>
<td>1000</td>
<td>187</td>
<td>1,311</td>
<td>No</td>
</tr>
<tr>
<td>T0</td>
<td>138</td>
<td>638</td>
<td>139</td>
<td>1,329</td>
<td>No</td>
</tr>
<tr>
<td>T1</td>
<td>148</td>
<td>650</td>
<td>148</td>
<td>1,345</td>
<td>Yes</td>
</tr>
<tr>
<td>T2</td>
<td>193</td>
<td>1000</td>
<td>152</td>
<td>1,375</td>
<td>Yes</td>
</tr>
<tr>
<td>T3</td>
<td>186</td>
<td>1000</td>
<td>186</td>
<td>681</td>
<td>No</td>
</tr>
<tr>
<td>FH</td>
<td>495</td>
<td>1000</td>
<td>495</td>
<td>1,032</td>
<td>Yes</td>
</tr>
<tr>
<td>FP</td>
<td>516</td>
<td>1000</td>
<td>516</td>
<td>1,044</td>
<td>Yes</td>
</tr>
</tbody>
</table>

14.1 Methodology

The data that formed the basis of the estimate are the boreholes drilled by PTM which consisted of geological logs, the borehole collars, the downhole surveys and the assay data. The area where each layer was present was delineated after examination of the intersections in the various boreholes (Figure 14.1_1).

The data was used to define the characteristics of the various layers based on their geochemical signatures. However, it was necessary to check the procedure against the core. As a result a validation was undertaken on the core with the intention of finding diagnostic features to identify the layers directly from the core. This was successfully achieved for the T layer but due to the pervasive alteration, proved too difficult in the F layer. The F layer was therefore distinguished on geochemical data and its distinctive position near the bottom of the Bushveld Complex above the floor rocks.

All the intersections were checked on the core to ensure that the layer designation was true to the core and consistency for all the deflections from a borehole. These cuts formed the basis of the mineral resource estimate. The cuts were also defined based on the geology, a marginal cut off grade of 0.01g/t PGM and a minimum thickness of 2m. Basic statistics were undertaken on the data noting that the data was clustered due to the number of deflections for each borehole.
Figure 14.1_1
Waterberg Project
Delineated Area of Each Layer

T1 Layer

T2 Layer
Data in the estimate from the drilling completed by PTM consists of over a 100 intersections from 16 boreholes. Each drillhole was examined for completeness in respect of data (geology, sampling, collar) and sample recovery prior to inclusion in the estimate.

An inverse distance weighted (power 2) was undertaken using the 3D software package Datamine™. A common seam block model was developed into which the estimate was undertaken.

14.2 Statistical Analysis: Raw Data

Detailed descriptive statistical analysis has been completed on the raw data for the various layers (Table 14.2_1). The data confirms the understanding of the grade bearing units and the densities of the various stratigraphic and lithological units.
## Table 14.2.1
Descriptive Statistics on the Layer Assay Data

<table>
<thead>
<tr>
<th></th>
<th>Pt (g/t)</th>
<th>Pd (g/t)</th>
<th>Rh (g/t)</th>
<th>Au (g/t)</th>
<th>Cu (%)</th>
<th>Cu (%)</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
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<td>297</td>
<td>122</td>
<td>297</td>
<td>261</td>
<td>261</td>
<td>257</td>
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<tr>
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<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>2.64</td>
</tr>
<tr>
<td>Maximum</td>
<td>6.76</td>
<td>13.9</td>
<td>0.12</td>
<td>5.09</td>
<td>0.93</td>
<td>0.41</td>
<td>3.22</td>
</tr>
<tr>
<td>Mean</td>
<td>0.89</td>
<td>1.52</td>
<td>0.02</td>
<td>0.57</td>
<td>0.22</td>
<td>0.13</td>
<td>2.94</td>
</tr>
<tr>
<td>Median</td>
<td>0.75</td>
<td>1.21</td>
<td>0.01</td>
<td>0.46</td>
<td>0.19</td>
<td>0.11</td>
<td>2.95</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.91</td>
<td>1.75</td>
<td>0.01</td>
<td>0.65</td>
<td>0.2</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Variance</td>
<td>0.83</td>
<td>3.06</td>
<td>0</td>
<td>0.42</td>
<td>0.04</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Coefficient of Variation</td>
<td>1.02</td>
<td>1.15</td>
<td>0.74</td>
<td>1.13</td>
<td>0.88</td>
<td>0.69</td>
<td>0.04</td>
</tr>
<tr>
<td>PGE Proportions</td>
<td>30%</td>
<td>51%</td>
<td>19%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
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<td>132</td>
<td>354</td>
<td>308</td>
<td>308</td>
<td>298</td>
</tr>
<tr>
<td>Minimum</td>
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<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>2.72</td>
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<td>Maximum</td>
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<td>19.6</td>
<td>0.08</td>
<td>11.43</td>
<td>1.11</td>
<td>0.73</td>
<td>3.23</td>
</tr>
<tr>
<td>Mean</td>
<td>0.97</td>
<td>1.55</td>
<td>0.02</td>
<td>0.88</td>
<td>0.19</td>
<td>0.09</td>
<td>2.93</td>
</tr>
<tr>
<td>Median</td>
<td>0.6</td>
<td>0.67</td>
<td>0.01</td>
<td>0.5</td>
<td>0.12</td>
<td>0.08</td>
<td>2.91</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.33</td>
<td>2.42</td>
<td>0.01</td>
<td>1.12</td>
<td>0.2</td>
<td>0.08</td>
<td>0.1</td>
</tr>
<tr>
<td>Variance</td>
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<td>5.86</td>
<td>0</td>
<td>1.25</td>
<td>0.04</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
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<td>1.37</td>
<td>1.56</td>
<td>0.84</td>
<td>1.27</td>
<td>1.07</td>
<td>0.83</td>
<td>0.04</td>
</tr>
<tr>
<td>PGE Proportions</td>
<td>29%</td>
<td>46%</td>
<td>26%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
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<td>140</td>
<td>57</td>
<td>140</td>
<td>128</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.03</td>
<td>0</td>
<td>2.66</td>
</tr>
<tr>
<td>Maximum</td>
<td>6.23</td>
<td>12.2</td>
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<td>0.89</td>
<td>0.3</td>
<td>0.21</td>
<td>3.19</td>
</tr>
<tr>
<td>Mean</td>
<td>0.89</td>
<td>1.63</td>
<td>0.06</td>
<td>0.1</td>
<td>0.13</td>
<td>0.03</td>
<td>2.95</td>
</tr>
<tr>
<td>Median</td>
<td>0.54</td>
<td>0.91</td>
<td>0.04</td>
<td>0.05</td>
<td>0.12</td>
<td>0.02</td>
<td>2.97</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.04</td>
<td>2.08</td>
<td>0.06</td>
<td>0.14</td>
<td>0.05</td>
<td>0.04</td>
<td>0.09</td>
</tr>
<tr>
<td>Variance</td>
<td>1.08</td>
<td>4.33</td>
<td>0</td>
<td>0.02</td>
<td>0</td>
<td>0</td>
<td>0.01</td>
</tr>
<tr>
<td>Coefficient of Variation</td>
<td>1.17</td>
<td>1.27</td>
<td>1.13</td>
<td>1.39</td>
<td>0.39</td>
<td>1.28</td>
<td>0.03</td>
</tr>
<tr>
<td>PGE Proportions</td>
<td>34%</td>
<td>62%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP</td>
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<td>Count</td>
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<td>168</td>
<td>69</td>
<td>168</td>
<td>132</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>Minimum</td>
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<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.03</td>
<td>2.66</td>
</tr>
<tr>
<td>Maximum</td>
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<td>11.83</td>
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<td>0.8</td>
<td>0.23</td>
<td>0.42</td>
<td>3.18</td>
</tr>
<tr>
<td>Mean</td>
<td>0.97</td>
<td>1.88</td>
<td>0.05</td>
<td>0.13</td>
<td>0.04</td>
<td>0.12</td>
<td>2.99</td>
</tr>
<tr>
<td>Median</td>
<td>0.58</td>
<td>1.02</td>
<td>0.04</td>
<td>0.07</td>
<td>0.02</td>
<td>0.11</td>
<td>3</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.13</td>
<td>2.35</td>
<td>0.04</td>
<td>0.15</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>Variance</td>
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<td>5.54</td>
<td>0</td>
<td>0.02</td>
<td>0</td>
<td>0</td>
<td>0.01</td>
</tr>
<tr>
<td>Coefficient of Variation</td>
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<td>1.25</td>
<td>0.91</td>
<td>1.17</td>
<td>1.06</td>
<td>0.51</td>
<td>0.03</td>
</tr>
<tr>
<td>PGE Proportions</td>
<td>33%</td>
<td>63%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
14.3 Density

The density data for the majority of the pulps was measured by gas pycnometer. As a result there are some gaps in the data. The gaps were assigned values according to their lithology and the analysis described below. It is noted that the methodology is not considered appropriate for the determination of bulk density. However, there is no bulk density data (Archimedes method) which could be used to determine a conversion factor.

The existing data was used and applied to lithologies where no data existed based on the logged lithology.

14.4 Compositing

The borehole intersections were composited for Pt, Pd, Rh, Au, Cu and Ni. The compositing utilised the weighing of density and thickness. This is considered necessary as the lithologies have different densities.

14.5 Descriptive Statistics: Composites

Detailed descriptive statistical analysis has been completed based on the composite data for the mineralised Layers (Figure 14.5_1) (Table 14.5_1).
Table 14.5.1
Descriptive Statistics on the Layer Composite Data

<table>
<thead>
<tr>
<th>Sample</th>
<th>Pt (g/t)</th>
<th>Pd (g/t)</th>
<th>Rh (g/t)</th>
<th>Au (g/t)</th>
<th>PGE (g/t)</th>
<th>Cu (%)</th>
<th>Cu (%)</th>
<th>Density (t/m²)</th>
<th>Thick (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
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<td>31</td>
<td>14</td>
<td>31</td>
<td>14</td>
<td>26</td>
<td>26</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.03</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
<td>0.56</td>
<td>0.00</td>
<td>0.02</td>
<td>2.85</td>
<td>2.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>2.45</td>
<td>3.84</td>
<td>0.03</td>
<td>1.58</td>
<td>7.38</td>
<td>0.55</td>
<td>0.26</td>
<td>2.98</td>
<td>7.00</td>
</tr>
<tr>
<td>Mean</td>
<td>0.8</td>
<td>1.30</td>
<td>0.02</td>
<td>0.52</td>
<td>3.15</td>
<td>0.18</td>
<td>0.10</td>
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</tr>
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<td>3.07</td>
<td>0.19</td>
<td>0.09</td>
<td>2.93</td>
<td>3.00</td>
</tr>
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<td>0.01</td>
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<td>0.12</td>
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</tr>
<tr>
<td>Variance</td>
<td>0.37</td>
<td>1.22</td>
<td>0.00</td>
<td>0.16</td>
<td>4.66</td>
<td>0.02</td>
<td>0.00</td>
<td>0.00</td>
<td>2.96</td>
</tr>
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<td>0.85</td>
<td>0.33</td>
<td>0.76</td>
<td>0.69</td>
<td>0.71</td>
<td>0.53</td>
<td>0.02</td>
<td>0.48</td>
</tr>
<tr>
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<td>41%</td>
<td>1%</td>
<td>17%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>T2</td>
<td></td>
<td></td>
<td></td>
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<td>0.03</td>
<td>0.51</td>
<td>0.01</td>
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<td>0.73</td>
<td>2.92</td>
<td>0.16</td>
<td>0.08</td>
<td>2.94</td>
<td>3.74</td>
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<td>0.83</td>
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<td>0.05</td>
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<td>0.00</td>
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<td>0.75</td>
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<td></td>
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<td>0.06</td>
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<td>5%</td>
<td></td>
<td></td>
<td></td>
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<td>0.08</td>
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<td>0.1</td>
<td>2.97</td>
<td>5.00</td>
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<td>0.04</td>
<td>0.1</td>
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<td>0.02</td>
<td>0.04</td>
<td>0.04</td>
<td>2.72</td>
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<tr>
<td>Variance</td>
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<td>0.00</td>
<td>0.00</td>
<td>7.38</td>
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<tr>
<td>Coefficient of Variation</td>
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<td>0.79</td>
<td>0.66</td>
<td>0.83</td>
<td>0.72</td>
<td>0.69</td>
<td>0.36</td>
<td>0.01</td>
<td>0.46</td>
</tr>
<tr>
<td>PGE Proportions</td>
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<td>68%</td>
<td>2%</td>
<td>4%</td>
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### Figure 14.5.1
Waterberg Project
Histograms of Each Layer

<table>
<thead>
<tr>
<th>CUT</th>
<th>Pt (g/t)</th>
<th>Pd (g/t)</th>
<th>Rh (g/t)</th>
<th>Au (g/t)</th>
<th>PGE (g/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td><img src="image1" alt="Histogram Plot" /></td>
<td><img src="image2" alt="Histogram Plot" /></td>
<td><img src="image3" alt="Histogram Plot" /></td>
<td><img src="image4" alt="Histogram Plot" /></td>
<td><img src="image5" alt="Histogram Plot" /></td>
</tr>
<tr>
<td>T2</td>
<td><img src="image6" alt="Histogram Plot" /></td>
<td><img src="image7" alt="Histogram Plot" /></td>
<td><img src="image8" alt="Histogram Plot" /></td>
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<tr>
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<td><img src="image18" alt="Histogram Plot" /></td>
<td><img src="image19" alt="Histogram Plot" /></td>
<td><img src="image20" alt="Histogram Plot" /></td>
</tr>
<tr>
<td>CUT</td>
<td>Cu (%)</td>
<td>Ni (%)</td>
<td>Co (%)</td>
<td>RD</td>
<td>Length</td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>----</td>
<td>--------</td>
</tr>
<tr>
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<td><img src="NI%25" alt="Histogram Plot" /></td>
<td><img src="CO%25" alt="Histogram Plot" /></td>
<td><img src="RD" alt="Histogram Plot" /></td>
<td><img src="Length" alt="Histogram Plot" /></td>
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<td><img src="CU%25" alt="Histogram Plot" /></td>
<td><img src="NI%25" alt="Histogram Plot" /></td>
<td><img src="CO%25" alt="Histogram Plot" /></td>
<td><img src="RD" alt="Histogram Plot" /></td>
<td><img src="Length" alt="Histogram Plot" /></td>
</tr>
<tr>
<td>FH</td>
<td><img src="CU%25" alt="Histogram Plot" /></td>
<td><img src="NI%25" alt="Histogram Plot" /></td>
<td><img src="CO%25" alt="Histogram Plot" /></td>
<td><img src="RD" alt="Histogram Plot" /></td>
<td><img src="Length" alt="Histogram Plot" /></td>
</tr>
<tr>
<td>FP</td>
<td><img src="CU%25" alt="Histogram Plot" /></td>
<td><img src="NI%25" alt="Histogram Plot" /></td>
<td><img src="CO%25" alt="Histogram Plot" /></td>
<td><img src="RD" alt="Histogram Plot" /></td>
<td><img src="Length" alt="Histogram Plot" /></td>
</tr>
</tbody>
</table>
14.6 Grade-width relationship

The relationship between grade and width was investigated to determine whether the variables selected for the estimation are independent of one another (Figure 14.6_1). As the grade/concentration and width are apparently independent of each other, it was considered appropriate to estimate metal concentration independently of thickness rather than the accumulation of grade and width.

![Figure 14.6_1](image)
### 14.7 Block Model Development

A series of three-dimensional (3D) estimates representing each layer as defined by the geological logging and interpretation (Figure 14.7_1). The block model cell size utilised was based on drillhole spacing.

<table>
<thead>
<tr>
<th>Table 14.7_1</th>
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<tbody>
<tr>
<td><strong>Summary of the Block Model Details</strong></td>
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<tr>
<td>Block Model Origin (Centroid)</td>
</tr>
<tr>
<td>--------------------------------</td>
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<tr>
<td>XC</td>
</tr>
<tr>
<td>YC</td>
</tr>
</tbody>
</table>

### 14.8 Mineral Resource Estimate

A series of two-dimensional estimates based on the designated cut were undertaken. Each deflection within the borehole database has been retained as separate data. These deflections have been offset from the surveyed reef intersection location of the mother hole utilising the downhole survey data. Maintaining the individual deflections as separate data rather than compositing the deflections to a single intersection composite is preferred.

The structural model for the Waterberg separates the area into a number of fault blocks. Coffey Mining has treated all fault blocks together, as they would have originally been continuous.

The precision of a block estimate is a function of the block size, the amount of local data, the method of estimation and the estimation technique. A block size of 200m x 200m was selected based on the distribution of the boreholes. The block model was not rotated.

The variables Pt, Pd, Au, Cu and Ni as well as the thickness and density were estimated directly. Rh was not estimated as the assay of Rh was only commissioned with the Pt+Pd+Au>1g/t. The result is therefore considered biased.

### 14.9 Search Criteria

A three-pass estimation strategy was used, applying progressively expanded and less restrictive sample searches to successive estimation passes, and only considering blocks not previously assigned an estimate. The parameters were determined after consideration of the method of estimation and the data density. The sample search and estimation parameters are provided in Table 14.9_1.
A visual and statistical review was completed on the estimates prior to accepting the model. Acceptable levels of mean reproduction are noted between the block model and input composite data. Coffey Mining considers the resource estimate to be appropriate and robust.

### 14.10 Cut off Grades

The approach to the estimate utilised typical estimation techniques in which the determination of the mining cut is critical as the initial step. This effectively defines the mineralised unit. The important aspects were the stratigraphic determination and correlation between intersections. As the mineralisation is disseminated within the stratigraphy, the selection of a marginal cut off and consideration of a potential mining cut are necessary. In addition the area underlain by each layer was delineated based on the borehole intersections. It should further be noted that underground platinum mines typically mine without applying a cut-off grade.

### 14.11 Economic Analysis

An economic analysis to confirm that the mineral resource “has reasonable prospects for eventual economic extraction”, was undertaken as required for the declaration of a mineral resource. This analysis applied a typical bord and pillar layout from a vertical shaft with the inclusion of a concentrator. The technical parameters for mining (extraction ratio, dilution, mining loss etc) and metallurgy (recovery, net smelter return etc) applied are in line with industry practice.

The revenue was determined based on the recovery of precious and base metals at current market prices. The capital and operating costs were benchmarked against similar operations elsewhere in the Bushveld Complex.

---

**Table 14.9_1**

**Waterberg Project**

**Sample Search Parameters**

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Estimation Method</th>
<th>First Search Volume</th>
<th>Second Search Volume</th>
<th>Third Search Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
</tr>
<tr>
<td>All parameters</td>
<td>IDW(2)</td>
<td>500</td>
<td>3</td>
<td>12</td>
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</table>
14.12 Classification

Coffey Mining considers that the mineral resource of the various layers should be classified as an Inferred Mineral Resource. The data is of sufficient quality and the geological understanding and interpretation are considered appropriate for this level of mineral resource classification. The resource estimate has been classified based on the criteria set out in Table 14.12_1.

<table>
<thead>
<tr>
<th>Items</th>
<th>Discussion</th>
<th>Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling Techniques</td>
<td>Diamond drilling - Industry Standard approach</td>
<td>High</td>
</tr>
<tr>
<td>Logging</td>
<td>Standard nomenclature and apparent high quality.</td>
<td>High</td>
</tr>
<tr>
<td>Drill Sample Recovery</td>
<td>Based on site visits the core recovery is estimated as &gt;95%</td>
<td>High</td>
</tr>
<tr>
<td>Sub-sampling Techniques and Sample Preparation</td>
<td>Industry standard</td>
<td>High</td>
</tr>
<tr>
<td>Quality of Assay Data</td>
<td>Available data is of industry standard quality.</td>
<td>High</td>
</tr>
<tr>
<td>Verification of Sampling and Assaying</td>
<td>Verification of sampling undertaken</td>
<td>High</td>
</tr>
<tr>
<td>Location of Sampling Points</td>
<td>Survey of all collars. Vertical drillholes with typically small deviation.</td>
<td>High</td>
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<tr>
<td>Data Density and Distribution</td>
<td>Drillholes spaced across the property.</td>
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<tr>
<td>Audits or Reviews</td>
<td>None of which Coffey Mining is aware</td>
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<tr>
<td>Tonnage Factors (Bulk Density)</td>
<td>Based on specific gravity data</td>
<td>Low/Moderate</td>
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<tr>
<td>Database Integrity</td>
<td>Minor errors identified and rectified. Data scrutinised prior to inclusion in resource model database.</td>
<td>Moderate</td>
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<tr>
<td>Geological Interpretation</td>
<td>The broad structural confidence but layers previous unknown in the Bushveld Complex.</td>
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<tr>
<td>Compositing</td>
<td>Single composites were used for each mineralised unit for each intersection.</td>
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<tr>
<td>Statistics</td>
<td>High coefficient of variation for the variables modelled and relatively well defined statistical distributions.</td>
<td>Low</td>
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<tr>
<td>Block size</td>
<td>Appropriate block size selected</td>
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<tr>
<td>Estimation and Modelling Techniques</td>
<td>Inverse Distance Weighting</td>
<td>Moderate</td>
</tr>
<tr>
<td>Cut-off Grades</td>
<td>A marginal cut off applied when determining the cuts (0.01g/t PGM and minimum cut of 2m) on which the estimate is based</td>
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<td>Mining Factors or Assumptions</td>
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<tr>
<td>Metallurgical Factors or Assumptions</td>
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</table>


It should be noted that an inferred mineral resource has a degree of uncertainty attached. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. No assumption can be made that any part or all of mineral deposits in this category will ever be converted into reserves.
14.13 Resource Reporting

Metal contents and block tonnages were accumulated and formed the basis for reporting the resource as shown in Table 14.13_1.

Geological loss of 25% was estimated based on the knowledge of the deposit. The geological losses are made up of areas where the layers are absent due to faults, dykes, potholes and mafic/ultramafic pegmatites.
Table 14.13.1
Waterberg Project-
Mineral Resource Estimate (SAMREC Code)
1 September 2012

<table>
<thead>
<tr>
<th></th>
<th>No of boreholes</th>
<th>No of Intersections</th>
<th>Dip</th>
<th>Stratigraphic Thickness</th>
<th>Geological Loss</th>
<th>Tonnage Mt</th>
<th>Pt (g/t)</th>
<th>Pd (g/t)</th>
<th>Au (g/t)</th>
<th>2PGE+Au (g/t)</th>
<th>Pt:Pd:Au</th>
<th>2PGE+Au (g/t)</th>
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<th>Ni (%)</th>
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</tbody>
</table>

Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.

The quantity and grade of reported Inferred Mineral Resources in this estimate are conceptual in nature. There is no guarantee that all or any part of the Mineral Resource will be converted to a Mineral Reserve.

The independent Qualified Person responsible for the mineral resource estimate in this report and summarized in Table 14.11.1 is Kenneth Lomberg, a geologist with some 18 years’ experience in mine and exploration geology, resource and reserve estimation and project management in the minerals industry (especially platinum and gold). He is a practising geologist registered with the South African Council for Natural Scientific Professions (Pr.Sci.Nat.) and is independent of Platinum Group Metals Ltd as that term is defined in Section 1.5 of the Instrument.
15 ADJACENT PROPERTIES

Numerous mineral deposits have been outlined along the Northern Limb of the Bushveld Complex. Kenneth Lomberg, the qualified person for this report, has been unable to verify the information on these deposits which is not necessarily indicative of the mineralization on the property that is the subject of this technical report. The T –layers on the Waterberg Project are in a different position in the North Limb geology as reported at the other deposits and the T reefs have distinctively different metal ratios with elevated gold values compared to the reported other deposit grades. The F layers have some similarities to the other North Limb deposits in metal prill splits however there may be distinct differences in the geological units containing the mineralization.

15.1 The Pan Palladium/Impala Platinum JV

The Pan Palladium/Impala Platinum JV on the most northern farm on Platreef outcrop has reported resources of 50Mt at 1.19 g/t (2PGE + Au), 0.07% Ni, 0.21% Cu (Pan Palladium Annual Report, 2003). Kenneth Lomberg, the qualified person for this report, has been unable to verify the information which is not necessarily indicative of the mineralization on the property that is the subject of this technical report.

15.2 Mogalakwena Mine

Some 60km south of the project is the world’s largest opencast platinum mine, Mogalakwena Mine (formerly Potgietersrust Platinum Mine), which mines the Platreef and produced 306,300 platinum equivalent ounces in 2011. The latest Mineral Resource and Reserve statement for Mogalakwena Mine is available on the website www.angloplatinum.com and Anglo Platinum Annual Report 2011.

15.3 Akanani Project

Akanani Project majority held by Lonmin which is downdip of the Anglo Platinum Mogalakwena Mine, is an exploration project with studies continuing to develop it into a viable operation. Information pertaining to this project including the latest mineral resource and reserve statement are available on the Lonmin website (www.lomin.com) and in their latest Annual Report 2011

15.4 Boikgantsho Project

Located on the northern limb of the Bushveld Complex, and adjacent to Anglo Platinum’s Mogalakwena Mine, this project was acquired through a land acquisition by Atlatsa Resources (formerly Anooraq Resources) in 2000 and a joint venture with Anglo Platinum in 2004. Historically, exploration drilling has been conducted at the project site which has led to the estimate of indicated and inferred Mineral Resources. A preliminary economic assessment was completed in 2005; the results of this work showed that the project warrants further investigation.
Details of the project as well as mineral resource and reserve information is available via the company website (www.atlatsaresources.co.za)

15.5 **Sylvaia Resources**

Sylvania Resources is undertaking exploration activities on the extreme northern end of the Northern Limb on the farms Harriet’s Wish and Nonnenwerth. According to Sylvania, Harriet’s Wish is covered by the Waterberg Sediments and the boreholes have intersected PGM mineralisation. No mineral resource or reserve has been declared. (www.sylvaniaplatinum.com)
16 OTHER RELEVANT DATA AND INFORMATION

To the best of the author’s knowledge there is no other relevant data or information, the omission of which would make this report misleading.
17  INTERPRETATION AND CONCLUSIONS

The exploration undertaken confirmed the presence of Bushveld Rocks under the Waterberg Group rocks. Exploration confirmed the presence of elevated PGE concentrations in layers of identified mineralisation. The mineralization is consistent with Platreef like deposits and is characterised by magmatic sulphides.

It was possible to determine and declare a mineral resource for the identified mineralised layers. An economic analysis to confirm that the mineral resource “has reasonable prospects for economic extraction”, was undertaken.
18 RECOMMENDATIONS

It is recommended that drilling continue and that more detailed logging be undertaken to improve the geological understanding and allow better layer definition. This will enhance the understanding of the geology to improve confidence in the mineral resource and assist to progress the project.

The scale of the inferred mineral resource and the fact that the mineralization is open to the north and east (area under application) would suggest that a drill program is warranted. A budget for this program is recommended for the current phase of infill drilling to be completed and for drilling the extensions to the current area including the area to the east for which an application for a prospecting right has been applied (Table 18_1).

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploration drilling along strike and up dip of the known deposit area (20,000m)</td>
<td>R30M</td>
</tr>
<tr>
<td>Infill drilling to improve the understanding of the geology and potentially upgrade the mineral resource classification (20,000m)</td>
<td>R30M</td>
</tr>
<tr>
<td>Geophysical surveys</td>
<td>R2M</td>
</tr>
<tr>
<td>Metallurgical studies</td>
<td>R3M</td>
</tr>
<tr>
<td>Updated resource estimates</td>
<td>R1M</td>
</tr>
<tr>
<td>Preliminary Economic Assessment study</td>
<td>R4M</td>
</tr>
<tr>
<td>Contingency, Escalation</td>
<td>R10M</td>
</tr>
<tr>
<td>Total</td>
<td>R80M</td>
</tr>
</tbody>
</table>
19 REFERENCES


Certificate of Qualified Person

As an author of the report entitled “Exploration Results and Mineral Resource Estimate for the Waterberg Platinum Project, South Africa. (Latitude 23° 21′ 53″S, Longitude 28° 48′ 23″E)” dated 1 September 2012 (the “Report), I hereby state:-

1. My name is Kenneth Graham Lomberg and I am Principal Consultant Resources with the firm of Coffey Mining Pty. Ltd. of 604 Kudu Avenue, Allen’s Nek 1737, Gauteng, South Africa.

2. I am a practising geologist registered with the South African Council for Natural Scientific Professions (Pr.Sci.Nat.).

3. I am a graduate of the University of Cape Town and hold a Bachelor of Science with Honours (Geology) degree (1984) from this institute. I also hold a Bachelor of Commerce degree (1993) from the University of South Africa and a Masters in Engineering (2011) from the University of the Witwatersrand.

4. I have practiced my profession continuously since 1985. I have over 5 years of relevant experience having completed mineral resource estimations on various properties located on the Bushveld Complex hosting Magmatic Layered Intrusive style mineralization.

5. I am a “qualified person” as that term is defined in National Instrument 43-101 (Standards of Disclosure for Mineral Projects) (the “Instrument).

6. I have performed consulting services during and reviewed files and data supplied by Platinum Group Metals (SA) Limited between April and September 2012.


8. I prepared or contributed to all sections of this report and am responsible for the report.

9. I am not aware of any material fact or material change with respect to the subject matter of the Report, which is not reflected in the Report, the omission of which would make the Report misleading.

10. I am independent of Platinum Group Metals (RSA) Limited pursuant to section 1.5 of the Instrument.

11. I have read the National Instrument and Form 43-101F1 (the “Form) and the Report has been prepared in compliance with the Instrument and the Form.

12. I do not have nor do I expect to receive a direct or indirect interest in the Mineral Properties of Platinum Group Metals (SA) Limited, and I do not beneficially own, directly or indirectly, any securities of Platinum Group Metals (SA) Limited or any associate or affiliate of such company.

13. I have not been involved in any capacity on this project prior to the current assignment.

14. At the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Dated at Johannesburg, South Africa, on 1 September 2012

Kenneth Lomberg
Senior Principal
B.Sc Hons (Geology), B.Com, M.Eng., Pr.Sci.Nat.