

# Mineral Resources and Mineral Reserves

Implats' Mineral Resources and Mineral Reserves reflect the group's future opportunities and potential. The group is accordingly fully committed to the following:

- ▶ growing the mineral resource base by optimising current assets, exploration and acquisitions, including alliances and equity interests with third parties;
- ▶ complying with the legislative regime that governs mineral rights ownership;
- ▶ transparent disclosure of Mineral Resources and Mineral Reserves aligned with the prescribed codes, SAMREC and JORC; and
- ▶ continuous improvement in mineral resource management systems.

The mining operations of Implats and its associated companies exploit platinumiferous horizons within the two largest known

deposits of platinum group metals (PGMs) in the world, namely the Great Dyke in Zimbabwe and the Bushveld Complex in South Africa. Mining mostly takes place as underground operations, focusing on relatively narrow mineralised channels with specific methods adapted to suit the local geology and morphology of the mineralised horizon. Underground stoping in the Great Dyke currently consists of mechanised or semi-mechanised bord-and-pillar layouts. Within the Bushveld Complex, mechanised mining is being used at Two Rivers and only in limited areas at Impala Platinum's mining operations. The mining method at Marula Platinum is being converted from mechanised layouts to conventional breast mining. The bulk of the mining at Impala Platinum is conventional breast mining with limited opencast mining taking place at outcrop. Opencast mining at Zimplats continues although this will decline over the next few years.

## Regulatory compliance

The reporting of Mineral Resources and Mineral Reserves for Implats' South African operations is done in accordance with the principles and guidelines of the South African Code for Reporting of Mineral Resources and Mineral Reserves (SAMREC Code). (See Glossary of terms on page 82).

Zimplats, as an Australian Stock Exchange-listed company, reports its Ore Reserves and Mineral Resources in accordance with the Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code). Mimosa Investments Limited, a Mauritius-based company, does not fall under any regulatory reporting code but has adopted the JORC Code for its reporting. Various Competent Persons, as defined by the SAMREC and JORC codes, have prepared the Mineral Reserve and Mineral Resource figures quoted in this report. They were reviewed and signed off by the Implats' signatory below:



JJ Vermaak

Pr.Sci.Nat. (Consulting Geologist, Impala Platinum)

The Competent Person has 20 years' experience in the evaluation and exploitation of PGM deposits.

## Additional compliance:

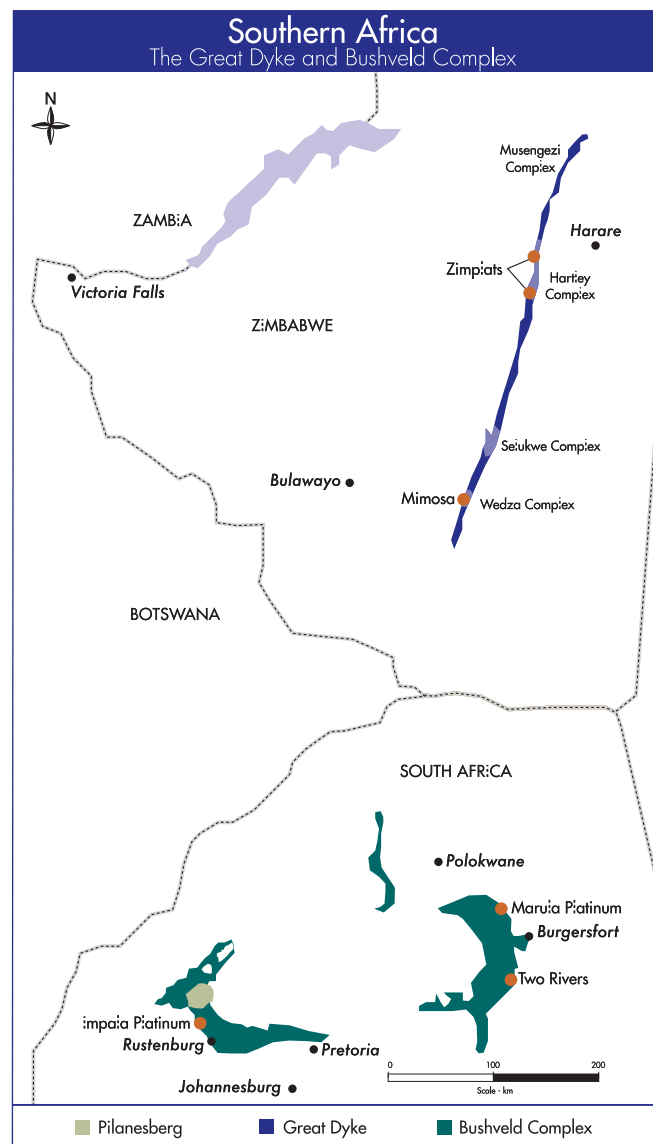
- ▶ the Competent Persons for Two Rivers' Mineral Resources and Reserves are Messrs PJ van der Merwe, M Mabuza and A Durrant, full-time employees of ARM;
- ▶ the Competent Persons for Zimplats are Messrs A du Toit and S Simango, full-time employees of Zimplats;
- ▶ the Competent Person for Mimosa is Mr D Mapundu, full time employee of Mimosa;
- ▶ Implats has obtained written consent from ARM that the information disclosed pertaining to their Mineral Resources and Mineral Reserves is compliant with the SAMREC Code and can be published in this form;
- ▶ Implats has legal entitlement to the mining of minerals being reported upon without any known impediments; and
- ▶ reporting of the Mineral Resources and Mineral Reserves for Impala and Marula is quoted both inclusively and exclusively. This is for more direct comparisons with companies that subscribe to the inclusive form of reporting. Inclusive reporting implies that Mineral Reserves are included in Mineral Resources, whereas exclusive reporting means that Mineral Reserves are not included in Mineral Resources.



## The Great Dyke

The Great Dyke is a 2.5 billion-year old layered mafic-ultramafic complex that transects the Archaean Zimbabwean Craton in a NNE-trending direction.

The Dyke is highly elongated, slightly sinuous, 550 kilometres long, with a maximum width of 12 kilometres. It is divided into two major successions, a lower ultramafic sequence dominated from the base upwards by cyclic repetitions of dunite, harzburgite and bronzitite, and an upper mafic sequence consisting mainly of gabbro and gabbronorite. Much of the mafic sequence has been removed by erosion. The ultramafic sequence hosts the P1 pyroxenite, directly below the mafic-ultramafic contact, which in turn hosts the economic PGM-bearing Main Sulphide Zone (MSZ). The MSZ is a lithologically continuous layer between 2 and 10 metres thick that forms an elongated basin. Layers of igneous rocks within the basin dip at between 5° and 20° near the margins and flatten out near the centre to form a flat-lying floor. The MSZ typically contains iron-nickel-copper sulphides whilst elevated precious metal concentrations occur towards the base of the MSZ. Optimal mineralisation varies and is often difficult to follow visually, in contrast to the Bushveld Complex. Peak values for the PGM and base metals are commonly offset, while the proportions between platinum and palladium also vary vertically. The Dyke developed as a series of initially discrete magma chamber compartments, which joined up as the chambers filled. These chambers coalesced below the MSZ and before erosion, the MSZ would have been continuous along the length of the Dyke. In its





present plane of erosion, the Great Dyke is longitudinally subdivided into a series of narrow contiguous layered complexes or chambers, namely Musengezi, Hartley, Selukwe and Wedza. The Hartley Complex straddles two sub-chambers, Darwendale and Sebakwe.

### **The Bushveld Complex**

The Bushveld Complex is an extremely large, 2 billion year-old layered igneous intrusion occurring within the boundaries of South Africa. Although it shares many characteristics with other layered complexes around the world, the Bushveld Complex is unique both in its size, covering an aerial extent of some 66,000 square kilometres, and in the economic importance of its mineral deposits. It is generally understood that the Bushveld Complex was formed by the repeated injection of magma into a sub-volcanic chamber. Due to the huge volumes of magma involved, cooling and crystallisation were slow processes. Different minerals were formed as the magma cooled; these accumulated into sub-horizontal layers building from the base of the chamber. Such processes were repeated by the intermittent replenishment of magma thus producing a repetition of the mineral layering. The complex comprises an array of diverse igneous rocks ranging in composition from ultramafic to felsic. Contained within a well-layered ultramafic to mafic succession, called the Rustenburg Layered Suite, are two horizons which host economically exploitable quantities of PGMs, namely the Merensky Reef and the underlying UG2 Chromitite Layer. These two economic horizons can be traced for hundreds of kilometres around the

complex and are the focus of Implats' operations in which the PGMs platinum, palladium, rhodium, ruthenium and iridium are recovered together with quantities of gold, nickel, copper and cobalt. Implats' operations here comprise Impala Platinum Limited, located near Rustenburg in North West Province, and Marula Platinum situated near Burgersfort in the province of Limpopo. The Two Rivers mine, a joint venture between Implats and African Rainbow Minerals (ARM), is located south of Burgersfort in the province of Mpumalanga.

The Merensky Reef is generally composed of a feldspathic pyroxenite hangingwall, overlying a basal chromitite unit, followed by an anorthosite to anorthositic-norite footwall. The Merensky Reef Zone at Impala Platinum's mining operations displays a gradational mineralised zone, with grades decreasing from the Merensky chromitite unit into the footwall and hangingwall. The UG2 Reef is defined as a main chrome unit with the mineralisation wholly contained within this unit.

### **Material changes in Mineral Resource and Reserve estimates**

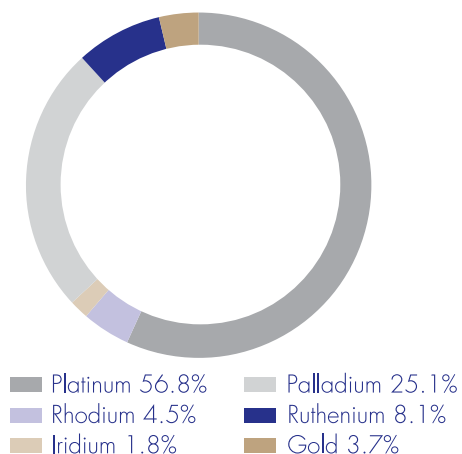
Material and significant issues affecting the Mineral Resource and Mineral Reserve estimates as at 30 June 2006 relative to the previous reporting period are related to the agreement between Zimplats and the Government of Zimbabwe announced on 31 May 2006, whereby some 36% of the Mineral Resource base would be transferred to the state. Other than that, there have been no material changes in Implats' resource base.

# Impala Platinum

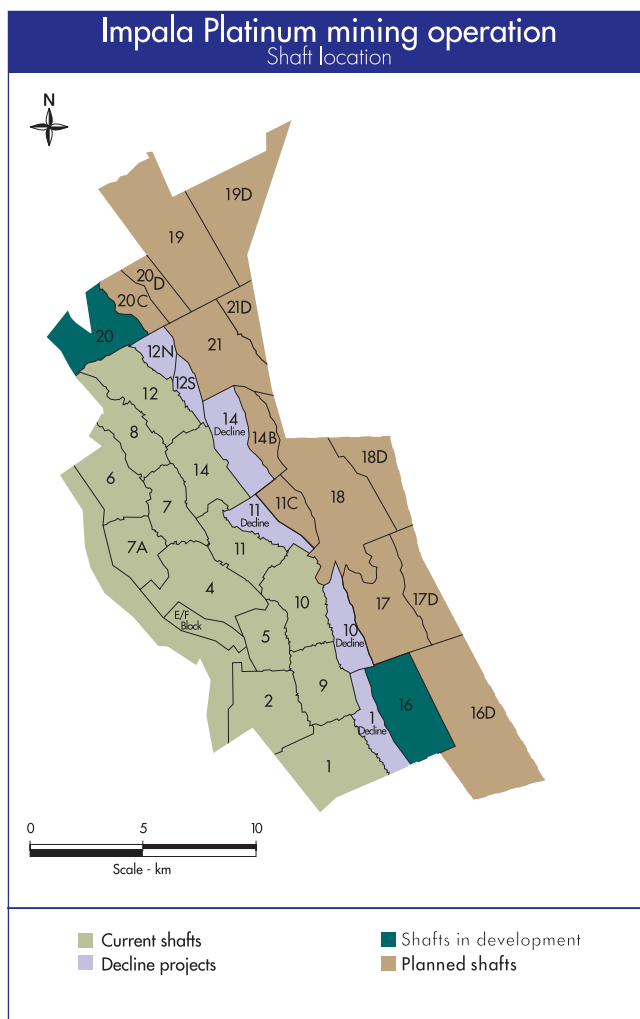
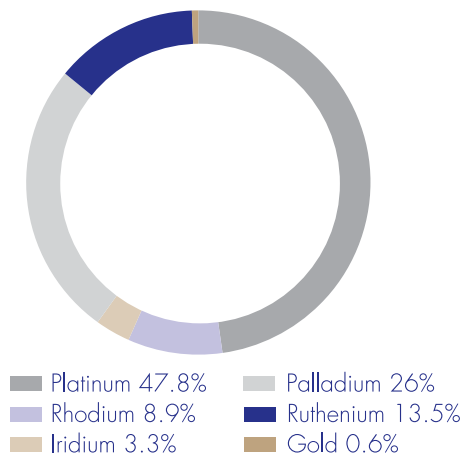


Impala Platinum holds contiguous old order mining and prospecting rights for a total area of 27,573 hectares. The Mineral Resources and Mineral Reserves quoted are held under four old order mining rights and two old order prospecting rights as well as an unused old order right. The application for conversion of these to new order mineral rights was submitted in March 2005 but had not been granted by 30 June 2006.

Impala Platinum  
Merensky metals split



Impala Platinum  
UG2 metals split





## Impala Platinum

Mineral Resources (exclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)
Merensky	Measured	32.0	7.29	4.3	34.4	7.47	4.7
	Indicated	76.4	7.38	10.3	84.7	7.48	11.7
	Inferred	76.3	7.83	10.9	75.4	7.83	10.9
UG2	Measured	23.7	9.11	3.3	14.4	8.79	1.9
	Indicated	98.8	8.92	13.5	96.2	9.13	13.4
	Inferred	60.8	9.24	8.6	62.9	9.25	8.9
Total		368.0	8.30	50.9	368.0	8.34	51.5

Mineral Reserves		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Mill tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)	Mill tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)
Merensky	Proved	24.6	4.76	2.1	24.3	4.88	2.2
	Probable	109.9	4.72	9.5	110.8	4.81	9.8
UG2	Proved	23.9	5.07	1.9	21.2	5.13	1.7
	Probable	105.5	5.02	8.2	110.1	5.09	8.5
Total		264.0	4.88	21.6	266.4	4.96	22.2

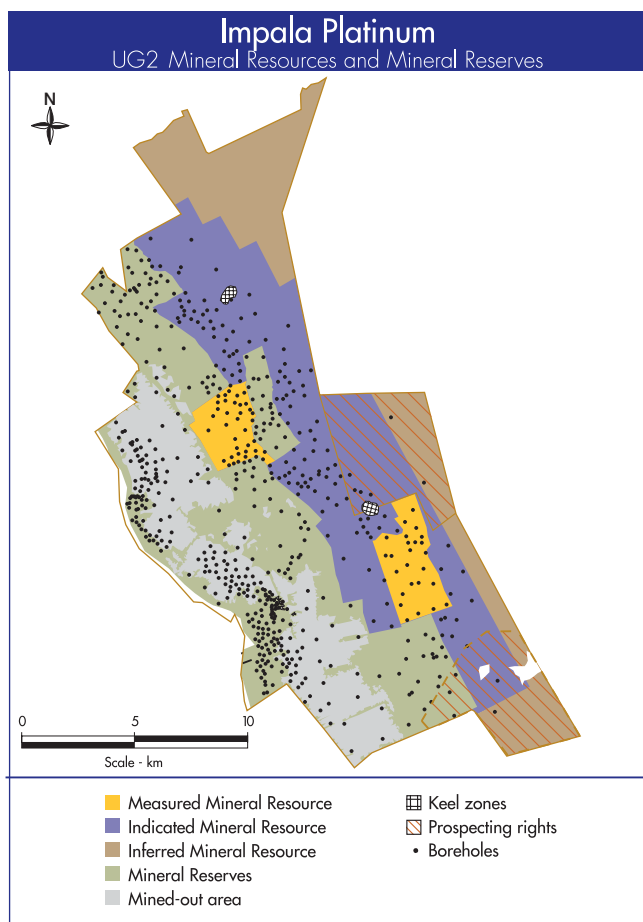
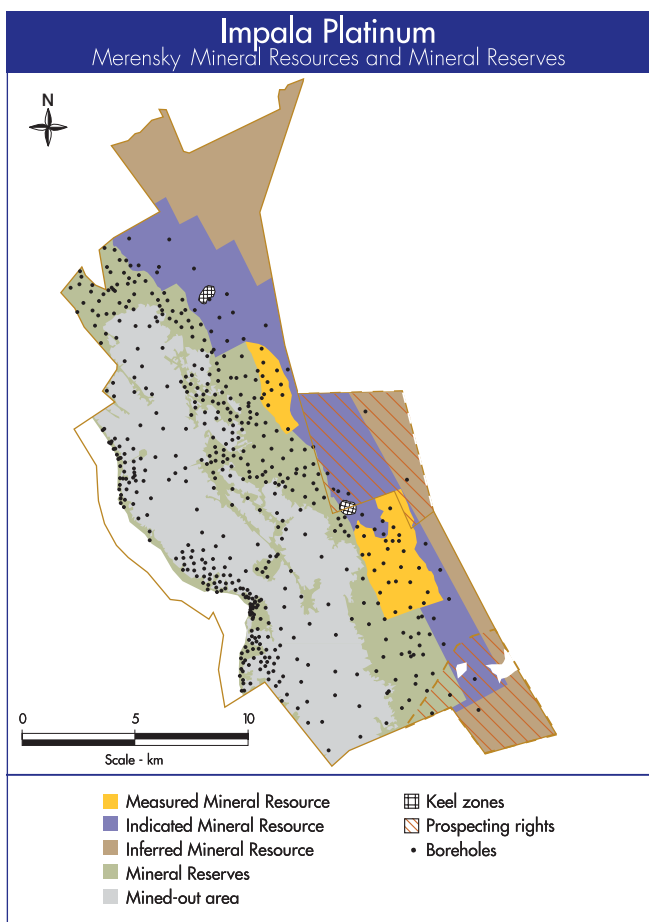
Mineral Resources (exclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel Tonnes (millions)	Pt grade (g/t)	Pt oz (millions)	Channel Tonnes (millions)	Pt grade (g/t)	Pt oz (millions)
1&2 Tailings complex	Indicated	48.1	0.42	0.6	48.1	0.42	0.6

### Notes

- ▶ Mineral Resources are stated in both the exclusive and inclusive form to facilitate comparisons with companies reporting solely inclusive Mineral Resources. A direct comparison of tonnes and grade is not possible between the two forms owing to the mixing of channel and mill figures.
- ▶ The modifying factors used to convert a Mineral Resource to a Mineral Reserve are derived from historical figures using an in-house mineral resource management system. This system is able to provide dilution factors that are applied to the in situ estimates to yield the final product delivered to the mill.
- ▶ The Mineral Reserves quoted reflect the grade delivered to the mill rather than an in situ channel grade quoted in respect of Mineral Resources.
- ▶ The 30-year mine plan for Impala Platinum comprises approximately 48% Mineral Reserves and 52% Mineral Resources. Some 11% of the 30-year mine plan is derived from the Inferred Mineral Resources. It should also be noted that 6% of the 30-year mine plan is derived from prospecting areas, with close to 11% of the life-of-mine being derived from prospecting areas.
- ▶ Rounding-off of numbers may result in minor computational discrepancies.

Mineral Resources (inclusive) as at 30 June 2006 as at 30 June 2005

Orebody	Category	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)
Merensky	Measured	131.4	6.88	16.5	137.1	6.99	17.6
	Indicated	76.4	7.38	10.3	84.7	7.48	11.7
	Inferred	76.3	7.83	10.9	75.4	7.83	10.9
UG2	Measured	105.1	8.96	14.5	96.9	9.05	13.4
	Indicated	98.8	8.92	13.5	96.2	9.13	13.4
	Inferred	60.8	9.24	8.6	62.9	9.25	8.9
<b>Total</b>		<b>548.8</b>	<b>8.11</b>	<b>74.3</b>	<b>553.3</b>	<b>8.17</b>	<b>75.9</b>

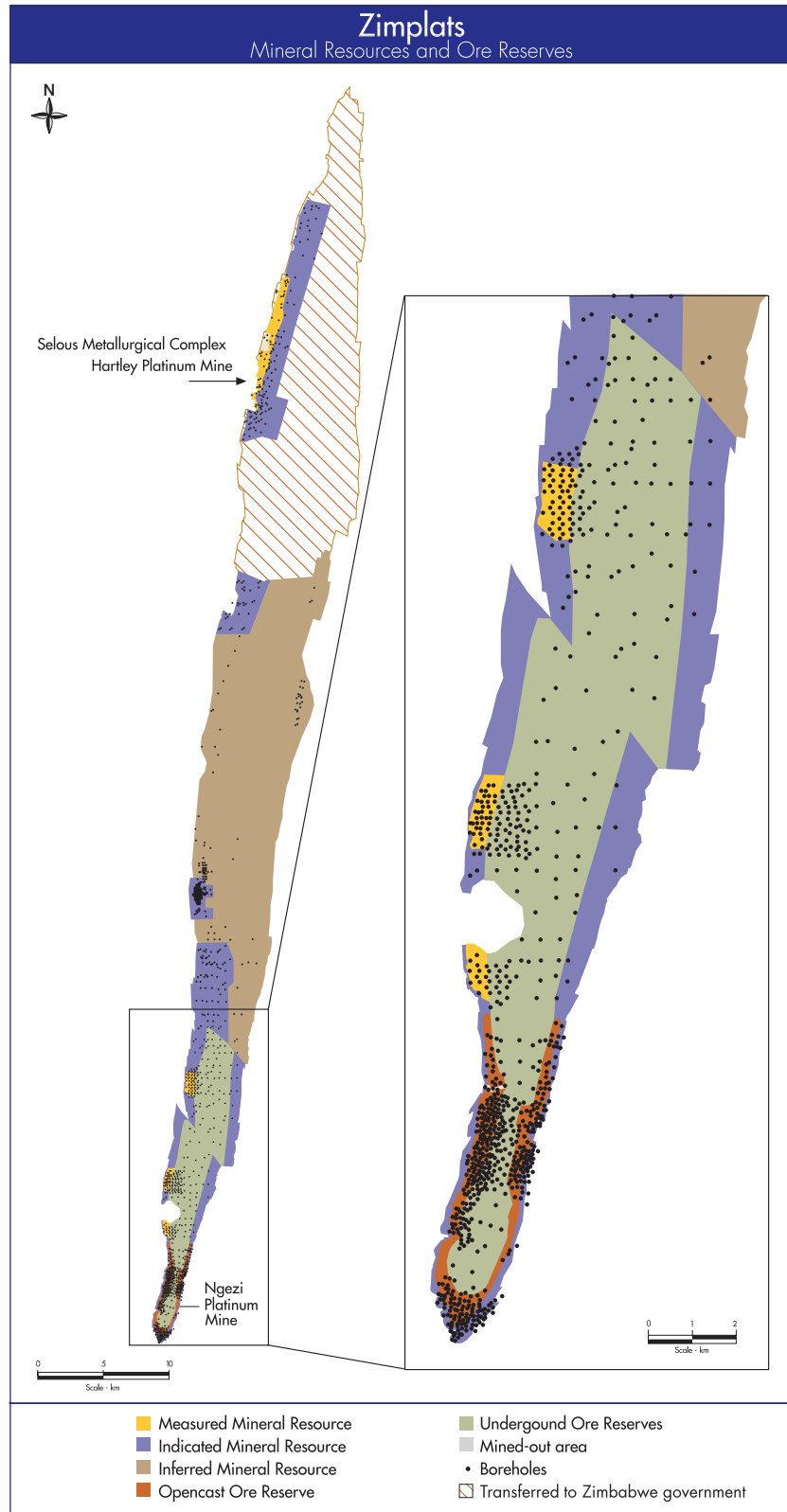
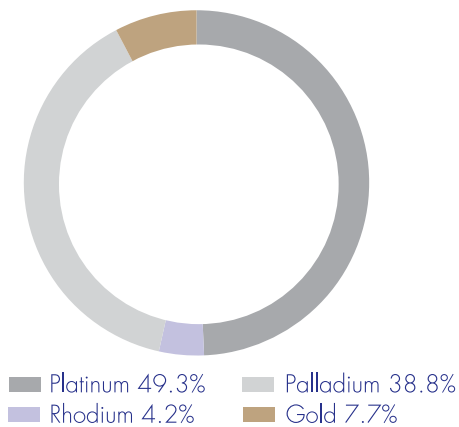


# Zimplats

Following extensive negotiations, Zimplats signed an agreement with the government of Zimbabwe relating to the release of a portion of its mining claims in exchange for a combination of empowerment credits and cash. In addition, the agreement ensures that the ground required for long-term expansion is secured under the special mining lease regime. In terms of this agreement, Zimplats will release claims amounting to 36% of the company's resource base on the Great Dyke in Zimbabwe. The contained metal in the ground to be released is estimated at some 51 million ounces of platinum or 99 million ounces 4E (platinum, palladium, rhodium and gold).

The released ground is outside of Zimplats' long-term expansion programme of 1 million platinum ounces per annum over a 50-year life-of-mine.

Zimplats  
MSZ metals split





#### Notes

- ▶ Mineral Resources are quoted inclusive of Ore Reserves.
- ▶ Mineral Resource estimates allow for anticipated pillar losses during eventual mining.
- ▶ The Ore Reserves quoted reflect anticipated grades delivered to mill.
- ▶ Resources have been estimated using floating average and kriging techniques on data derived from surface diamond drill holes. Estimates are based on composite widths that vary depending on cut-off grades, which are based on appropriate economic conditions.
- ▶ In addition to a pre-feasibility study on Portals 1-10, SRK Consulting carried out an external review of platinum Mineral Resource and Ore Reserve estimation and reporting

practices in September 2004 which was updated in July 2005. SRK concluded that Mineral Resource estimates are valid and that within the limitations of the data, the results appear meaningful. SRK completed feasibility studies on Portals 1 and 4 during 2006 which led to the board decision to develop these portals.

- ▶ The Mineral Resources and Ore Reserves quoted indicate the result of the transaction with the Zimbabwean government.
- ▶ Rounding-off of numbers may result in minor computational discrepancies.

## Zimplats

Mineral Resources (inclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)
MSZ	Measured	107.9	3.68	6.3	95.7	3.69	5.6
	Indicated	583.2	3.69	34.2	719.0	3.76	43.0
	Inferred	876.0	3.58	48.0	1,690.1	3.41	92.2
Total		1,567.1	3.63	89.0	2,504.8	3.52	140.8

Ore Reserves		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Mill tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Mill tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)
MSZ	Proved	53.7	3.33	2.8	51.5	3.28	2.7
	Probable	200.6	3.35	10.7	215.1	3.32	11.4
Total		254.3	3.35	13.5	266.6	3.31	14.1

## Marula Platinum

Marula Platinum holds old order mining rights on the farms Winnaarshoek 250KT, Clapham 118KT, and portions of the farms Driekop 253KT and Forest Hill 117KT, comprising 2,765 hectares. These Mineral Resources and Mineral Reserves are held under two old order mining licences; the application for conversion of these to new order mining rights was submitted in

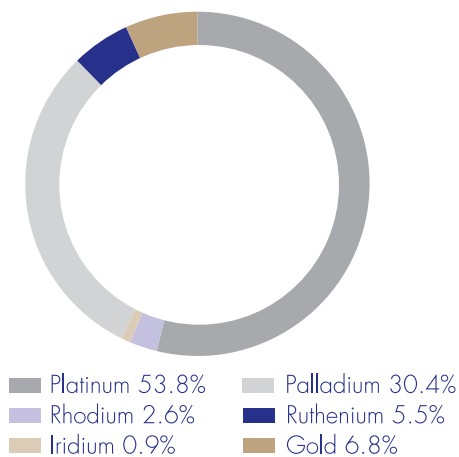
October 2004 and was still pending at year-end. The new order prospecting right for the contiguous Hackney area was also submitted but is still outstanding. In line with the equity ownership requirements of the Mining Charter, Implats entered into transactions that ensure BEE ownership in Marula Platinum of 22.5%.

### Notes

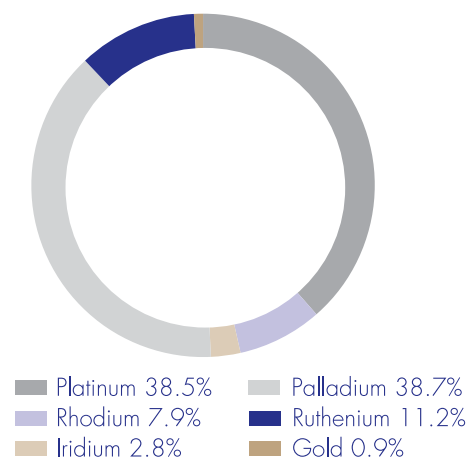
- ▶ Mineral Reserves quoted reflect the grade delivered to the mill rather than an in situ channel grade quoted in respect of the Mineral Resources.
- ▶ The modifying factors used in the UG2 mineral reserve calculation are based on the revised mine plan which envisages hybrid and conventional breast mining operations.
- ▶ Estimated geological losses have been accounted for in the mineral resource calculations.
- ▶ Estimated pillar losses have not been accounted for in the mineral resource calculations.
- ▶ The UG2 mineral resource merely accounts for the UG2 Chromitite Layer while the Merensky Reef mineral resource is based on a minimum width of 80 centimetres.
- ▶ Grade estimates were obtained by means of co-kriging of UG2 and ordinary kriging of Merensky Reef borehole intersections.
- ▶ Changes in the UG2 estimates since last year reflect revisions of anticipated geological, boundary and pillar losses as well as depletions.
- ▶ Rounding-off of numbers may result in minor computational discrepancies.



Marula Platinum  
Merensky metals split



Marula Platinum  
UG2 metals split

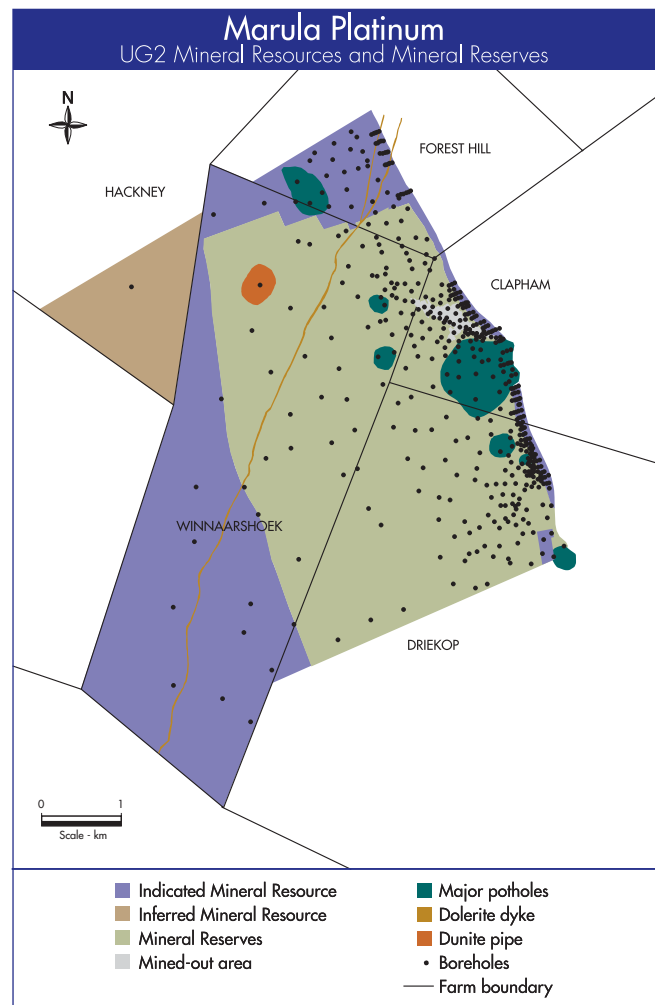
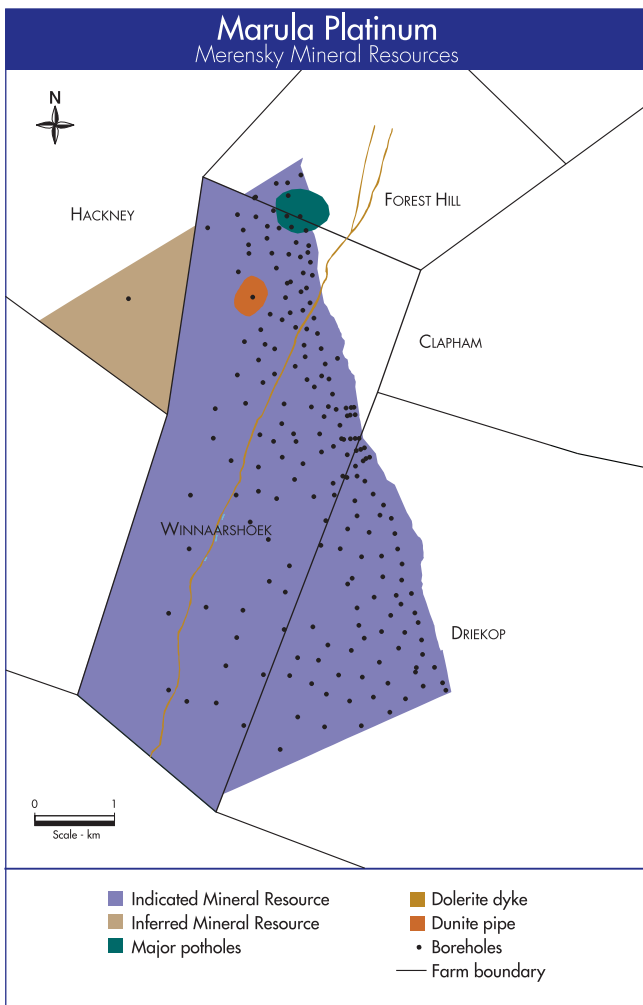


## Marula Platinum

Mineral Resources (exclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)
Merensky	Indicated	44.2	5.47	4.2	44.2	5.47	4.2
	Inferred	5.2	5.73	0.5	5.2	5.73	0.5
UG2	Indicated	22.0	9.80	2.7	22.0	9.80	2.6
	Inferred	3.5	8.88	0.4	3.5	8.88	0.4
Total		74.9	6.92	7.8	74.9	6.92	7.7

Mineral Reserves		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Mill tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)	Mill tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)
UG2	Proved	41.0	5.20	2.6	41.9	5.16	2.6

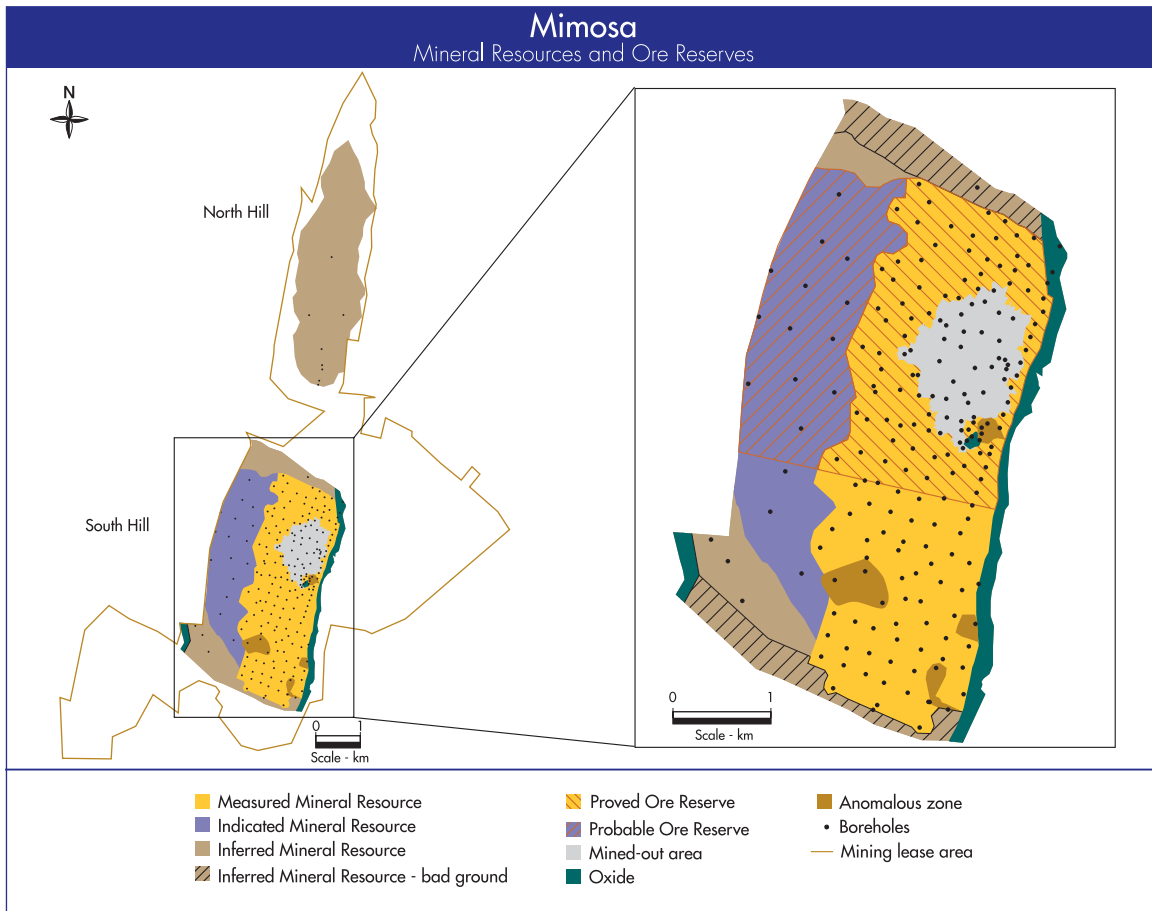
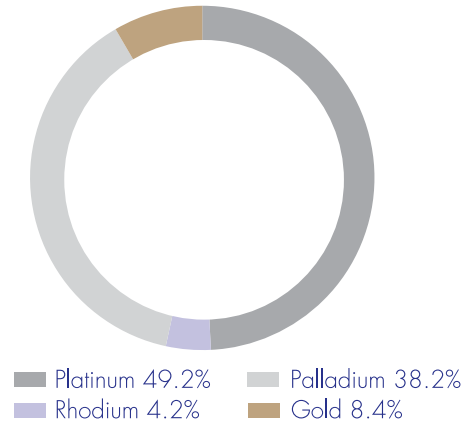
Mineral Resources (inclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 5 PGE & Au	Pt oz (millions)
Merensky	Indicated	44.2	5.47	4.2	44.2	5.47	4.2
	Inferred	5.2	5.73	0.5	5.2	5.73	0.5
UG2	Measured	29.4	9.95	3.6	29.7	9.90	3.6
	Indicated	22.0	9.80	2.7	22.0	9.80	2.6
	Inferred	3.5	8.88	0.4	3.5	8.88	0.4
Total		104.3	7.77	11.4	104.6	7.77	11.3



# Mimosa

The Mimosa lease encompasses four areas: North Hill, South Hill, Mtshingwe Block and Far South Hill, separated by major faults, covering an area of 6,590 hectares. As at 30 June 2006 Implats owned a 50% shareholding in Mimosa Investments Limited (with Aquarius Platinum Limited owning the other 50%).

Mimosa  
South Hill MSZ metals split



## Notes

- ▶ The figures quoted refer to the total Mineral Resource and Ore Reserve for North and South Hill.
- ▶ Mineral Resources are quoted before accounting for anticipated pillar losses.
- ▶ Compared to previous published figures, the material differences are:
  - ▶ Additional exploration at North Hill has resulted in a restatement of the Inferred Mineral Resource which has increased both in volume and content.
  - ▶ The Mineral Reserve has been restated as mining is presently being undertaken at an average width of 1.91 metres with four semi-mechanised sections mining at 1.8 metres and six mechanised sections mining at 1.95 metres.
  - ▶ The Proved Mineral Reserve increased owing to additional drilling in the northern portion of the Blore Shaft block.
- ▶ Rounding-off of numbers may result in minor computational discrepancies.

## Mimosa – South Hill

Mineral Resources (inclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)
South Hill (1.8m cut)	Measured	40.8	4.15	2.7	39.4	4.18	2.7
	Indicated	24.2	3.76	1.5	27.2	3.93	1.7
	Inferred	13.5	4.06	0.9	13.5	4.06	0.9
	Inferred (oxides)	6.0	3.91	0.4	6.0	3.91	0.4
Total		84.5	4.01	5.4	86.1	4.06	5.7

Ore Reserves		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Mill tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Mill tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)
South Hill	Proved	18.5	3.71	1.1	16.1	3.76	1.0
	Probable	15.0	3.52	0.8	16.2	3.54	0.9
Total		33.5	3.62	1.9	32.3	3.65	1.9

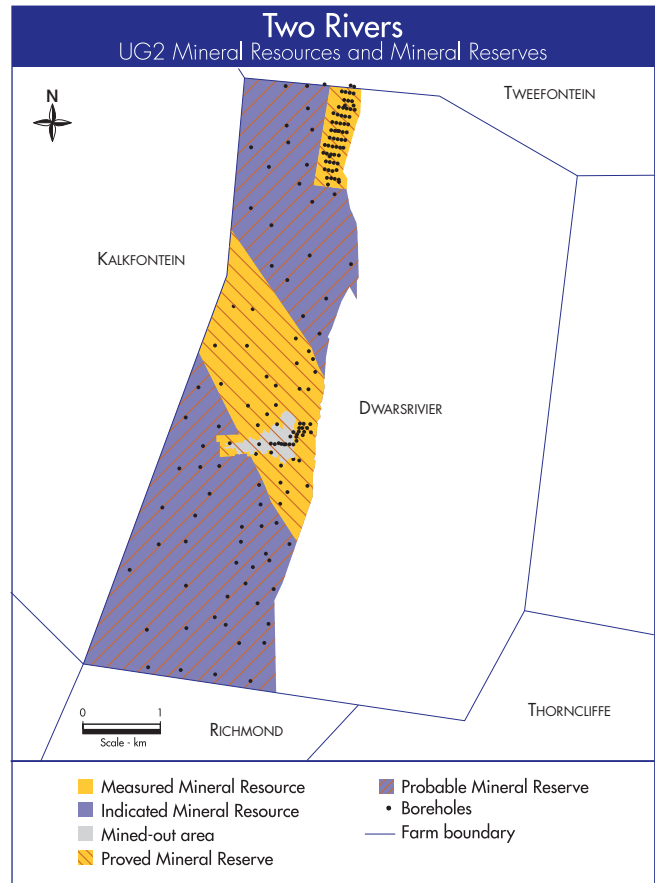
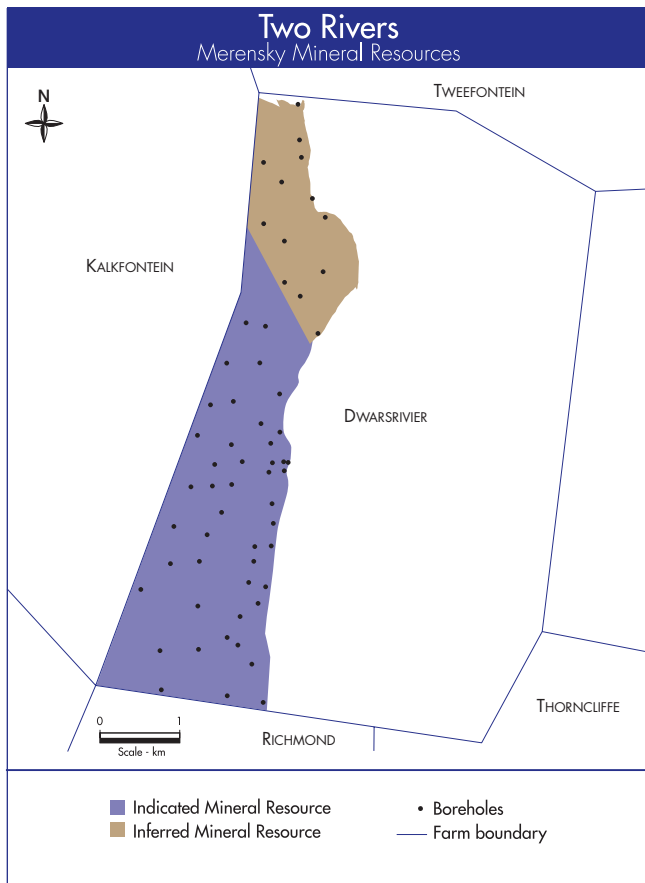
## Mimosa – North Hill

Mineral Resources (inclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 2 PGE*	Pt oz (millions)
North Hill (1.8m cut)	Inferred	43.8	3.98	2.8	40.0	3.16	2.5

\*(2E grade – Pt and Pd only)

## Two Rivers

Two Rivers Platinum Mine is a 55:45 joint venture between African Rainbow Minerals and Implats respectively. It is situated on the farm Dwarsrivier 372KT, in the southern sector of the eastern limb of the Bushveld Complex. Mining operations are focussed on the UG2 horizon.



### Notes

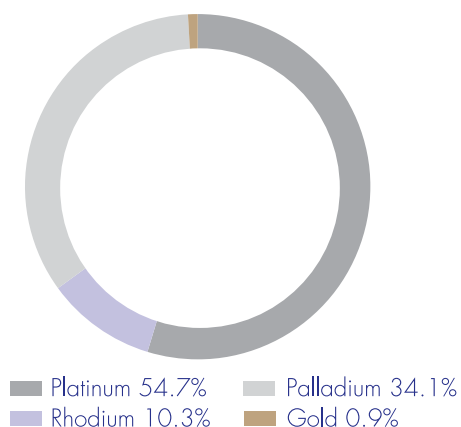
- ▶ Mineral Resources are quoted inclusive of Mineral Reserves.
- ▶ The figures quoted refer to the total Mineral Resource and Mineral Reserve of Two Rivers Platinum Limited at 30 June 2006.
- ▶ The modifying factors used in the UG2 Mineral Reserve calculations are based on mechanised room and pillar mining operations. Estimated geological losses, rock engineering pillars and rock engineering losses due to geological features have been accounted for in the Mineral Resource calculations.
- ▶ Grade estimates were obtained by means of ordinary kriging of UG2 and Merensky Reef borehole intersections.
- ▶ The Mineral Reserves quoted include the North Open Pit and the tonnes mined during the trial mining that have been stock piled.
- ▶ Trial mining has resulted in a stockpile which contains 1 million tonnes of ore.
- ▶ More details regarding Mineral Resources and Mineral Reserves can be obtained in the 2006 ARM Annual Report.
- ▶ Rounding-off of numbers may result in minor computational discrepancies.

## Two Rivers

Mineral Resources (inclusive)		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Channel tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)
Merensky	Indicated	18.7	3.34	1.2	18.7	3.34	1.2
	Inferred	3.9	3.16	0.2	3.9	3.16	0.2
UG2	Measured	13.1	5.17	1.2	13.1	5.17	1.2
	Indicated	46.2	3.70	2.9	46.2	3.70	2.9
Total		81.9	3.83	5.5	81.9	3.83	5.5

Mineral Reserves		as at 30 June 2006			as at 30 June 2005		
Orebody	Category	Mill tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)	Mill tonnes (millions)	Grade (g/t) 3 PGE & Au	Pt oz (millions)
UG2	Proved	9.5	3.60	0.6	10.5	3.59	0.7
	Proved (stockpile)	1.0	3.60	0.1			
	Probable	29.8	3.44	1.7	29.8	3.44	1.7
Total		40.3	3.48	2.4	40.3	3.48	2.4

Two Rivers  
UG2 metals split



## Aquarius Platinum

As at 30 June 2006, Implats held a 20% equity interest in Aquarius Platinum South Africa (AQPSA). In addition, there is an off-take agreement with IRS for the treatment of platinum concentrate. Implats also owns a 8.6% interest in Aquarius Platinum Limited, the

holding company of AQPSA. The annual Mineral Resource and Mineral Reserve statement for AQPSA was not finalised in time for inclusion in this report. Information on this can be obtained from Aquarius Platinum Limited's 2006 annual report.

## Total attributable ounces

The table below summarises the total platinum ounces sourced from all categories of Mineral Resources of the Implats group of companies.

Consolidated – Resources and Reserves (million ounces of platinum) as at 30 June 2006

	Pt oz (millions)	Attributable Pt oz (millions) 2006
Impala Platinum	74.3	74.3
Zimplats	89.0	89.0
Marula Platinum	11.4	11.4
Mimosa Platinum	8.2	4.1
Aquarius Platinum South Africa*	7.8	1.6
Two Rivers	5.5	2.5
<b>Total</b>	<b>196.2</b>	<b>182.9</b>

\* As at 30 June 2005.

