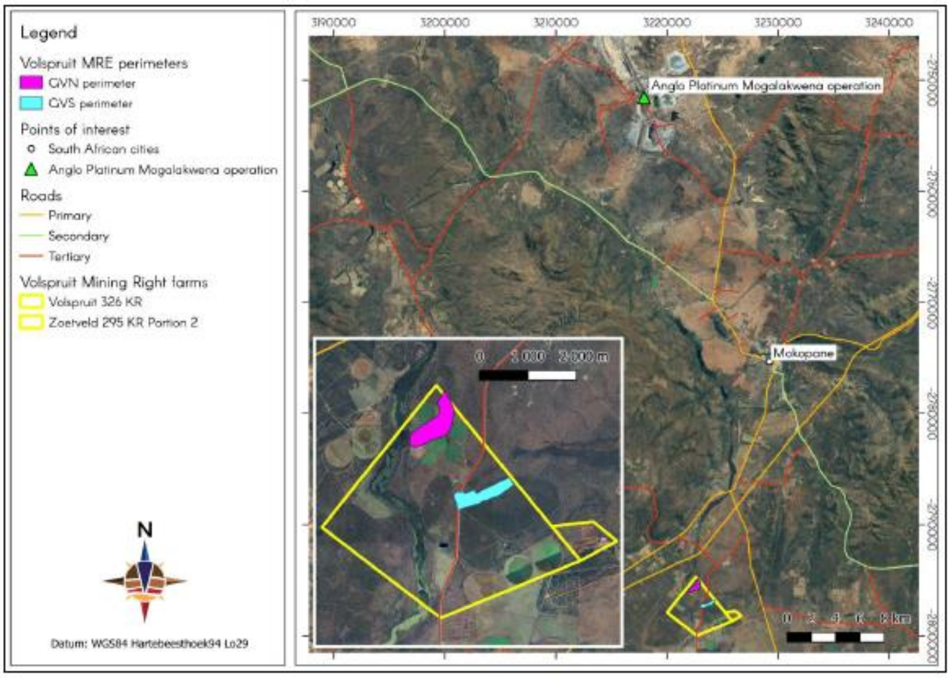
A Competent Persons Report on the Volspruit PGM Project, Limpopo Province, South Africa

Report Prepared for

Sylvania Platinum Limited



Report Prepared by

SRK Consulting (South Africa) (Pty) Ltd

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Report Date: 16 August 2024

Effective Date: 30 April 2024

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Executive Summary

Introduction

SRK Consulting (South Africa) (Pty) Ltd (SRK) was appointed by Sylvania Platinum Limited (Sylvania, also referred to as the Company) to compile a Competent Persons Report (CPR) to present the results of a preliminary economic study (PEA, or Scoping Study) of the Volspruit PGM Project (the Project) in the Republic of South Africa. The mineral rights to the Project are held by the Volspruit Mining Company (Pty) Ltd, in which Sylvania holds an indirect 74% interest.

The CPR has been prepared according to the requirements of the JORC Code (2012) and the AIM Mining Guidance (2009).

This report contains statements of a forward-looking nature which are subject to a number of known and unknown risks, uncertainties and other factors that may cause the results to differ materially from those anticipated in this report. The achievability of the production schedules and economic analysis set out in this CPR are neither warranted nor guaranteed by SRK. The life-of-mine (LoM) mine plan and production schedule include Inferred Mineral Resources which are too speculative geologically to enable them to be converted to Mineral Reserves. The techno-economic parameters have been compiled at a scoping level of confidence. The economic analysis is based on economic assumptions, many of which are beyond the control of Sylvania or SRK. There is no certainty that the economic assessment presented in this CPR will be realised.

Accordingly, no Ore Reserves are declared for the Project.

Description of Asset and Location

The Volspruit Project (the Project) is located on the farm Volspruit 326 KR and portion 2 of Zoetveld 294KR in the Mogalakwena district municipality, Limpopo Province, South Africa. It is located on the southern tip of the Northern Limb of the Bushveld Complex, approximately 16 km south of the town of Mokopane, just to the east of the N1 national route.

The Project comprises two separate orebodies, the north and south, 1.4 km apart. A PEA was completed on the North Orebody in 2022. This CPR presents the results of a second PEA completed in 2024, which updates the 2022 PEA of the North Orebody and includes the South Orebody in the assessment.

This CPR deals only with the Volspruit Project. Other mineral assets held by Sylvania or its subsidiaries are excluded from this CPR.

Tenure

Mineral Rights

Details of the new order mining right (NOMR) issued to the Volspruit Mining Company (Pty) Ltd are set out in Table ES 1 and shown in Figure ES 1. Sylvania holds an indirect 74% interest via its subsidiary companies in the Volspruit Mining Company, with the remaining 26% held by Iolite Trading 16 (Pty) Ltd, the Black Economic Empowerment (BEE) participants.

Grasvally Chrome Mine (Pty) Ltd was sold by Sylvania with the condition precedent that the rights to the Platinum Group Metals (PGMs) and associated minerals be transferred to the Volspruit Mining Company. An agreement between Grasvally Chrome and Volspruit Mining sets out the basis for the abandonment by Grasvally Chrome of the PGMs and associated minerals and the transfer to Volspruit Mining. The extent of the affected mineral rights is shown in Figure ES 2. An amended MWP for Volspruit Mining Company in terms of Section 102 of the MPRDA read in conjunction with

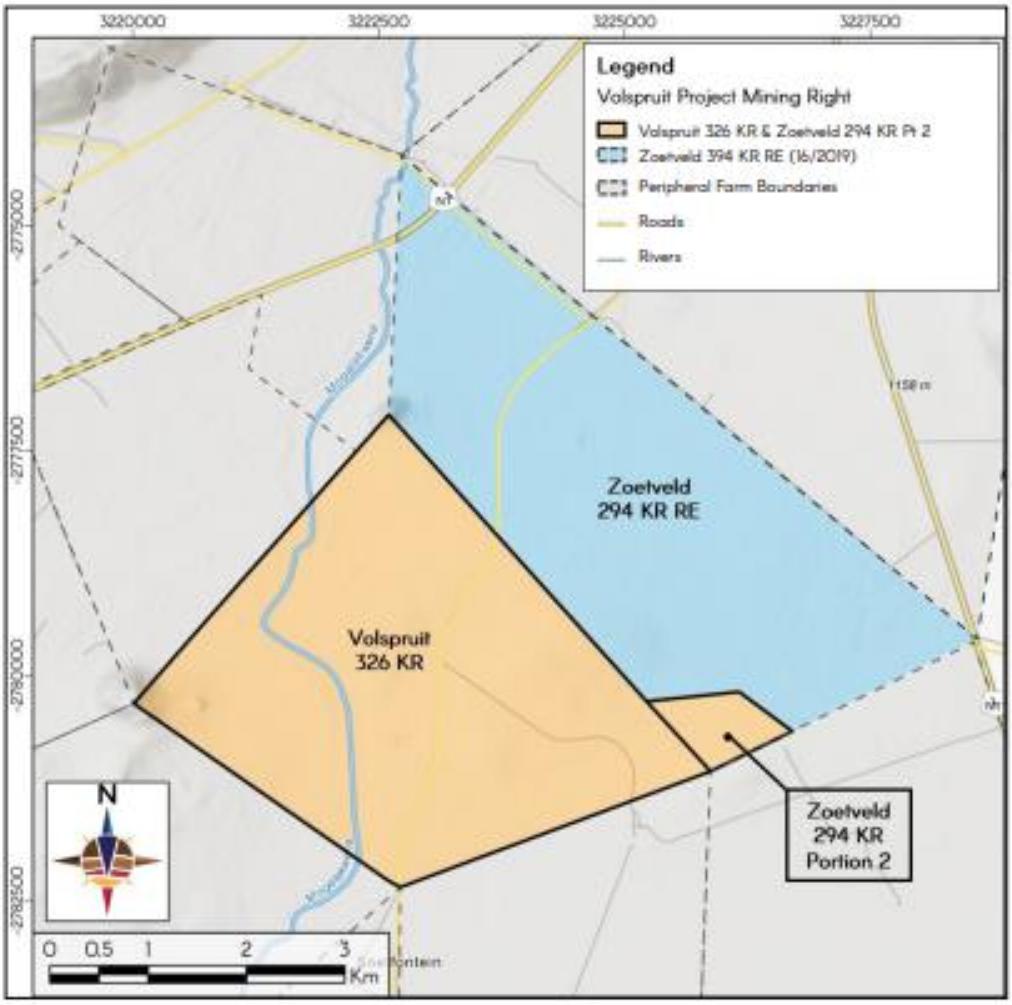
Section 11 of the MPRDA was submitted to the DMRE in December 2023 and again in June 2024 (see Table ES 1).

Sylvania cannot confirm if the "associated minerals" include the base minerals of Cu and Ni. The contribution of the Cu and Ni from Zoetveld is therefore excluded for evaluation purposes.

Table ES 1: Details of Mining Right

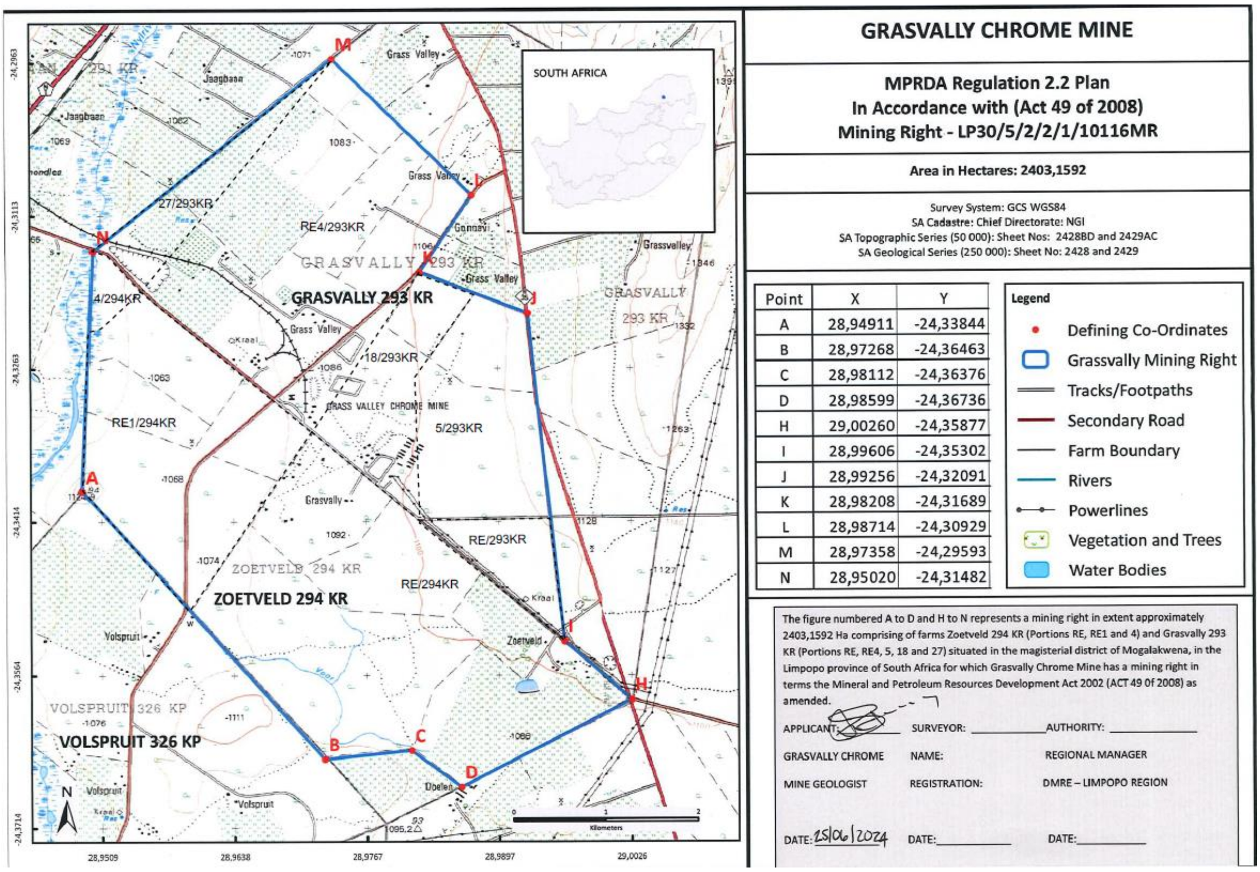
Asset	Holder	Interest (%)	Minerals Included in NOMR	Status	Licence Expiry Date	Licence area (ha)
New Order Mining Right (NOMR) LP30/5/2//2/1/10068MR Volspruit Project: Volspruit 326KR and Ptn 2 of Zoetveld 294KR Mogalakwena District	Volspruit Mining Company (Pty) Ltd	100%	PGMs Au, Ni, Cr Section 102 Amendment – Cu added	Exploration	03/10/2047	1 335.2770
<u>Section 102 & 11 Application</u> Incorporate RE and Ptns 4, 5, 18 of the farm Grasvally 293KR and the RE and Ptn 1 of the farm Zoetveld 294KR into the Volspruit NOMR	Grasvally Chrome Mine (Pty) Ltd – transfer to Volspruit Mining Company	100%	PGMs and associated minerals (excludes Cr and rock aggregate)	Pending	Pending	2 403.1592

Notes: Ptn Portion; RE Remaining Extent



srk consulting	**VOLSPRUIT PEA** Volspruit Project Mineral Rights Holdings (source: Earthlab Statement of Exploration Results, 2022)	Project No. 601183

Figure ES 1: Volspruit Mineral Rights Holdings



	VOLSPRUIT PEA Volspruit Project - Mineral Rights on Zoetveld and Grasvally (source: 240624 Regulation 2.2 Map, Sylvania (2024))	Project No. 601183

Figure ES 2: Volspruit Project - Mineral Rights on Zoetveld and Grasvally

SRK has reviewed a copy of the NOMR awarded to Volspruit Mining Company and is satisfied that the extent of the property described in the NOMR is consistent with the maps and diagrams received from Sylvania. SRK has reviewed documentation provided by the Company related to the Grasvally Chrome NOMR and the transfer of PGM and associated minerals rights to Volspruit Mining Company and is satisfied that the maps and diagrams are consistent. Nevertheless, this does not constitute a legal due diligence review, and SRK does not make any claim nor state any opinion as to the validity, legality or status of the mineral rights held or purported to be held by the Volspruit Mining Company.

Surface Rights

Sylvania Properties (Pty) Ltd owns Portion 5 (a Portion of Portion 4) and Portion 7 of the farm Volspruit 326KR. Sylvania through its subsidiary companies holds an 100% indirect interest in Sylvania Properties.

Zoetveld Properties (Pty) Ltd (previously called Zoetveld Mining and Exploration (Pty) Ltd) owns the Remaining Extent and Portions 4, 5 and 18 of the farm Grasvally 293KR, as well as Remaining Extent and Portion 1 of the farm Zoetveld 294KR. Sylvania through its subsidiary companies holds an 100% indirect interest in Zoetveld Properties.

Sylvania has confirmed that it does not own the surface rights to Portions 1 and 2 of Volspruit 326KR where the majority of the mine infrastructure will be located. Sylvania advised that the surface rights owners are aware there is an active NOMR over their properties and that Sylvania will buy the rights once all permits are in place. Formal negotiations with either party have not yet started.

Physiography, Climate, Access and Infrastructure

The Project is in a relatively flat-lying area, close to the Nyl River, at an elevation of between 1 000 and 1 100 metres above mean sea level (mamsl). Two small hills are present, one to the north and one to the south.

The mine property slopes gently down from east to west. The Nyl River passes through the property flowing in a northern direction; at its closest the river and its floodplain is less than 1 km to the west. The north pit is constrained by the Nyl River and its associated wetland. The Nyl River forms a flat-lying valley that contains marshy areas.

The ground is covered by typically sparse bushveld grass with small shrubs and Acacia-type thorn trees present. The vegetation across the region is classified as Waterberg Savannah with open tree plains on shallow hills. The mine area is situated in active cultivation farmland.

The climate is semi-arid with moderate winter temperatures ranging from 3°C to 25°C and warm to hot summers ranging from 16°C to 36°C. The average annual rainfall in the area has been recorded as 612 mm.

The project is situated close to major infrastructure such as national roads, railway, and overhead power lines. A national road and railway line are located on the northern side of the project area.

Mining History

Volspruit is a Greenfields site; no mining has taken place.

Geological Setting, Deposit and Mineralisation

Regional Geology

The Palaeoproterozoic Bushveld Complex is the world’s largest layered igneous intrusion and comprises the Lebowa Granite Suite, Rashoop Granophyre Suite, Rustenburg Layered Suite (RLS) and the Rooiberg Group Volcanics. Although lateral continuity of layering is observed across parts of the complex, the emplacement and evolution of this large intrusive body is still not fully understood.

The RLS is economically the most important with significant global platinum group element (PGE), chromium and vanadium resources being hosted in this layered mafic complex. The RLS is further subdivided into five zones, from the base upwards, the Marginal, Lower, Critical, Main and Upper Zones, and can be up to 9 km thick in places.

Large portions of the complex outcrop in the Eastern, Western, Far Western and Northern limbs, while the less known Bethal (southeastern) limb is largely obscured by cover. The Northern Limb has been separated from the rest of the complex by the Thabazimbi-Murchison Lineament.

Local Geology

The Volspruit Project is located within the southern portion of the Northern Limb just south of Mokopane. The region, which is dominated by horst and graben structures, has undergone at least four deformational events.

Locally, the stratigraphy of the Lower Zone has been sub-divided into three main groups, the Volspruit Pyroxenite, the Drummondlea Harzburgite Chromitite, and the Moordrift Harzburgite Pyroxenite, from the base upwards, with PGE-Cu-Ni mineralisation being hosted by the Volspruit Pyroxenite. This mineralised pyroxenite is observed in two separate bodies within the project area, the North and South bodies, which are separated by the Magoga Fault.

The Lower Zone stratigraphy comprises approximately 37 cyclic units, numbered from the base upwards. The Volspruit Reef sits within the upper portion of Cyclic unit 11, consisting predominantly of orthopyroxenite and varying proportions of olivine, chrome and minor plagioclase.

Mineralisation observed within the units is typically disseminated to net-textured with no marker lithological units being present to assist in defining reef contacts. Sulphide minerals present, in order of abundance, are pyrrhotite, pentlandite, chalcopyrite and cubanite.

Exploration

Volspruit has had a long history of exploration with prospecting permits being held by various companies since the 1950s. These include African Metals Corporation, Rio Tinto Zinc, Genmin and Pan Palladium, which was acquired by Sylvania. A mining right was granted for the project in 2017.

Earthlab Technical Division (Pty) Ltd (Earthlab) was appointed by Sylvania in 2021 to carry out a Scoping Study on Volspruit. In 2022 positive results from this study were released based on an updated Mineral Resource Estimate (MRE) statement signed off earlier in the same year.

In the next phase of work conducted by Earthlab, all core from the North and South was relogged to assess if a narrower mineralised zone could be identified in order to improve the overall grade of the deposit.

Along with the reef reinterpretation, ten metallurgical boreholes totalling 701.80 m were drilled in the North to allow fresh samples to be collected for processing test work (approx. 655 kg). The NiS method was utilised for Pt, Pd, Rh, Ru, Ir and Au analysis. 288 samples from the metallurgical boreholes as well as 203 samples from selected historic core from the South were analysed by SGS Laboratories in Rustenburg. Historically only Pt, Pd and Au had been determined and previous metallurgical test work had indicated that Rh may add further value to the overall resource.

The new Rh and Ru information was utilised to regress values into the remainder of the borehole database for both the North and the South once a correlation between the various elements had been proven.

Ir values returned from the sampling were largely below the lower detection limits and as such were not included in the updated MRE statement.

Earthlab signed off on an updated MRE in February 2024 which included resources from both the North and the South and estimates on 4E+Au grades. SRK places reliance on Earthlab and Mr du Plessis that the drilling, sampling, analysis and QA/QC follows best practice and the results can be relied upon.

Mineral Resources and Estimation

The Mineral Resource estimates have been generated on behalf of Sylvania by Earthlab. SRK has reviewed the work undertaken by Earthlab and generally considers it technically sound.

Earthlab has classified and reported the Mineral Resources in accordance with the definitions and guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2012 edition, prepared by the Joint Ore Reserves Committee of The

Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.

The Mineral Resources are reported on an in-situ basis, and inclusive of any Mineral Reserves that may be derived from them.

The Mineral Resources are reported excluding a 10% geological loss factor applied globally to the tonnage and metal contents.

No cut off is applied to the Mineral Resources and, where constrained by a pit optimisation, SRK considers this to be appropriate. In the case of Volspruit North, the SRK reporting indicates that higher metal price assumptions or lower costs are required to support the Earthlab statement which appears to be unconstrained by an economic pit shell.

The Mineral Resource statement in Table ES 2 is reproduced from the Earthlab Mineral Resource reports (Appendix B), and Mr Deon du Plessis is the Competent Person for the Mineral Resources. This represents 100% of the Mineral Resources estimated within the Project. The gross and part of the Mineral Resources attributable to Sylvania are shown in Table ES 3.

Table ES 2: Mineral Resource Statement for the Volspruit Projects, effective 30 April 2024 (per Earthlab MRE Report)

Classification	Deposit	Mt	PGM Grades		PGM Content		Base metal Grades		Base metal Content	
			3E (g/t)	5E (g/t)	3E koz	5E koz	Cu (%)	Ni (%)	Cu (t)	Ni (t)
Indicated	North	16.4	2.37	2.58	1 251	1 361	0.067	0.18	9 956	27 897
Total Indicated		**16.4**	**2.37**	**2.58**	**1 251**	**1 361**	**0.067**	**0.18**	**9 956**	**27 897**
Inferred	North	1.2	2.30	2.50	90	98	0.071	0.18	866	2 138
	South	10.6	2.00	2.16	682	736	0.063	0.20	6 728	21 307
Total Inferred		**11.8**	**2.03**	**2.19**	**772**	**834**	**0.070**	**0.20**	**7 594**	**23 445**
Total Resource		**28.2**	**2.23**	**2.42**	**2 023**	**2 195**	**0.068**	**0.19**	**17 550**	**51 342**

Notes:

- A Troy ounce = 31.1034768 metric grams.
- 3E is a shorthand notation for the summed grades of Pt + Pd + Au
- 5E is a shorthand notation for the summed grades of Pt + Pd + Rh + Ru + Au. Ir is below detection limits.
- Mineral Resources are reported with rounding to reflect the accuracy of the estimates. Totals may not sum correctly as a result of the rounding.
- Mineral Resources are not Mineral Reserves and are not guaranteed to be converted.
- For Volspruit North only the portion of the Mineral Resource within the flood barrier are reported. The metal content reported for Cu and Ni is only that which is situated within the Volspruit Mining Right, since the adjacent Mining Right on Zoetveld 294 KR RE (also held by Sylvania) does not include Cu and Ni. The tonnage within this portion is 1.0 Mt.
- Mineral Resources are reported discounted with a geological loss factor of 10%.
- Mineral Resources are reported with consideration of RPEEE. At Volspruit North this was based on the strip ratio of the 2022 pit shell designed by Earthlab during a previous study. At Volspruit South this is based on a rudimentary pit shell with ~50° pit slopes, for which Earthlab determined the strip ratio was appropriate. No cut off grades are applied to the mineralization within the pit shells.

Table ES 3: Gross and Attributable Summary Mineral Resource Statement for the Volspruit Projects, effective 30 April 2024

Mineral Resource Category	Gross			Attributable (to Sylvania)		
	Tonnes (Mt)	3E Grade (g/t)	3E Content (koz)	Tonnes (Mt)	3E Grade (g/t)	3E Content (koz)
Indicated	16.4	2.37	1 251	12.1	2.37	926
Inferred	11.8	2.03	772	8.7	2.03	571
Total	**28.2**	**2.23**	**2 023**	**20.9**	**2.23**	**1 497**

Mining Geotechnics

The open pit slope angles used for the pit optimisation were provided by Sylvania based on the recommendations of Knight Piésold (2004). The recommended slope angles included an overall angle of 49° for North Pit and 39° for South Pit, with the flatter angles for South Pit due to poorer quality rock mass and deeper pit. The design recommendations were reviewed by SRK in 2010, this process recommended significant additional work to be undertaken for further studies. On review of the Earthlab’s 2024 MRE Report it is clear that the geotechnical model is complex due to the extent of faulting, alteration and depth of groundwater. A rigorous geotechnical field programme is required in further study phases to understand the impact of these complexities on the slope stability of the pits.

Hydrology and Hydrogeology

Hydrology

The hydrological assessment conducted for the PEA involved an evaluation of existing baseline hydrological conditions and potential impacts within the Volspruit study area based on existing studies and desktop assessment. The assessment focused on several key investigations:

- Initial baseline characterisation of the study area's hydrological features, informed by historical studies and current desktop assessments utilizing available data;
- A desktop review of past water-related studies to reassess water-related impacts and risks, taking into account the latest developments in water-related authorisations and changes in mining-related guidelines;
- Development of cross-sections and chainages for the Nyl River, allowing for the plotting of floodlines and levels;
- Evaluation of the 1:50-year and 1:100-year floodlines against planned berms to determine updated floodlines and assess the berm's ability to retain various scales of flood events;
- A conceptual update to the Stormwater Management in terms of sizing the two Pollution Control Dams (PCDs), taking into account the latest changes and updates to the mine layout planning;
- Identification of water-related risks and fatal flaws in the mine development plan that could potentially halt proposed mine operations; and
- Recommendations for additional mitigation measures for proposed mine infrastructures within flood-prone areas if the planned berms are found inadequate.

Key findings of the hydrological assessment include:

- The Nyl River wetland and riparian habitat are of significant national and international importance, facing conservation challenges due to its classification as a critically endangered floodplain wetland;
- The total mine water use of new water at 3.1 million m^3/annum is concerning given the average catchment flows of 10 million m^3/annum but with a median flow of only 0.1 million m^3/annum

given the high flow variability. These factors collectively highlight the risk and potential impact of the planned new water abstractions from surface and groundwater;

- The assessment of the Nyl River's hydraulic dynamics and flood risk indicate that during floods surpassing the 1:100-year return period, water breaches the N1 bridge and road embankment, spreading across the catchment. Despite doubling the flow in simulations, the observed change in flood height was less than 1m. This analysis confirms that the proposed flood barrier's planned height effectively mitigates flood risk for the North pit; and
- Based on the updated mine layout (as received 2 April 2024) the total volume determined for the Plant PCD is 35 000 m^3, with the Product Stockpile PCD at 50 000 m^3. These volumes cover the 1:50 year return period 24-hour design storm runoff and include an operating volume of 10 000 m^3 for each dam.

Based on the hydrological review undertaken, several recommendations have been highlighted:

- Careful assessment and sustainable management practices are required to mitigate risks and preserve the integrity of the Nyl River wetland, riparian habitat and flows volume and seasonality for downstream habitat and users; and
- A detailed environmental flows requirement and reserve study would need to be undertaken looking at the seasonal flow requirements needed to maintain downstream riparian, wetland and aquatic habitat and existing, licensed water users.

Hydrogeology

- Groundwater is intensively used for pivot irrigation, potable water and livestock watering especially farms Volspruit and Bokpoort where large volumes of groundwater are abstracted for irrigation purposes;
    - The Grasvally Farm is being targeted to supplement municipal water supply due to groundwater abundance. A water supply scheme currently part of Sylvania's revised SLP is pending DMRE approval;
- Groundwater quality has been impacted by commercial scale farming evident in the elevated concentrations of Electrical Conductivity (EC), total dissolved solids (TDS), nitrate, and chloride that exceeds the SANS 241:2015 drinking water guideline;
- Both the ore and bedrock are relatively inert and is thus not expected to contaminate the aquifer to the extent that it will render the groundwater unusable for domestic and agricultural purposes;
- The 2023 numerical model simulations indicate that:
    - At year 9, when mining at the North Pit has reached final depth, the cone of depression could extend to c. 1 km in all directions;
    - The cone of depression will spread slowly from east to west with mining progression and will most likely extend to the aquifer below the Nyl River;
    - Due to the thick clay layer separating the river surface water from the aquifer below during periods of normal flow, the normal flow of the Nyl River will not be affected; and
    - Boreholes on Volspruit farm could be impacted both in terms of quality and quantity due to the North Pit operations;
- Impact on the underlying aquifer and groundwater receptors water quality will be insignificant due to the low acid generation capacity of the ore and bedrock. There is low potential for neutral mine drainage due to low concentrations reported from leachate testing;
- According to the Water Hunters (2024) computerised water balance simulation model, it appears that the mine's water supply can be addressed via the onsite Grasvally borehole and from dewatering activities. Groundwater from dewatering will make up the largest portion of the total water supply for the Volspruit Operations at 61%:
    - The Water Hunters' report is based on an average dewatering rate of c. 8 000 m^3/d which is lower than GPT (2023) estimates of a maximum of 14 000 m^3/d (combined North and South pits) and an average of 5 000 m^3/d. Pit dewatering boreholes will be required, but the current models do not provide guidance on the number of boreholes required nor their effectiveness. The groundwater model will need to be refined and confidence improved as the project progresses as the dewatering volumes are critical to managing excess water. Based on

boreholes yields of 5 to 10 L/s, multiple dewatering boreholes maybe required for dewatering;
  - External make-up water is not required. Surplus water could then be provided to either the farmers for irrigation and or augment municipal water supply subject to water quality criteria being met. This results in increase in irrigation supply to the farmers and or municipality from at least 29 000 to 103 000 m^3/month; and
- Groundwater use in the A61E catchment is at its threshold of the estimated sustainable yield and infers aquifer distress particularly if abstraction exceeds recharge where 80-100% of recharge is already in use. This limits the volume of allocatable groundwater and may potentially impact on mining operations if authorisation and water security is not actively pursued.

Based on the hydrogeological review, the following is recommended:

- The potential conflicting demands from dewatering, water supply to augment municipality and excess water management will need further investigation and confirmation through an updated water balance and reserve determination. The water balance was updated in 2024 but the reserve determination (DWS responsibility) has been long outstanding and unlikely to be completed in the near future.
- Engagement with authorities pertaining to water use licenses needs to be prioritised. Given that the aquifer at the mine is a sole source aquifer and heavily utilised, dewatering activities whilst necessary will further constrain the aquifer. The groundwater reserve is in a delicate balance and mediation with the regulators will serve to promulgate good environmental stewardship and mine water management;
- Simulation of dewatering boreholes network to confirm number of boreholes, abstraction rates, and impacts on aquifer should be undertaken; and
- Characterisation of the South ore body is limited and should be undertaken to provide a holistic overview of potential impacts arising from mining operations.

Mining

The Volspruit orebody comprises two separate deposits that are approximately 1 400 m apart. The updated Resource block models by Earthlab were utilised for the mining study along with the agreed economic and technical parameters.

The Volspruit orebody contains approximately 28 Mt of Mineral Resource which includes Indicated and Inferred categories. The Resource was subsequently constrained by the flood barrier, and the optimum pit shell considering the economic and practical criteria and with a contained 10% geological losses, to yield a 25 Mt ore within the pit. About 65% of the ore is in the North Pit and 35% in the South Pit, with 33% classed as Inferred and 9% as oxide and transition ore. The oxide and transition ore are located mostly in the top levels of the North pit, whilst the Inferred Resource is primarily from the South Pit. The Inferred Resource should be upgraded to Indicated or Measured category for further study.

Six elements (Gold, Platinum, Palladium, Rhodium, Copper, and Nickel) from the oxide and fresh ore were employed for the economical evaluation. The optimum pit shell serves as guidance for determining the pit limit for the practical pit design, where the Mineral Reserve can be economically extracted.

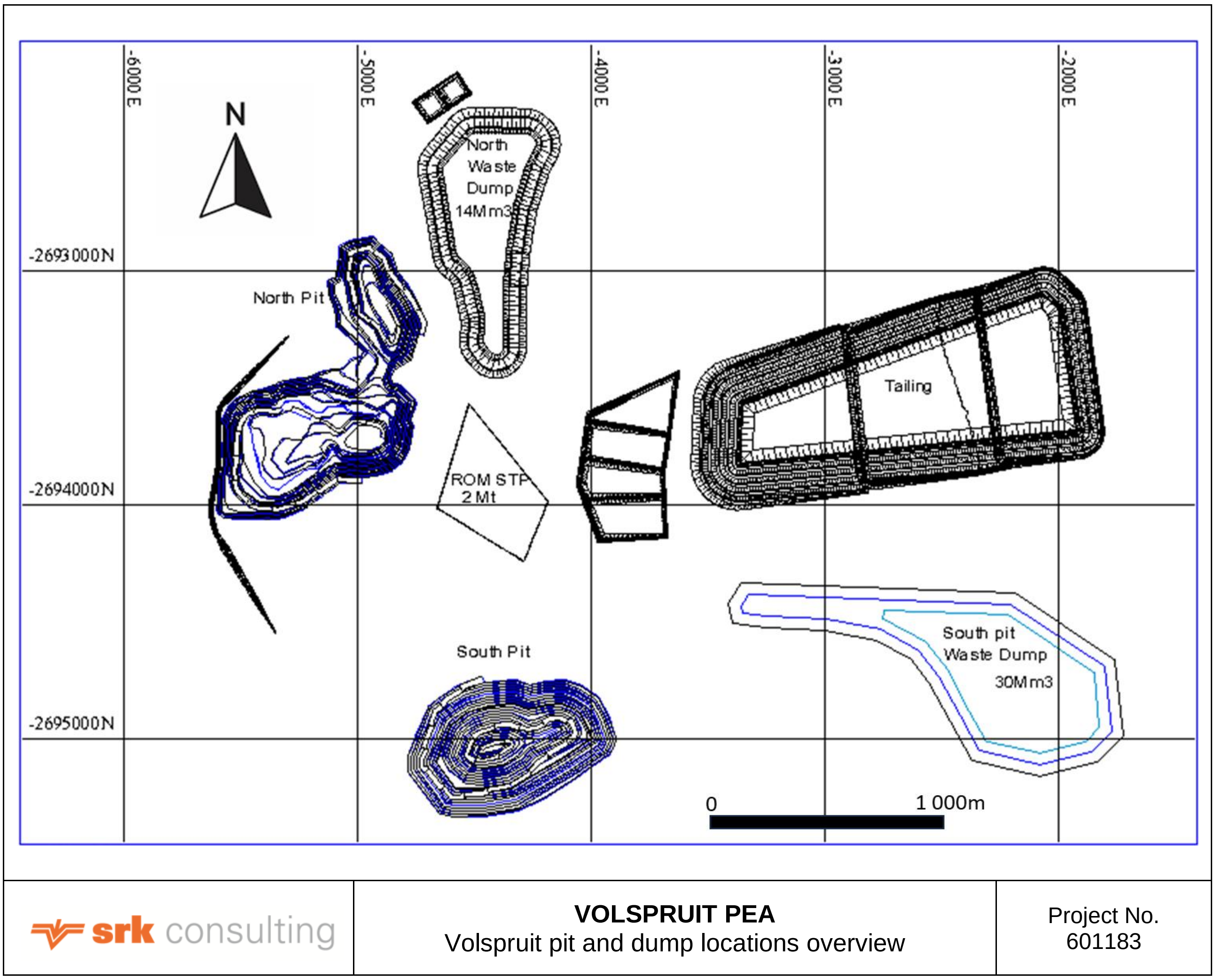
The Consensus Market Forecast metal prices from Consensus Economics Inc. that are set for Life of Mine (LoM) planning along with the technical and economic parameters agreed with Sylvania were utilised in the optimisation process. It is assumed the final products would be 4E, Copper and Nickel concentrates. The estimated selling basket price of USD1 418/oz for 4E metal was determined using the prices of the four elements' metals and the prill split of the metal contents in the concentrate. The forecast price for copper is USD 8 250/t, while nickel is priced at USD18 400/t. The payability factor, or smelter return percentage, affects the selling final prices. The payability factor is 75% for 4E, 70% for copper, and 75% for nickel from the data obtained from Sylvania.

An examination was conducted on the open pit limit and pit value's sensitivity to changes in the input parameters. The size of the pit is not sensitive to change in the cost values or pit overall slope angles, but a reduction in the 4E selling price does cause an effect. The final value of the pit is, however, subject to changes in costs or selling prices.

The practical pit design will have ramps, bench, and catch berms, while taking pit limit and geotechnical constraints into account. The North Pit west wall was constrained by the river diversion berm, where the berm was allocated with a 50 m buffer from the wetland. A ramp width of 21 m was calculated by using three times the truck's operating width for equivalent 90 t rigid trucks, plus 4 m for safety berms and a water collection ditch. The final single bench height is 10 m, with a batter angle of 55º for weathered rocks and 75º for fresh rocks. The 6 m berm width for the North Pit and 9.5 m for the South Pit resulted in the recommended overall slope angle of 49º for the North Pit and 39º for the South Pit. The pit slope angles utilized in this setting are obtained from studies carried out in 2012. These angles are not considered from comprehensive designs and thus need to be updated with more recent data. These should be reassessed in the next phase of the project.

About 158 Mt waste (~60 Mm^3) should be mined and dumped during the mines' life (average stripping ratio of 6.3). The north waste dump can only hold around 14 Mm^3 of waste, which is insufficient to accommodate all the waste that was extracted from the North and South pits. SRK considered an area for the second waste dump that is located at the northeast of the South Pit. This dump will cover about 0.75 km^2 and can hold around 30 Mm^3 waste. The balance can be backfilled to the mined-out North Pit area at a later stage in the mining schedule. It is estimated that about 33% of the waste is mineralised with low-grade ore. SRK suggests that low-grade mineralized waste be separately dumped in the waste dump.

An overall view of the designed pits and waste dumps are shown in Figure ES 3.



Courtesy of Sylvania

Figure ES 3: Volspruit pit and dump locations overview

A high-level production schedule has been produced using the ultimate and interim pit shells from the optimisation practice. The two deposits from the North and South Pits were combined to balance out the waste stripping ratio and improve the plant feed quality.

A production rate of 150 ktpm (1.8 Mtpa) was considered. The mine contains approximately 25 Mt of ore within the pit thus has a 14-year life. The average 4E content is 2.22 g/t, while 634.6 g/t (0.06%) copper and 1 852.6 g/t (0.19%) nickel are present.

Mining should begin in the northern portion of the North Pit and the southwest of the South Pit since the ore is closer to the surface and has a lower stripping ratio. SRK anticipates that mining should begin at least six months before the processing plant is commissioned, assuming the processing plant also needs a ramp-up of six months. Thus, the year zero of the mining calendar comprises the mining and processing ramp-up.

Oxidised ore comprise approximately 9% of the pit composition ore and are typically found at the uppermost levels. SRK suggested utilizing the stockpile facility to store oxide ore in order to facilitate a more uniform plant input in terms of ore types (specifically, oxide and fresh). The processing facility may, for instance, treat ore with a mixture of ten percent oxide ore and ninety percent fresh ore. This production scenario is shown in Table ES 4 and comprises the mining production schedule and plant feed plan. This scenario should be investigated further within a detail design. In this scenario about 15% of total ore will be rehandled from stockpiles.

Table ES 4: Mining Production Schedule and Plant Feed Scenario

	Mined Out			Plant Feed							
	Waste	Ore		Ore		Fresh			oxide		
Period	All	Fresh	Oxide	Fresh	Oxide	4E	Cu	Ni	4E	Cu	Ni
Year	(kt)	(kt)	(kt)	(kt)	(kt)	(g/t)	(g/t)	(g/t)	(g/t)	(g/t)	(g/t)
0	13 204	650	1 145	608	68	2.97	806	1960	2.48	693	1827
1	13 201	1 630	169	1620	180	2.87	776	1957	2.61	752	1944
2	13 200	1 689	110	1620	180	2.94	867	2019	2.61	672	1856
3	13 204	1 794	2	1620	180	2.28	642	1797	2.47	691	1826
4	13 202	1 760	38	1620	180	2.07	511	1718	2.38	723	1827
5	13 201	1 579	219	1620	180	2.09	491	1653	2.46	983	2023
6	13 200	1 360	440	1620	180	2.42	584	1905	2.33	728	1964
7	13 200	1 609	191	1620	180	2.25	578	1755	2.15	660	2011
8	12 326	1 794	6	1620	180	2.15	599	1839	2.43	713	1873
9	13 735	1 264	0	1620	180	2.26	622	1834	2.43	713	1873
10	11 456	1 800	0	1620	180	1.94	556	1790	2.43	713	1873
11	6 697	1 800	0	1620	180	1.91	595	1823	2.43	713	1873
12	4 727	1 800	0	1620	180	1.86	609	1874	2.43	713	1873
13	3 206	1 800	0	1620	93	1.82	637	1996	2.43	713	1873
14	393	587	0	1249	0	2.04	651	2032	0.00	0	0
Total	**158 155**	**22 917**	**2 320**	**22 917**	**2 320**	**2.23**	**627**	**1857**	**2.43**	**729**	**1898**

A mining contractor method was selected by Sylvania for mining and material movements. SRK, however, did a high-level mining fleet estimation as detailed in the report. The orebody's shape and location necessitate the use of small mining fleets, to enhance mining selectivity and reduce dilution.

No Mineral Reserves have been declared for the Volspruit Project.

Metallurgy and Mineral Processing

Test work was conducted on composite samples of the “fresh” North orebody, “fresh” South orebody and a transition/oxide sample. Batch cleaner and locked cycle test work was conducted using a circuit similar to what is referred to as a mill-flotation-mill flotation (MF2) circuit in the South African platinum industry.

The test work revealed that the fresh ore could produce a 4E recovery of 71.6% at a grade of 74 g/t 4E, that is lower than the normal minimum of 80 g/t normally required by the toll smelters. The transition/oxide ore produced poor results with a 4E recovery of only 33%, at a 4E grade of 44%. These low grades are regarded as a major risk to the project, as targeting higher grades to meet the requirements of the smelter will reduce the recoveries.

The author is of the opinion that qualitative modal analysis and quantitative mineralogical analysis must be conducted on the ore to determine the optimum grind and reagent suite. The mode of occurrence of the PGE+Au losses need to be identified to further improve the plant performance. It is understood that this work is in progress, but the results were not available at the time of this review.

The PGE+Au recovery is very dependent on head grade. As the geologists have identified that the PGE+Au is to be found in the Pyroxenite layer of the ore body, there may be an opportunity to upgrade the plant feed using technology such as X-ray sorting. In addition, pre-upgrading of the ore using X-ray sorting would reduce the capital cost of the plant.

A plant design and costing were done based on the flow sheet used in the test work.

Crusher and mill sizing were done using the milling results reported and using classical mill sizing techniques. Upgrading factors commonly used in the industry were used to determine the flotation cell sizing.

Quotations were obtained for the major equipment suppliers, and the capital cost was factorised using the consultant's database. The design considers all process equipment and ancillaries within the fence of the plant. Infrastructure such a workshops, offices, stores, change-house and roads were included under the infrastructure estimate.

The operating cost of the plant has been determined to be R276 per tonne of ore milled.

Tailings Storage Facility

The general objectives of the Phase 1 design of the tailings disposal facility (TSF) were to review the expected tailings properties and LoM tailings tonnages requiring disposal, identify and review potential storage sites, carry out conceptual design at potential sites, identify potential fatal flaws and make recommendations for further work.

A TSF site selection study was to be undertaken, based on the available information and a site visit, from which three potential sites could be identified. SRK undertook a scoping study in 2012 for tailings disposal aspects and WRDs for the then proposed PGM mine on the farms Volspruit 326 KR and Zoetveld 294 KR.

Three of the sites were within the footprint to the then current Environmental Impact Assessment (EIA), with the fourth site, being the old Grasvally mine tailings dam site, which had not been included in the EIA. Thus, it was excluded. Of the other three sites, the first site, general located where the current TSF is proposed, was ranked as most favourable.

A review of the above information has made it plain that a site has already been identified and a significant amount of design of the identified TSF site undertaken. The focus of this report has then shifted to focus rather on the design as presented the Erudite Engineering Mineral Residue Design report.

The water balance report (Water Hunters, 2024) states that only a negligible amount of raw water (50 m^3 per month) would be used as make-up water to the system, and that optimising operational rules could reduce this requirement to zero.

Clean water, diverted around the TSF discharges downslope and captured by the clean water canal upslope of the plant, the RoM stockpile and the waste rock stockpile to discharge both upstream and downstream of the plant. A further clean water canal prevents runoff into the North Pit and discharges, via culvert outlet structures, the clean water into the Nyl River.

The unfortunate disaster at the Jagersfontein Mine resulted in the intervention of government with various departments to investigate the safety of residue deposit dams / facilities and intensify regulations around these structures. As a result, and because of its size, the Volspruit TSF will be classified as a dam with a safety risk and require registration in the same way as a similar raw water storage dam.

Eco Elementum (Pty) Ltd was contracted by Sylvania to conduct a Waste Classification for the Project. Eco Elementum has proposed that that the TSF and the Waste Rock stockpiles should both be designed with Class C barriers and that the waste rock, which is considered to pose a low risk towards the environment should be re-classified as a Type 4 waste which will only require a lower-level Class D barrier.

The TSF embankment design assumes 1V:3H for inner and outer slopes, with a minimum crest width of 9m. Again, these are typical design parameters which will be re-assessed once the actual tailings characteristics are known.

Tailings will be placed using hydro-cyclonic deposition method that will be supplied via a slurry delivery pipeline.

The TSF has been designed as three cells, which eventually will link to form one tailings surface. The logic of such an approach was not clearly spelt out in the previous study, but it is inferred that the logic for this approach is:

- A smoothed cashflow of capital expenditure, to reduce initial capital expenditure;
- A concern to reduce the weather exposure of the liner, potential damage to the liner, theft of liner; and
- A very low Rate of Rise over the life of the project.

Two Waste Rock Dumps (WRD), being the 60 ha WRD South and the 38.5 ha WRD North have been designed similarly as dry stack facilities. The barrier system proposed is as follows:

- The in-situ material ripped to 150 mm depth, then compacted;
- A subsurface drainage network of plastic drainpipes, wrapped in geotextile, will be placed to intercept ground water and to function as a leak detection layer;
- A Compacted Clay Liner constructed from local clayey sandy material placed above the compacted in situ material;
- The site to be surrounded by a dirty water channel, which in turn will be surrounded by a containment bund; and
- Twin pollution control dams are provided to settle the dirty water, prior to discharge to the environment.

Both the North WRD and the South WRD will be built concurrent with TSF Cell One project. The design as proposed is a very standard design. What is of interest is the opportunity to re-classify the waste rock as Type 4 waste. Should that materialize, then the barrier system may be reduced to a less onerous Class D Barrier.

Infrastructure and Engineering

Mechanical Infrastructure

Access to the project site will be via a 7 m wide paved road, joining from the existing N11 public road coming from the town of Mokopane, which is about 20 km North of the mine. Dedicated haul roads which will be used to transport ore from the North and South pits to the process plant have been allowed for, and approximately 2 km of internal site roads.

A perimeter fence will be constructed around all areas of the mine to prevent access by unauthorised personnel. Manned security access points complete with manually controlled boom gates will monitor and control access around the mine. Security patrols will need to be conducted around any remote infrastructure, including the TSF.

All support infrastructure and the process plant have been located outside the blast area of the pits, so as to avoid any damage by fly rock during blasting. The support infrastructure is mainly made of prefabricated buildings, which will help in reducing the mine closure costs. It will be the responsibility of the mining contractor to supply their own infrastructure, however the mine will be responsible for supplying the mining contractor with water and electricity to the connection points as defined further in this report.

Electrical Infrastructure

The previous pre-feasibility study indicates that bulk power supply was to be sourced from either the Cromore Substation and/or the Witkop Substation, which are located 2.5 km and 80 km respectively from the mine. At the time, which was almost 20 years ago, it was noted that the Cromore Substation had only a spare capacity of about 20 MVA. It is not clear at this stage whether this spare capacity is still available; therefore, it is recommended that a bulk power supply specialist consultant, familiar with Eskom requirements, be appointed in the next phase of the project to conduct, amongst others:

- Engagements and consultations with Eskom to determine the most reliable and practical source for the bulk power supply;
- Requisition of quotations from Eskom such as the cost estimate letter and the budget quotation;
- Bulk power designs and more detailed capital cost estimates based on the preferred source of power supply as per agreements with Eskom. The costs as assumed in this PEA are of a high-level nature; and
- Assist the mine with regard to application for agreed Notified Maximum Demand (NMD). High level load estimates currently indicate that an agreed NMD of 20 MVA will be required, however the concentrator plant loads still need to be better defined.

However, SRK understands that a concept study has since been completed by Eskom and paid for by Sylvania. Sylvania also indicated that an EIA for the new overhead power line and a new independent power supply substation has been completed by Eskom. It is recommended that this latest information be made available in the next phase of the project.

The concentrator plant load list has not been compiled at this stage, and the plant connected load has thus been assumed to be 15 MW. It is therefore recommended that a plant design consultant be appointed in the next phase of the project so a more detailed equipment list is compiled, so that a more realistic plant load list can be developed. This will help in gaining more confidence in the required agreed NMD to be applied for.

Minisubs will be established in each support infrastructure area to supply power to each building distribution board. A ring main unit (RMU), fed from the process plant 11 kV switchgear, will be established in the mine offices support infrastructure area. This RMU will in turn supply power to the mine offices support infrastructure area minisub and the contractor's yard area minisub. The concentrator support infrastructure area minisub and the return water dam motor control centre (MCC) will each also be fed from the concentrator plant 11 kV switchgear.

Capital and Operating Costs

The production scenario that was considered was for mining 1.8 Mtpa ore over a mine life of 15 years. The capital cost was estimated to a conceptual level of detail with a contingency allowance of 25%.

Table ES 5 shows a summary of the capital requirements for the project.

Table ES 5: Capital Cost Summary

ITEM	UNITS	TOTAL
Land acquisition	(ZARm)	100
Mining Mobilisation and Establishment	(ZARm)	50
Processing	(ZARm)	1 392
Tailings Storage Facility (TSF)	(ZARm)	918
TSF Return Water & Irrigation Dams	(ZARm)	111
Waste Rock Dumps	(ZARm)	54
ROM Pad	(ZARm)	49
Flood Diversion Bund and other civils	(ZARm)	181
Roads and Haul Road Bridge	(ZARm)	34
Water supply from dewatering boreholes	(ZARm)	21
Bulk Power Supply	(ZARm)	244
On-mine Electrical Infrastructure	(ZARm)	19
General Infrastructure	(ZARm)	61
Preproduction expenses, owner’s costs	(ZARm)	185
EPCM at 18% of processing and infrastructure	(ZARm)	555
Owner’s cost at 5% of base capex	(ZARm)	171
Contingency at 25%	(ZARm)	1 036
Total Project Capital	(ZARm)	**5 181**
Stay-in-Business Capital	(ZARm)	**355**

The total operating costs for LoM are set out in Table ES 6.

Table ES 6: LoM Operating Cost Summary

Item	Units	Total LoM
Mining Cost - waste	(ZARm)	6 326
Mining cost - ore (incl. marginal cost + grade control)	(ZARm)	1 514
Stockpile rehandle cost	(ZARm)	34
Processing	(ZARm)	6 983
Tailings disposal	(ZARm)	84
Administration	(ZARm)	1 388
Closure provision	(ZARm)	150
SLP/CSI	(ZARm)	189
Royalties	(ZARm)	856
Contingency (25%)	(ZARm)	4 167
Total Operating Cost	**(ZARm)**	**21 691**
Unit Cost	(ZAR/t RoM ore)	860

Contractor mining is assumed for the project.

The Social and Labour Plan (SLP) and/or Corporate Social Investment (CSI) cost is provided at 1% of operating profit per year.

Royalties are calculated using the refined formula per the Royalty Act.

Human Resources

SRK envisages a staff complement of 388 people at steady state and is given in Table ES 7.

Table ES 7: Proposed staff complement

Department / category	Number
Mining (Owner team)	29
Mining (Contractor team)	186
Process plant operations	76
Process plant maintenance	28
General site maintenance	10
Management	59
Total	**388**

Sylvania is opting for a contractor operated mine and plant with an owners team to handle management, technical services such as geology and mine planning, and to supervise the operation.

Environmental and Social Compliance

In fulfilment of relevant South African legislation, the Volspruit Project obtained a mining right (MR) on 4 October 2017, which is valid for 30 years. This MR application was supported by the approval of the EIA and Environmental Management Programme (EMPr) prepared in terms of the Mineral and Petroleum Resources Development Act (MPRDA). Mining activities have not yet commenced.

After the issuing of the MR and environmental authorisation, various optimisation and environmental studies were undertaken for the Volspruit Project, which resulted in changes to the proposed layouts and/or locations of the north pit, residue deposit (tailings) and residue stockpile (waste rock). The original environmental and social baseline and impact assessment studies were updated between 2021 and 2023 to inform a MR amendment process. The Volspruit Project has applied for an amendment of the MR in terms of Section 102 of the MPRDA to address changes to mine infrastructure and apply for an Integrated Waste Management Licence required in terms of new legislation. This application necessitates that a scoping and EIA process be undertaken. Once approved by the competent authority, the EIA will be undertaken and the EMPr revised.

The Scoping Report contains all relevant information about the project, including environmental and social baseline descriptions, impact identification and a plan of study for the EIA. This information is required by the competent authority (i.e., Department of Mineral Resources and Energy (DMRE), Limpopo Region) to make an informed decision about the proposed EIA plan of study based on listed activities and the identified impacts that are likely to arise during construction, operation and closure phases.

The suite of environmental and social baseline and impact assessment studies undertaken to date for the Volspruit Project highlight a number of potentially sensitive receptors in close proximity to and surrounding the MR area, including vulnerable and protected biodiversity, heritage resources and agricultural activities. Specialist assessments have reportedly been completed for the EIA phase, which has resulted in the reconfiguration of infrastructure layout and inclusion of additional buffer zones to avoid disturbance of wetland areas and the MR portion that lies within the Springbokvlakte Thornveld Ecosystem.

Project Implementation

SRK recommends that the Engineering, Procurement, and Construction Management (EPCM) method of implementation be utilised, where a contractor is selected to perform detail design on the project based on the Owner's requirements, and procure, and manage the construction and commissioning, under the control of a Sylvania owner's team. This contrasts with the Engineering, Procurement and Construction (EPC) model. In an EPC contract, the EPC contractor develops the project from commencement to final completion.

In contrast to the EPC model, the EPCM contractor is not directly involved in the building and construction of the project but is rather responsible for the detailed design, procurement, and overall construction management of the project, on behalf of the owner or principal. While an EPC contract takes the form of a design and construction contract, the EPCM model can be regarded as a professional services contract. EPCM suits most mines where the owner is not able to provide a sufficiently detailed specification for EPC and where the owner can form a sufficiently experienced Owner's Team.

It is assumed for the purposes of this report that, if this project is found to be robust at PEA through to Feasibility Study, it will then proceed through Front End Engineering Design (FEED) to procurement and construction under the management of the EPCM contractor under the control and direction of the Sylvania Owner's Team.

Risk Assessment

A qualitative exercise was undertaken toward the risk assessment for the current PEA. The exercise considered potential risk as well as potential opportunity, at the thematic level.

The main objective of the exercise was to provide a description of the potential risks and potential opportunities to be considered as the project progresses from the PEA to future studies.

The exercise found that:

- The range and type of risk-related considerations for Volspruit are not atypical for such a venture at this point of the project life cycle;
- No fatal flaws were identified in the engineering approaches used to date, for the respective disciplines;
- The quantitative evaluation of potential risks will be facilitated following completion of discipline-specific investigations in due course, as recommended in the respective chapters above;
- The results from the completion of discipline-specific investigations / studies recommended in the respective chapters above, will facilitate further and refined assessment of the ultimate project viability; and
- Several potential opportunities, ranging in extent, were identified for consideration in future studies.

Integration of related activities may potentially offer benefits to the Company as the project advances. These activities include:

- Establishing an index and/or register of data available; and
- Confirming the risk framework for the project (as appropriating the company-level risk framework or alternatively, developing a project-based framework).

It is recommended that:

- Model variability relating to the Mineral Resource Estimate be addressed through a detailed, infill drilling program in a shallow portion of the orebody to both assess and improve the understanding of the mineralization;
- Undertake relevant investigations to advance collection and modelling of geotechnical components;
- The design, assuming the TSF and Waste Rock Stockpiles require Class C lining, with the WRD barrier system being a compacted clay liner type should be retained;
- The process to re-classify with DWS the waste rock as construction material which could be placed on a Class D liner should be undertaken. Note that for the purpose of the costing, the design as presented has been costed;
- Elements of electrical infrastructure, including requirements for bulk power supply, concentrator load, and costs be refined during the next phases of project; and
- Environmental and Social impacts be assessed in detail, and that the Volspruit Project honours their related commitment to not disturb the portion of the MR area that lies within the Springbokvlakte Thornveld Ecosystem.

Adjacent Properties

Anglo Platinum's Mogalakwena mine is located 45 km to the north of the project. The style of mineralisation is not analogous to Volspruit.

The Grasvally chrome mine, located approximately 3 km to the northeast of the northern orebody, was sold by Sylvania to Forward Africa Mining (Pty) Ltd. in July 2022. The sale had the condition precedent that the rights to the PGMs and associated minerals be transferred to the Volspruit Mining Company.

Economic Analysis

The summary financial results from the post-tax cash flows using five different price decks are compared in Table ES 8.

Table ES 8: Comparative Summary Financial Results

Item	Units / Discount Rate	SBG (base Q4'23)	3-Yr Trail (22/04/24)	Spot (15/04/24)	Consensus (15/04/24)	Nedbank May'24
NPV	0%	12 459	10 947	1 611	2 521	5 935
	6%	6 673	5 856	-569	28	2 476
	8%	5 408	4 741	-1 030	-504	1 722
	10%	4 360	3 816	-1 406	-939	1 099
	12%	3 485	3 043	-1 715	-1 298	580
	14%	2 748	2 391	-1 970	-1 596	143
	16%	2 123	1 837	-2 182	-1 845	-228
IRR	(%)	27%	26%	4%	6%	15%
Peak Funding	(ZARm)	4 212	3 986	4 494	4 460	4 289
Payback period	(years)	4	4	12	10	6
Unit Cost	(ZAR/t RoM)	897	889	833	839	859
	(ZAR/oz 4E payable)	23 686	23 488	21 999	22 156	22 696

Price Decks:

- SBG Standard Bank Group relative to Q4'23, provided by the Company.
- 3-Yr trail Three-year trailing average at 22 April 2024.
- Spot The spot values at 15 April 2024.
- Consensus Consensus Economics Inc, at 15 April 2024.
- Nedbank Nedbank Group forecasts at May'24, from the Company.

It is clear that the economic viability of the project is heavily dependent on the price forecast used.

The twin sensitivity of the NPV at 12% discount of the post-tax cashflows using the Nedbank May'24 price deck to changes in revenue and Opex is shown in Table ES 9.

Table ES 9: Twin sensitivity of NPV at 12% discount to changes in Revenue and Opex (Nedbank May'24 price deck)

		Revenue Sensitivity				
LT 4E basket price (USD/oz)		1 353	1 523	1 691	1 860	2 029
		-20%	-10%	0%	10%	20%
Operating Cost Sensitivity	-20%	-359	895	2 111	3 313	4 505
	-10%	-1 171	114	1 351	2 557	3 756
	0%	-2 027	-683	580	1 801	3 000
	10%	-2 974	-1 512	-209	1 036	2 243
	20%	-3 979	-2 393	-1 019	255	1 483

Examination of Table ES 9 shows that a 20% increase in the revenue yields a ca. 500% increase in NPV at 12% discount, from ZAR580m to ZAR3 000m. Such an increase in revenue could be generated by increases in one or more of, the feed grade, plant recoveries, concentrate payabilities, alternatively improved metal prices and/or exchange rates.

Improving the feed grade could be achieved by some form of pre-concentration of ore before it is fed to the concentrator, e.g., X-ray sorting using Rados. A higher head grade generally improves plant recoveries and yields higher concentrate grades.

Should it be confirmed that the "associated minerals" transferred by Grasvally Chrome to Volspruit Mining Company include Cu and Ni, the NPV at 12% discount using the Nedbank May'24 price deck would increase to ZAR776m.

Conclusions and Recommendations

The economic viability of the project is heavily dependent on the price forecast used. The project could benefit from an increased feed grade.

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by Sylvania Platinum Limited (Sylvania**)**. The opinions in this Report are provided in response to a specific request from Sylvania to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

1 Introduction

1.1 Background

Sylvania Platinum Limited (Sylvania, also referred to as the Company) is a public company listed on the London Stock Exchange's (LSE) Alternative Investment Market (AIM). Sylvania is primarily involved in the retreatment of platinum group metals (PGM) bearing chrome tailings materials in South Africa and Mauritius.

SRK Consulting (South Africa) (Pty) Ltd (SRK) was appointed by Sylvania to compile a Competent Persons Report (CPR) to present the results of a preliminary economic study (PEA, or Scoping Study) of the Volspruit PGM Project (the Project) in the Republic of South Africa. The Project is located on the southern tip of the Northern Limb of the Bushveld Complex approximately 16 km south of the town of Mokopane, Limpopo Province, South Africa. The mineral rights to the Project are held by the Volspruit Mining Company (Pty) Ltd, in which Sylvania holds an indirect 74% interest.

The Project comprises two separate orebodies, the north and south, 1.4 km apart. A PEA was completed on the North Orebody in 2022. This CPR presents the results of a second PEA completed in 2024, which updates the 2022 PEA of the North Orebody and includes the South Orebody in the assessment.

This CPR deals only with the Volspruit Project. Other mineral assets held by Sylvania or its subsidiaries are excluded from this CPR.

The CPR has been prepared according to the requirements of the JORC Code (2012) and the AIM Mining Guidance (2009).

1.2 Terms of Reference, Reporting Standard

1.2.1 Terms of Reference

SRK was required to compile the results of the Scoping Study (or PEA) which was completed in June 2024 in a form that would be suitable for public disclosure, i.e. a Public Report.

1.2.2 Reporting Standard

This CPR has been prepared according to the requirements of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2012 edition, prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.

This CPR also satisfies the disclosure requirements as set out in the AIM Mining Guidance (2009).

This CPR is not a Valuation Report as envisaged by the VALMIN Code (2015) and does not express an opinion as to the value of mineral assets. Aspects reviewed in this CPR do include product prices, socio-political issues and environmental considerations; however, SRK does not express an opinion regarding the specific value of the assets and tenements involved.

1.3 Sources of Information

Sources of information and data used in the preparation of the CPR are included in Section 21.

Sylvania has confirmed that to its knowledge, the information provided by it to SRK was complete and not incorrect, misleading or irrelevant in any material aspect. SRK has no reason to believe that any material facts have been withheld.

All maps and diagrams presented in this CPR have been extracted from source documentation provided by Sylvania and appropriate references are included in the title blocks of such diagrams.

1.4 Details of Personal Inspection

Earthlab Technical Division (Pty) Ltd (Earthlab) has been conducting work on the Project since 2020 and had a team on the farm for more than two years. Mr Du Plessis PrSciNat, employed by Earthlab, has conducted site visits to the Project several times.

SRK staff involved in the compilation of the Scoping Study and this CPR have not conducted visits to the Volspruit Project. From its review of the information supplied by the Company, SRK was satisfied that sufficient detail was provided in the various reports to satisfy the requirements of a Scoping Study.

1.5 Qualifications and Independence

1.5.1 Qualifications

SRK is part of an international group (the SRK Group) which comprises more than 1 800 staff, offering expertise in a wide range of resource engineering disciplines. The SRK Group's independence is ensured by the fact that it holds no equity in any project and that its ownership entirely rests with its staff. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgement issues. The SRK Group has a demonstrated track record in undertaking independent mineral property valuations, Resources and Reserves estimations, project evaluations and audits, CPRs and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining operations and projects providing mining industry consultancy service inputs and has specific experience in transactions of this nature.

The Competent Person (CP) who assumes overall responsibility for the CPR is Mr Marcin Wertz, a Partner and Principal Mining Engineer with SRK. Mr Wertz holds a BSc (Eng) degree in Mining from the University of the Witwatersrand. He is a registered Professional Engineer (Reg. No 20010025) through the Engineering Council of South Africa, holds a Mine Manager's Certificate of Competency (Metalliferous) and is a Fellow of the SAIMM. Mr Wertz is a mining engineer with more than 30 years' experience in the mining industry, specialising in mine design, engineering studies and due diligence reviews of underground mines. He has undertaken numerous studies of PGM projects in Southern Africa during the past 10 years.

The Mineral Resource estimates in this CPR are reproduced from the Earthlab Mineral Resource estimate report, which is included in full in Appendix B. The JORC statement by the CP for the Mineral Resource estimate, Mr D du Plessis, forms part of that report.

The CP who assumes responsibility for the tenure and economic analysis (including the market overview and price forecasts, and capital and operating cost estimates), is Mr. Andrew McDonald, a Principal Engineer with SRK holding a MSc degree in Geophysics (cum laude) from the University of the Witwatersrand and a MBL from UNISA. He is a registered Chartered Engineer (Reg. No. 334897) through the Institution of Materials, Minerals and Mining (IMMM) in London and is a Fellow of the Southern African Institute of Mining and Metallurgy (SAIMM). He has more than 20 years of experience in the fields of feasibility studies, due-diligence audits, financial evaluation and regulatory reporting for PGM projects in Africa and other international locations. He has undertaken numerous mineral asset valuations since 2000.

The following individuals provided input to this CPR:

- Ali Rudaki, PrEng, Principal Mining Engineer — Mining, mine design;
- Andy Robertshaw, PrEng, Principal Geotechnical Engineer — Tailings Storage Facilities;
- Carrie Zermatten, PrSciNat, Senior Geologist — Risk Assessment;
- Chris Smythe, CertEng, Principal Mechanical Engineer — Infrastructure, Capital Cost;
- Darryll Kilian, EAPSA, Principal Consultant — Environmental;
- Des Mossop, Principal Geotechnical Consultant — Rock Engineering;
- Ismail Mahomed, PrSciNat, Principal Hydrogeologist — Ground Water Matters;
- Joseph Mainama Pr Eng, Principal Mining Engineer — Peer and Partner Review;
- Kenneth Mahuma, PrTechEng, Principal Electrical Engineer — Electrical Infrastructure;
- Mark Wanless, PrSciNat, FGSSA, Principal Geologist — Geology, Mineral Resources
- Michael Valenta, PrEng, Associate Principal Metallurgist — Metallurgy, Mineral Processing;
- Peter Shepherd, PrSciNat, Principal Hydrologist — Surface Water Management;
- Vassie Maharaj, Principal Consultant — Social Aspects.

1.5.2 Independence

Neither SRK nor any of its employees or associates employed in compiling this CPR for the Project, nor any directors of SRK, have at the date of this report, nor have had within the previous two years, any shareholding in the Company, Sylvania's subsidiary companies, the Project, Sylvania's other PGM assets, any of the Company's Advisors, or any other pecuniary, economic or beneficial interest, or the right to subscribe for such interest, whether direct or indirect, in the Company, Sylvania's subsidiary companies, the Project, Sylvania's other PGM assets, any of the Company's advisors or the outcome of the work.

Consequently, SRK and the CPs consider themselves to be independent of the Company, its directors, senior management, and Advisors.

1.5.3 Consent

The CPs have given, and have not withdrawn, their written consent for the filing by Sylvania of this CPR report on its website in support of Sylvania's continuous disclosure obligations under applicable LSE securities laws.

1.6 Effective Date

The effective date of the CPR is deemed to be 30 April 2024, to coincide with the dates of most of the price decks use in the economic analysis.

The life-of-mine (LoM) plan and associated technical and economic parameters (TEPs) included in the TEM commence in Year 0, which is assumed to be January 2024 for evaluation purposes.

1.7 Forward Looking Statements

This report contains statements of a forward-looking nature which are subject to a number of known and unknown risks, uncertainties and other factors that may cause the results to differ materially from those anticipated in this CPR.

It should be noted that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

This CPR reflects various technical and economic conditions prevailing at the time of writing. These conditions can change significantly over relatively short periods of time and as such the information and opinions contained in this report may be subject to change. Should these change materially, the results of the CPR could be materially different in these changed circumstances.

The achievability of the production schedule and economic analysis set out in this CPR are neither warranted nor guaranteed by SRK. The life-of-mine (LoM) mine plan and production schedule include Inferred Mineral Resources which are too speculative geologically to enable them to be converted to Mineral Reserves. The techno-economic parameters have been compiled at a scoping level of confidence.

The production schedule and financial projections cannot be assured as they are necessarily based on economic assumptions, many of which are beyond the control of Sylvania or SRK. Future cash flows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable. There is no certainty that the economic assessment presented in this CPR will be realised.

This CPR includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider them to be material.

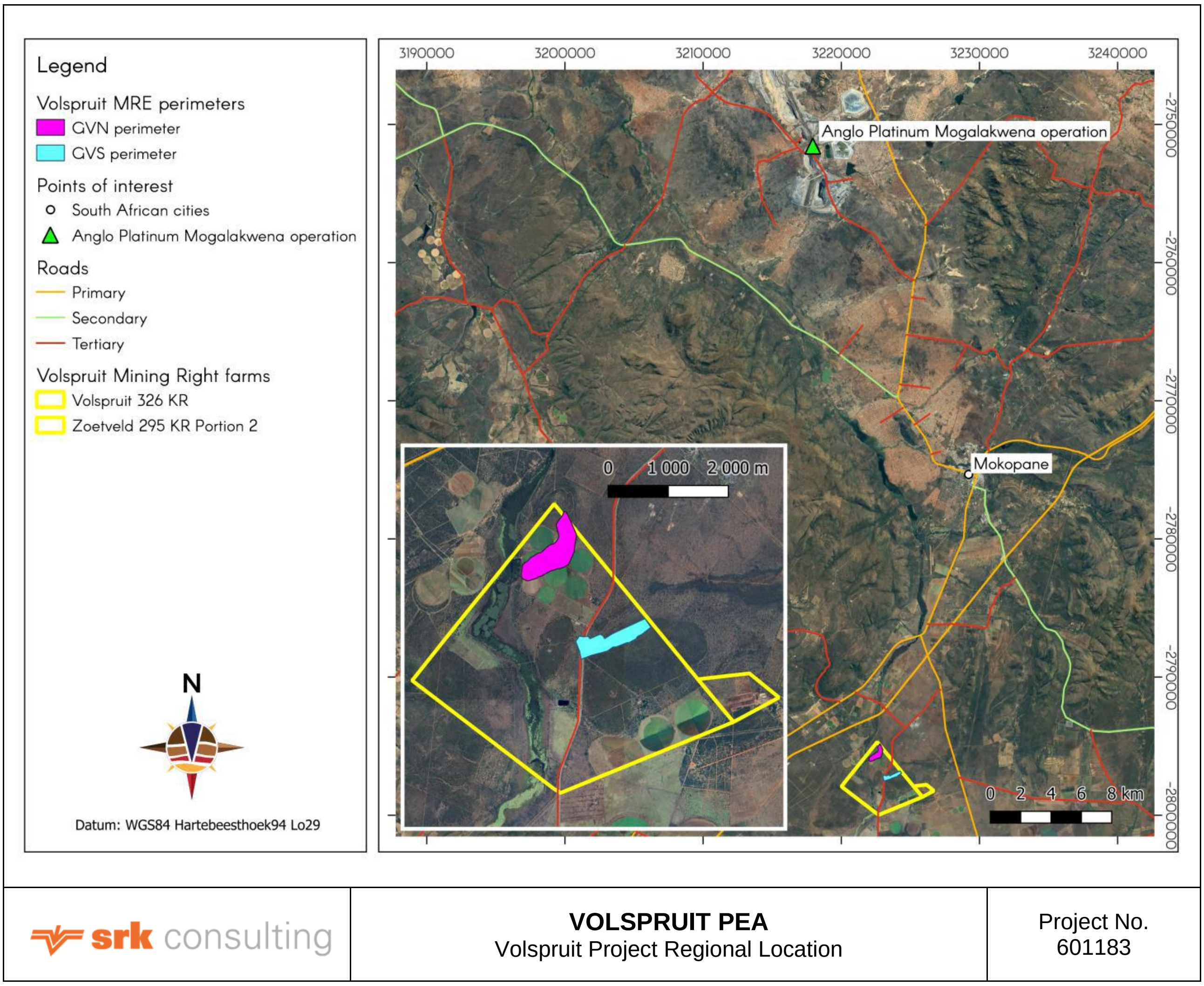
2 Description of Asset and Location

The Volspruit Project (the Project) is located on the farm Volspruit 326 KR and portion 2 of Zoetveld 294KR in the Mogalakwena district municipality, Limpopo Province, South Africa. It is situated, approximately 16 km south of the town of Mokopane, just to the east of the N1 national route (see Figure 2-1 and Figure 2-2).

srk consulting	**VOLSPRUIT PEA** Locality Map of Project with respect to South Africa	Project No. 601183

Source: Earthlab, Volspruit North MRE Technical Report, 20 September 2023

Figure 2-1: Locality Map of Project with respect to South Africa



Source: Earthlab, Volspruit North MRE Technical Report, 20 September 2023

Figure 2-2: Volspruit Project Regional Location

Note: "GVN" and "GVS" refer to Volspruit north and south respectively.

2.1 Adjacent Properties

Anglo Platinum's Mogalakwena mine is located 45 km to the north of the project, Figure 2-2. The style of mineralisation is not analogous to Volspruit.

The Grasvally chrome mine, located approximately 3 km to the north east of the northern orebody, was sold by Sylvania to Forward Africa Mining (Pty) Ltd. in July 2022.

2.2 Physiography, Climate, Access and Infrastructure

2.2.1 Topography and vegetation

The Project is in a relatively flat-lying area, close to the Nyl River, at an elevation of between 1 000 and 1 100 metres above mean sea level (mamsl). Two small hills are present, one to the north and one to the south.

The mine property slopes gently down from east to west. The Nyl River passes through the property flowing in a northern direction; at its closest the river and its floodplain is less than 1 km to the west.

The north pit is constrained by the Nyl River and its associated wetland. The Nyl River forms a flat-lying valley that contains marshy areas.

The ground is covered by typically sparse bushveld grass with small shrubs and Acacia-type thorn trees present. The vegetation across the region is classified as Waterberg Savannah with open tree plains on shallow hills. The mine area is situated in active cultivation farmland.

2.2.2 Climate

The climate is semi-arid with moderate winter temperatures ranging from 3°C to 25°C and warm to hot summers ranging from16°C to 36°C. Average annual rainfall is in the order of 350 mm to 400 mm, occurring mainly in summer.

2.2.3 Infrastructure

The project is situated close to major infrastructure such as national roads, railway, and overhead power lines. A national road and railway line are located on the northern side of the project area. The N11 national highway runs on the eastern side of the project area and the N1 national toll highway passes the western boundary of the project area.

Water and power are available on the site.

2.2.4 Mining History

Volspruit is a Greenfields site; no mining has taken place.

3 Regulatory Environment and Tenure

This section covers a brief overview of the South African regulatory environment within which the Company operates.

3.1 South African Regulatory Environment

The relevant South African regulatory framework is summarised below.

3.1.1 Constitution of the Republic of South Africa Act (Act 108 of 1996)

Section 24 of the *Constitution of the Republic of South Africa* *(Act 108 of 1996)* states: "everyone has the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

- Prevent pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The Constitution is the supreme law of the country, and all conduct and legislation inconsistent with its contents is unlawful and will be set aside.

3.1.2 Mineral Framework: The Minerals and Petroleum Resources Development Act

The *Mineral and Petroleum Resources Development ACT No. 28 of 2002* (MPRDA) was promulgated by the South African Parliament during July 2002 and came into effect on 1 May 2004. The MPRDA is the key legislation in governing prospecting and mining activities within South Africa. It details the requirements and processes which need to be followed and adhered to by mining companies. The Department of Minerals and Energy (DMRE) is the delegated authority to deal with all mining related applications and the designated authority to administer this act.

Under the MPRDA, new order prospecting rights (NOPRs) are initially granted for a maximum period of five years and can be renewed once upon application for a further period of up to three years. New order mining rights (NOMRs) are valid for a maximum period of 30 years and can be renewed on application for further periods, each of which may not exceed 30 years. A wide range of factors and principles, including proposals relating to black economic empowerment (BEE), social responsibility and evidence of an applicant's ability to conduct mining optimally, will be pre-requisites for the approval of such applications.

Key requirements under the MPRDA are:

- A social and labour plan (SLP) which sets out a company's commitments relating to Human Resources (HR) and socio-economic development;
- A mining work programme (MWP) which provides a summary of the mining operation;
- Proof of technical and financial competence and
- An Environmental Authorisation (EA) granted, with an approved Environmental Management Plan (EMP) in terms of *National Environmental Management Act No. 107 of 1998* (NEMA).

Holders of NOMRs could have these suspended or cancelled by the Minister of Mineral Resources and Energy if such holders are deemed to be non-compliant with the empowerment requirements of the MPRDA.

All mines are required to make financial provision for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts. Environmental liability provisioning in the South African mining industry is a requirement of the NEMA and must be agreed with the relevant regulatory authorities (mainly DMRE and the Department of Water and Sanitation (DWS). In general, the financial provision can be made up through one or more of an insurance policy, a bank guarantee or trust fund, based on the estimated environmental rehabilitation cost should the mine have to close immediately. The South African Revenue Service (SARS) approves contributions into a trust fund as a tax benefit. Guarantees may be required for the shortfall between the amount available in trust funds and the total estimated closure liability.

3.1.3 Mineral Framework: The Mining Charter

Mining Right holders were initially required to comply with the Original Mining Charter for effecting entry of HDSAs into the mining industry. Among other things, the Original Mining Charter required:

- Each mining company to achieve a 15% HDSA ownership of mining assets within five years of the Mining Charter coming into effect and a 26% HDSA ownership of mining assets within ten years of the Mining Charter coming into effect;
- The mining industry as a whole to agree to assist HDSA companies in securing finance to fund participation in an amount of R100 billion over the first five years; and
- Mining companies to spell out plans for achieving employment equity at management level with a view to achieving a baseline of 40% HDSA participation in management and 10% participation by women in the mining industry, in each case within five years.

Following a review, the DMRE released the 2010 Mining Charter. The requirement under the 2010 Mining Charter for mining entities to achieve a 26% HDSA ownership of mining assets by the year 2014 was retained. The 2010 Mining Charter included the requirements, inter alia, that mining companies:

- Facilitate local beneficiation of mineral commodities;
- Procure a minimum of 40% of capital goods, 70% of services and 50% of consumer goods from HDSA suppliers (i.e. suppliers in which a minimum of 25% + 1 vote of their share capital must be owned by HDSAs) by 2014 (exclusive of non-discretionary procurement expenditure);
- Ensure that multinational suppliers of capital goods contribute a minimum of 0.5% of their annual income generated from South African mining companies into a social development fund from 2010 towards the socio-economic development of South African communities;
- Achieve a minimum of 40% HDSA demographic representation by 2014 at executive management (board) level, senior management (executive committee) level, core and critical skills, middle management level and junior management level;
- Invest up to 5% of annual payroll in essential skills development activities; and
- Implement measures to improve the standards of housing and living conditions for mineworkers by converting or upgrading mineworkers' hostels into family units, attaining an occupancy rate of one person per room and facilitating home ownership options for all mineworkers in consultation with organised labour, all of which must be achieved by 2014.

In addition, mining companies were required to monitor and evaluate their compliance with the 2010 Mining Charter and must submit annual compliance reports to the DMRE. The Scorecard for the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry, attached to the 2010 Mining Charter, made provision for a phased-in approach for compliance with the above targets over the period ending in 2014. For measurement purposes, the Scorecard allocated various weightings to the different elements of the 2010 Mining Charter.

On 27 September 2018, the 2018 Mining Charter came into effect. The content of the 2018 Mining Charter is similar to the 2010 Mining Charter in terms of targets and requirements in relation to ownership, procurement and employment equity. Importantly, the 2018 Mining Charter has given recognition, although to a limited extent, to the concept of “once-empowered always-empowered” by providing that an existing Mining Right holder who has achieved a minimum of 26% HDSA shareholding shall be recognised as compliant for the duration of the Mining Right. However, this does not apply to renewals and to transfers of such a right. For renewals and transfers, the new requirements for new Mining Rights have to be satisfied, namely that there must be a minimum of 30% HDSA shareholding distributed as to a 5% non-transferrable carried interest to qualifying employees, a 5% to non-transferrable carried interest to host communities and a 20% effective ownership for a HDSA entrepreneur. Disposals of HDSA shareholding after 27 September 2018 will be subject to certain restrictions set out in paragraph 2.1.6 of the 2018 Mining Charter in order for the Mining Right holder to maintain its empowerment credentials.

There are certain procurement targets set out in the 2018 Mining Charter such that in relation to mining goods a minimum of 70% of mining goods procurement spend (excluding non-discretionary spend) must be on South African manufactured goods, with a percentage allocation to 21% to be spent on South African manufactured goods produced by an HDSA, 5% on manufactured goods produced by women or youth owned and controlled companies and 44% to be spent on South African manufactured goods produced by a HDSA compliant company.

In relation to services, 80% of the total spend on services must be sourced from South African based companies. The 80% of the total spend on services must be allocated in the following percentages; 50%, must be spent on services supplied by HDSAs and controlled companies, 15% is to be spent on services supplied by women owned and controlled companies, 5% must be spent on services supplied by youth, and 10% must be spent on services supplied by Broad-Based Black Economic Empowerment (**B-BBEE**) compliant companies. The procurement targets must be progressively complied with, within five years from the date of the granting of the right. In relation to employment equity, a Mining Right holder must within five years, progressively implement the targets set out in the 2018 Mining Charter in relation to board composition, executive management, senior management, middle management, junior management and employees with disabilities. There are also obligations in relation to core and critical skills and career progression plans.

Furthermore, the 2018 Mining Charter deals with obligations in relation to mine community development, housing and living conditions and reporting by Mining Right holders. There is a scorecard for the Broad-Based Socio-Economic Empowerment Charter attached to the 2018 Mining Charter and for measurement purposes the scorecard allocates various weightings to the different elements of the 2018 Mining Charter.

3.1.4 Mineral and Petroleum Resources Royalty Act

The Mineral and Petroleum Resources Royalty ACT No. 28 of 2008 was enacted on 1 May 2009 (Royalty Act) and came into effect on 1 May 2010. The Royalty Act embodies a formula-derived royalty rate regime since it provides necessary relief for mines during times of difficulties (low commodity prices or marginal mines) and allows the fiscus to share in the benefits during time of higher commodity prices. As the final product can be either refined or unrefined, two separate formulae are given. Both formulae calculate the royalty rate based on a company's earnings before interest and taxes (referred to as EBIT) and its aggregate gross sales for the assessment period. While the gross sales figure used in the formulae excludes transportation and handling costs, these are considered in the determination of the EBIT figure. The mineral royalty percentage rates (Y%) are based on the following formulae:

- **Refined Minerals:** $$Y(\%) = 0.5 + \frac{EBIT}{Gross\ Sales\ x\ 12.5}\ x\ \frac{100\%}{1}$$
- **Unrefined Minerals:** $$Y(\%) = 0.5 + \frac{EBIT}{Gross\ Sales\ x\ 9.0}\ x\ \frac{100\%}{1}$$

The maximum percentage rates for refined and unrefined minerals are 5.0% and 7.0% respectively. For PGMs to qualify as refined minerals, Schedule 1 of the Royalty Act requires that the PGMs are refined and smelted to a 99.9% purity. According to Schedule 2 of the Royalty Act, PGMs in concentrate at a grade of less than 150 ppm (150 g/t) are in an unrefined state.

3.1.5 Taxes

Corporate Income Tax

The Company will be subject to income tax in South Africa according to standard corporate tax rates.

In the budget speech of 23 February 2022, the South African Minister of Finance announced that the company tax rate would be reduced to 27% in the 2023/24 tax year. At the same time, the treatment of Assessed Losses will change where only 80% of the assessed loss can be offset against taxable income in any tax year.

Carbon Tax

The Carbon Tax Act No 15 of 2019 (**CTA**) came into effect on 1 June 2019. The carbon tax is imposed on entities in the country that operate emissions generation facilities at a combined installed capacity equal to or above the carbon tax threshold.

In terms of Section 3 of the CTA, a person is liable to pay carbon tax if that person conducts an activity in South Africa resulting in Greenhouse Gas (GHG) emissions above the defined threshold. A detailed list of activities and sectors, as well as their capacity thresholds and applicable allowances are provided in Schedule 2 to the CTA. Activities carried out at the Group's operations may fall within a number of these categories.

The carbon tax is being introduced in a phased manner, with the first phase running until 31 December 2022. The CTA imposes a carbon tax of ZAR120 per tonne CO_2 equivalent, which would increase annually at a rate of inflation plus 2% until 31 December 2022, and in line with inflation thereafter. The carbon tax liability is calculated as the tax base (sum of GHG emissions from combustion, industrial processes and fugitive emissions in accordance with a reporting methodology approved by the Department of Environment, Forestry and Fisheries (**DEFF**) (previously known as Department of Environmental Affairs (**DEA**), proportionately reduced by certain tax-free allowances) multiplied by the rate of the carbon tax.

Value Added Tax

Value Added Tax (VAT) is levied at a rate of 15% on "taxable supplies", which are supplies of goods or services made by a "vendor" in the course or furtherance of an enterprise wholly or partially owned by the vendor in South Africa.

3.1.6 South African Environmental Legislation

This section covers a high-level summary of selected aspects of legislation applicable to the mining industry in South Africa and relevant to the Project.

The lead agent in implementing environmental legislation in the mining industry is the DMRE.

Key environmental legislation, which is applicable to the South African mining industry, is as follows:

- NEMA, as regulated by the DEFF. This Act overarches South African environmental legislation and lays down basic environmental principles including duty of care, polluter pays and sustainability. NEMA provides for co-operative environmental governance based on the principles that everyone has the right to an environment that is not harmful to one's health or well-being and enabling the administration and enforcement of other environmental management laws. Sections 28 (1) and (3) of NEMA set out the duty of care principle, which is applicable to all types of pollution and must consider any aspects of potential environmental degradation. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. Responsibility for the implementation of NEMA, where the activities directly relate to prospecting, extraction or primary processing of a Mineral Resource is delegated to the relevant provincial DMRE office. A series of regulations have been promulgated in terms of NEMA including:
    - *NEMA Environmental Impact Assessment Regulations, 2014*, as amended: These regulations were developed to regulate the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of listed activities, to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts. EIA Regulation Listing Notices (numbered 1, 2 and 3) identify activities that require Environmental Authorisation from a competent authority prior to commencement. Section 23C of NEMA sets out the DMRE is the competent authority for Environmental Authorisation where the activities directly relate to prospecting, extraction or primary processing of a Mineral Resource. Section 54A, introduced by the 2017 amendment, sets out that holders of EMPs and EAs approved prior to December 2014, and which are still in effect, must audit compliance and submit an environmental audit report to the relevant competent authority no later than 7 December 2019;
    - *NEMA Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015*, as amended: The purpose of these regulations is to regulate, determine and making of financial provision as contemplated in the Act for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, exploration, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. The regulations also include detailed descriptions of the wording required in the documentation to support the provisioning for liability using Bank Guarantees and Trust Funds. It also provides details on the information to be contained in the following plans: annual rehabilitation plan; final rehabilitation, decommissioning and mine closure plan; environmental risk assessment report; and care and maintenance plan;
    - *NEMA National Appeal Regulations, 2014*, as amended: these regulate the procedure contemplated in Section 43(4) of NEMA relating to the submission, processing and consideration of, a decision on an appeal on Environmental Authorisations and Waste

Management Licences. The DEFF is competent with regards to appeals made on Environmental Authorisations issued by the DMRE for prospecting, extraction or primary processing of a Mineral Resource;

- MPRDA: The MPRDA makes provision for equitable access to and sustainable development of South Africa's Mineral Resources. The MPRDA requires that the environmental management principles set out in NEMA shall apply to all mining operations and serves as a guideline for the interpretation, administration and implementation of the environmental requirements at mines. Implementation of the "One Environmental System" from 8 December 2014 removed environmental provisions from the MPRDA and replaced them with the relevant provision in the NEMA. The Minister of Mineral Resources is empowered to issue Environmental Authorisations and Waste Management Licences in terms of the NEMA, and the *National Environmental Management: Waste Act No. 59 of 2008* (NEM:WA), respectively, for mining and directly related activities. The amendment of any right, work programme, EMP or Environmental Authorisation issued in terms of NEMA is subject to consent of the Minister of Mineral Resources and Energy;
- MPRDA *Mineral and Petroleum Resources Development Regulations, 2004*: the Regulations provide guidance and interpretation, as well the 'prescribed manner' of implementing and administering many requirements of the MPRDA. Although the environmental provisions of the Regulations have not been repealed, they are of no effect as the environmental requirements of the MPRDA were replaced by NEMA;
- *National Environmental Management: Biodiversity Act (10 of 2004) (*NEM:BA*)***:** The NEM:BA seeks amongst other things, to manage and conserve biological diversity, to protect certain species and ecosystems, to ensure the sustainable use of biological resources and to promote the fair and equitable sharing of benefits arising from bio-prospecting involving those resources. The NEM:BA includes a regulation related to the management of threatened and protected species (2007). A similar regulation is applied to Threatened Ecosystems. NEM:BA has a set of norms and standards for the development of management plans for both species (e.g., Threatened or Migratory Species) and ecosystems (Endangered or Critically Endangered). Alien and Invasive Species Regulations were published in 2014 which identify categories of alien and invasive species and define restricted activities with respect to the different species categories;
- *National Environmental Management: Protected Areas Act (57 of 2003) (*NEM:PAA): Protected areas such as nature reserves and special nature reserves are declared and managed in terms of NEM:PAA. Depending on the nature of the protected area, certain activities (such as mining) may require Ministerial consent or be prohibited outright. The Act also aims to promote the sustainable use of protected areas and the participation of local communities in such areas. In addition, it provides for the continued existence of the South African National Parks;
- *National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM:AQA):* NEM:AQA regulates atmospheric pollution and repealed the Atmospheric Pollution Prevention Act. The Act came into full effect on 1 April 2010 and entrusts the DEFF with the task of preventing pollution and ecological degradation, while at the same time promoting justifiable economic and social development. The Minister is the licensing authority where the listed activity relates to a prospecting, mining, exploration or production activity as contemplated in the MPRDA. Penalties and criminal sanctions are imposed for non-compliance with NEM:AQA;
- A list of activities, which require atmospheric emission licences, and the minimum emission standards for these listed activities has been published. These include the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted into the atmosphere and the manner in which measurements of such emissions must be carried out. The consequences of the listing of these activities are that no person may, without a

provisional atmospheric emission licence or an atmospheric emission licence, conduct an activity listed on the list anywhere in the Republic or listed on the list applicable in a province anywhere in that province. It must be shown that the best practical means are being employed to limit air pollution before these licences will be issued:

- NEM:AQA *National Atmospheric Emission Reporting Regulations, 2015*: regulate the reporting of data and information from an identified point, non-point and mobile sources of atmospheric emissions to an internet-based National Atmospheric Emissions Inventory System towards the compilation of atmospheric emission inventories. Mines are listed as Group C emission sources and must provide data per the Regulations;
- NEM:AQA *National Greenhouse Gas Emission Reporting Regulations* (NGER), under Section 53(A), (o) and (p) of NEM:AQA, were instituted in 2017 (General Notice Regulation (GNR) 275 of 2017). The regulations provide a list in Annexure 1 of activities and operations that are required to report their GHG emissions through a national system. NGER classifies data providers as follows:
  - Category A: any person in control of or conducting an activity marked in the Category A column above the capacity given in the threshold column of the table in Annexure 1 to these Regulations;
  - Category B: any organ of state, research institution or academic institution, which holds GHG emission data or activity data relevant for calculating GHG emissions relating to a category identified in the table in Annexure 1 to these Regulations;
- NEM:AQA National Pollution Prevention Plans Regulations 2017: prescribe the requirements that pollution prevention plans of greenhouse gases declared as priority air pollutants need to comply with in terms of section 29(3) of the NEM:AQA. Coal mining is the only mining process currently detailed as a Production Process;

- *National Environmental Management: Waste Act* *(Act No. 59 of 2008)* (NEM:WA): NEM:WA came into effect on 1 July 2009 and seeks to encourage the prevention and minimization of waste generation, whilst promoting reuse and recycling of the waste and only consider disposal of waste as a last resort. It provides for the licensing of waste management activities. The NEM:WA was amended (with effect from 2 September 2014) to have jurisdiction over residue stockpiles and residue deposit at mines. The Minister of Mineral Resources is the licensing authority where a waste management activity is, or is directly related to prospecting, extraction, primary processing of a Mineral Resource or residue stockpiles and residue deposits. A series of regulations have been promulgated in terms of NEM:WA including:
  - NEM:WA Regulations regarding the *Planning and Management of Residue Stockpiles and Residue Deposits (2015*), as amended in 2018: These regulations were developed to regulate the planning and management of residue stockpiles and residue deposits (RSRD) from a prospecting, mining, exploration or production operation. The Regulations specify that a competent person (CP) must recommend the pollution control measures suitable for a specific RSRD based on a risk analysis;
  - NEM:WA *Waste Classification and Management Regulations (2013)*: These regulations require that waste generators ensure that the waste they generate be classified in accordance with SANS 10234 within 180 days of generation (Chapter 2, 4(2)). If the waste is to be disposed of to landfill, the waste must be assessed in accordance with the Norms and Standards for Assessment of Waste for Landfill Disposal (Chapter 2 (8)1) (a));
  - NEM:WA *National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (2014):* The purpose of these norms and standards is to: provide a uniform

national approach to determine the contamination status of an investigation area; limit uncertainties about the most appropriate criteria and method to apply in the assessment of contaminated land; and provide minimum standards for assessing necessary environmental protection measures for remediation activities;

- *National Water Act (Act 36 of 1998)* (NWA), as regulated by the Department of Water and Sanitation (DWS). Chapter 4 of the NWA stipulates that water uses (abstraction, storage, waste disposal, discharge, controlled activities, removal of underground water and alteration to watercourses) must be licensed, unless it is listed in Schedule 1, is an existing lawful use, is permissible under a general authorisation, or if a responsible authority waives the need for a licence. There are transitional arrangements to enable permits under the former 1956 Water Act to be converted into water use licences (WULs). The competency for decisions on WULs for activities directly related to prospecting, extraction, primary processing of a Mineral Resource or RSRD remains with the DWS. The NWA also has requirements relating to duty of care, pollution control, protection of water resources (Regulation 704 relates to mines), dam safety (for dams with a capacity greater than 50 000 m^3 and a dam wall higher than 5 m) and water-use tariffs:
  - NWA: *Regulations on use of Water for Mining and Related Activities aimed at the Protection of Water Resources, 1999*: The purpose of these Regulations is to regulate the use of water during mining and related activities to ensure the protection of water resources;
  - NWA *Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals, 2017*: The purpose of these Regulations is to prescribe the procedure and requirements for water use licence applications (WULAs) as contemplated in Section 41 of the NWA;
- *National Heritage Resources Act (Act 25 of 1999)* (NHRA), regulated by South African Heritage Resource Agency (SAHRA) or relevant Provincial departments, where established. This Act controls sites of archaeological or cultural significance. Such sites must be investigated and, where necessary, protected for the nation. Procedures for the relocation of graves are also given;
- *Hazardous Substances Act (Act 15 of 1973),* regulated by the Department of Health. This Act controls the declaration of hazardous substances and control of declared substances. It allows for regulations relating to the manufacturing, modification, importation, storage, transportation and disposal of any grouped hazardous substance;
- *Environmental Conservation Act (Act No. 73 of 1989)* (ECA), as regulated by DEFF and DWS. The environmental authorisation sections of the Act (Section 21) were repealed by the NEMA EIA Regulations with effect from 3 July 2006. The waste sections of this Act (Section 20) were repealed and replaced by the NEM: WA, which came into effect on 1 July 2009;
- *Mine Health and Safety Act (Act No. 29 of 1996)* and amendments (MHSA), regulated by the DMRE. This Act deals with the protection of the health and safety of persons in the mining industry but has some implications for environmental issues due to the need for environmental-health monitoring within mine operations; and
- *National Forests Act (84 of 1998)* (NFA): Enforced by DEFF, the NFA supports sustainable forest management and the restructuring of the forestry sector, as well as protection of indigenous trees in general.

The DEFF, and its provincial authorities, the DWS and DMRE departments are key stakeholders in the approvals process. The DMRE is ultimately responsible for decision making with regards

Environmental Authorisations in terms of NEMA and Waste Management Licences in terms of the NEM:WA. The DWS remains responsible for Water Use Licensing and the DEFF (or the local municipality if capacity is available) is competent for Atmospheric Emissions Licences on mines.

Under the One Environmental System each of the Ministers of Environment, Forestry and Fisheries, Water and Sanitation and Mineral Resources are empowered to designate Environmental Management Inspectors (EMI). EMIs can be designated to apply NEMA and any of the specific environmental management Acts (including the NWA, NEM:WA, NEM:AQA, etc). All these EMIs potentially have a mandate with respect to environmental matters at mines and thus the right to monitor and enforce compliance with the laws for which they have been designated. Offences are defined in each of NEMA and the specific environmental management Acts. A lack of compliance with the relevant legislation could lead to the closure of an operation, the suspension of authorisations or prosecution and ultimately the implementation of penalties (e.g. fines and imprisonment). It is generally considered more likely that the authorities would issue a directive possibly coupled with a fine. The directive indicates which legislation is being contravened and describes the time period in which the operation must comply. An operation would then be required to present a plan, including timing, to achieve compliance. Directives related to environmental issues, specifically WULs in terms of Section 21 of the NWA and authorisation in terms of NEMA, are being issued more frequently than was historically the case, and legal action is being taken against individuals, including directors, responsible for non-compliance with legislative requirements.

The National Environmental Management Laws Amendment Act No 2 of 2022 (“NEMLAA4”) was assented into law on 24 June 2022 but the majority of the provisions of NEMLAA4 only took effect and came into operation on 30 June 2023. Many of the amendments in NEMLAA4 have been made to address a wide range of issues that were associated with the One Environmental System that was implemented in 2014, which overhauled the manner in which environmental aspects are addressed, including at mines. The amendments will affect the following pieces of legislation: NEMA, NEM:AQA, NEM:WA, NEM:PAA, NEM:BA and the National Environmental Management: Integrated Coastal Management Act, 2008 and the National Environmental Management Amendment Act, 2008. The changes in NEMLAA4 aim to deter non-compliance with environmental laws by, among other things, introducing new offences, increasing the quantum of fines and administrative penalties where laws or licences have been contravened, and will extend enforcement powers to enable more widespread enforcement of environmental laws.

3.2 Black Economic Empowerment

The Sylvania Annual Report for 2023 published on its website shows that Sylvania holds a 74% interest in the Volspruit Mining Company (Pty) Ltd, with the remaining 26% held by Black Economic Empowerment (BEE) participants.

At the Project level, Volspruit Mining Company complies with the BEE participation requirements of the MPRDA and Mining Charter.

3.3 Title and Rights

3.3.1 Mining Rights

Details of the new order mining right (NOMR) issued to the Volspruit Mining Company (Pty) Ltd are set out in Table 3-1 and shown in Figure 3-1. Sylvania holds an indirect 74% interest via its subsidiary companies in the Volspruit Mining Company, with the remaining 26% held by Iolite Trading 16 (Pty) Ltd, the BEE participants.

Grasvally Chrome Mine (Pty) Ltd was sold by Sylvania with the condition precedent that the PGM and associated minerals relating to the Volspruit Pyroxenite stratigraphy and the Grasvally-Norite-Pyroxenite-Anorthosite stratigraphy be transferred to Volspruit Mining Company. An agreement between Grasvally Chrome and Volspruit Mining sets out the basis for the abandonment by Grasvally Chrome of the PGM and associated minerals and the transfer to Volspruit Mining.

Sylvania cannot confirm if the “associated minerals” include the base minerals of Cu and Ni. The contribution of the Cu and Ni from Zoetveld is therefore excluded for evaluation purposes.

An amended MWP for Volspruit Mining Company in terms of Section 102 of the MPRDA read in conjunction with Section 11 of the MPRDA was submitted to the DMRE in December 2023 and again in June 2024 (see Table 3-1). The extent of the affected mineral rights is shown in Figure 3-2.

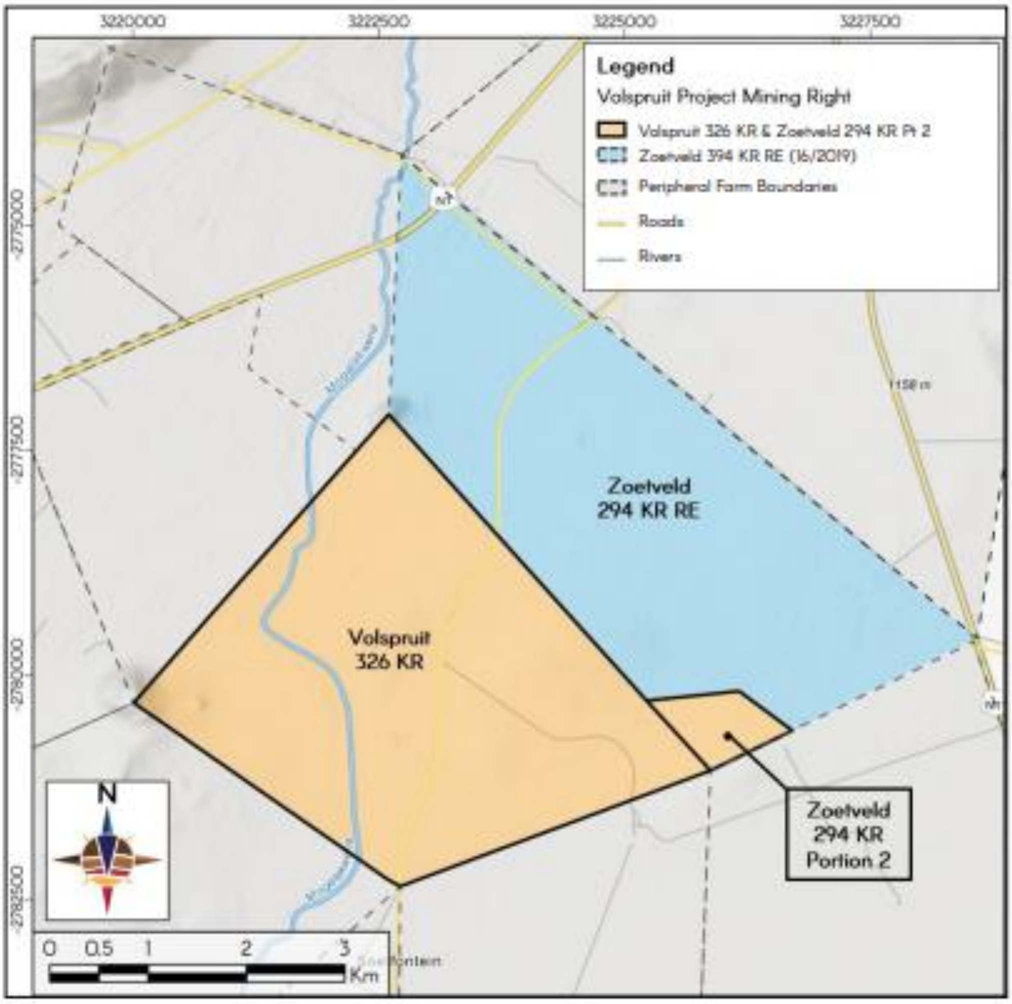
The current EIA and WUL amendment and application submitted by Sylvania covers the Section 102 amendment as well.

Table 3-1: Details of Mining Right

Asset	Holder	Interest (%)	Minerals Included in NOMR	Status	Licence Expiry Date	Licence area (ha)
New Order Mining Right (NOMR) LP30/5/2//2/1/10068MR Volspruit Project: Volspruit 326KR and Ptn 2 of Zoetveld 294KR Mogalakwena District	Volspruit Mining Company (Pty) Ltd	100%	PGMs Au, Ni, Cr Section 102 Amendment – Cu added	Exploration	03/10/2047	1 335.2770
<u>Section 102 & 11 Application</u> Incorporate RE and Ptns 4, 5, 18 of the farm Grasvally 293KR and the RE and Ptn 1 of the farm Zoetveld 294KR into the Volspruit NOMR	Grasvally Chrome Mine (Pty) Ltd – transfer to Volspruit Mining Company	100%	PGMs and associated minerals (excludes Cr and rock aggregate)	Pending	Pending	2 403.1592

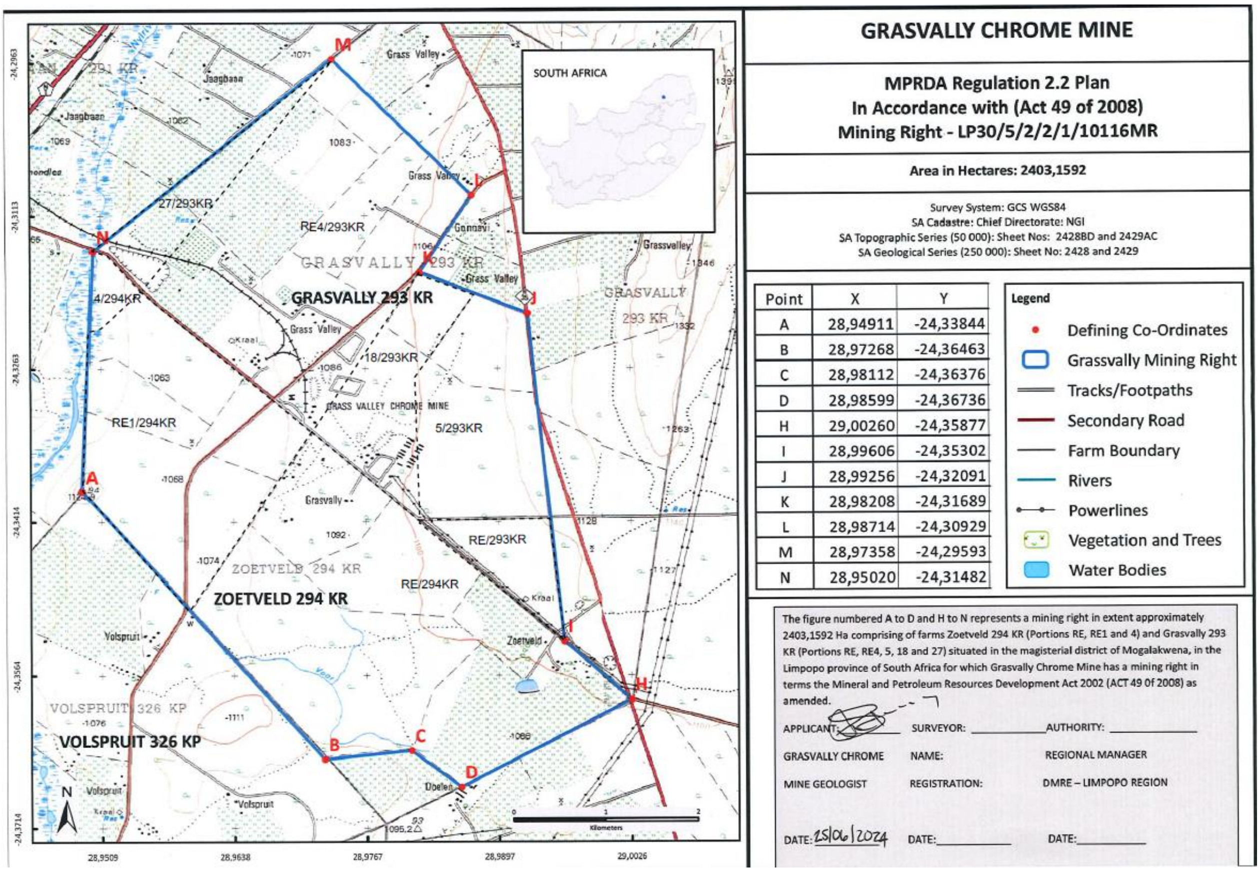
Notes: Ptn Portion; RE Remaining Extent

SRK has reviewed a copy of the NOMR awarded to Volspruit Mining Company and is satisfied that the extent of the property described in the NOMR is consistent with the maps and diagrams received from Sylvania. SRK has reviewed documentation provided by the Company related to the Grasvally Chrome NOMR and the transfer of PGM and associated minerals rights to Volspruit Mining Company and is satisfied that the maps and diagrams are consistent. Nevertheless, this does not constitute a legal due diligence review, and SRK does not make any claim nor state any opinion as to the validity, legality or status of the mineral rights held or purported to be held by the Volspruit Mining Company.



srk consulting	**VOLSPRUIT PEA** Volspruit Project Mineral Rights Holdings (source: Earthlab Statement of Exploration Results, 2022)	Project No. 601183

Figure 3-1: Volspruit Project Mineral Rights Holdings



srk consulting

VOLSPRUIT PEA
Volspruit Project - Mineral Rights on Zoetveld and Grasvally
(source: 240624 Regulation 2.2 Map, Sylvania (2024))

Project No.
601183

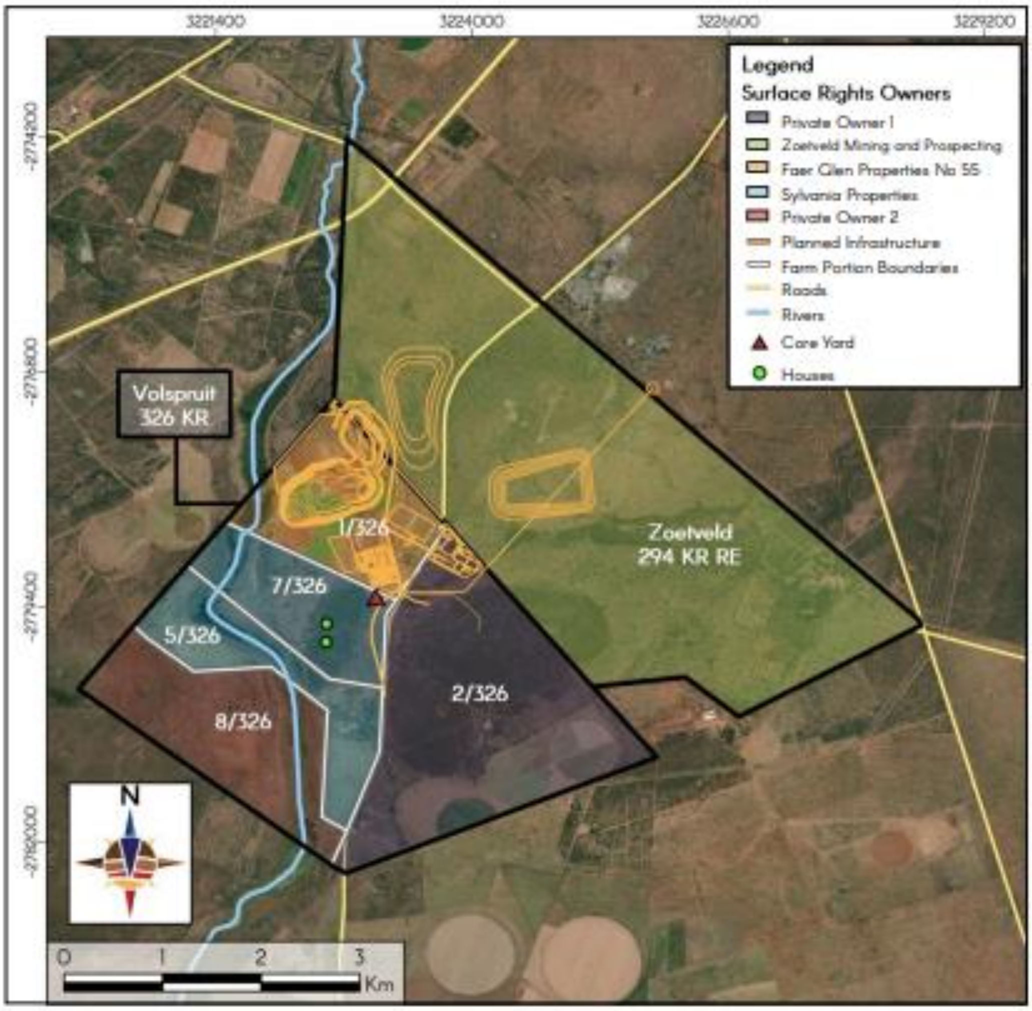
Figure 3-2: Volspruit Project - Mineral Rights on Zoetveld and Grasvally

3.3.2 Surface Rights

Sylvania Properties (Pty) Ltd owns Portion 5 (a Portion of Portion 4) and Portion 7 of the farm Volspruit 326KR. These are marked as 5/236 and 7/236 respectively in Figure 3-3. Sylvania through its subsidiary companies holds an 100% indirect interest in Sylvania Properties.

Zoetveld Properties (Pty) Ltd (previously called Zoetveld Mining and Exploration (Pty) Ltd) owns the Remaining Extent and Portions 4, 5 and 18 of the farm Grasvally 293KR, as well as Remaining Extent and Portion 1 of the farm Zoetveld 294KR. Sylvania through its subsidiary companies holds an 100% indirect interest in Zoetveld Properties (Figure 3-2 and Figure 3-3).

Per the contract between Grasvally and Volspruit Mining (cf section 3.1.1), certain surface rights are to be excluded from the Grasvally NOMR, as shown in Figure 3-4. Sylvania advised that it is the process of subdividing Zoetveld 294 to reflect the property portions shown.



srk consulting	**VOLSPRUIT PEA** Volspruit Project Surface Rights Holdings (source: Earthlab Statement of Exploration Results, 2022)	Project No. 601183

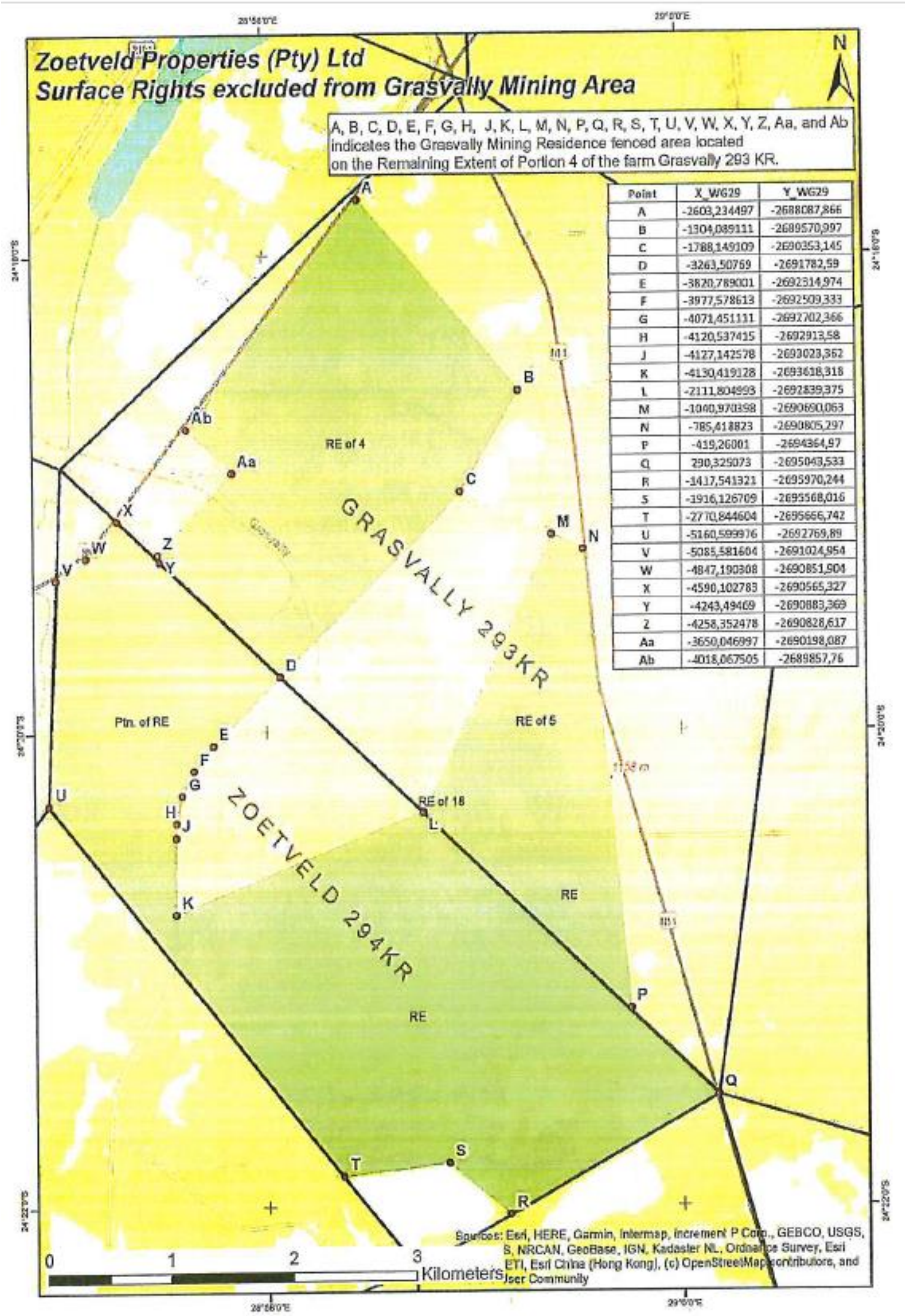
Figure 3-3: Volspruit Project Surface Rights Holdings

3.3.3 Sufficiency of Rights

Sylvania has confirmed that it does not own the surface rights to Portions 1 and 2 (respectively 1/236 and 2/236 in Figure 3-3). Sylvania advised that the surface rights owners are aware there is an active NOMR over their properties and that Sylvania will buy the rights once all permits are in place. Formal negotiations with either party have not yet started,

3.3.4 Legal Claims and Proceedings

Sylvania advised SRK that there are no legal claims or proceedings that will affect its ability to undertake further exploration, engineering studies, development or mining operations at the Volspruit Project.



Point	X_WG29	Y_WG29
A	-2603,234497	-2688087,866
B	-1304,089111	-2689570,997
C	-1788,149109	-2690353,145
D	-3263,50769	-2691782,59
E	-3820,789001	-2692314,974
F	-3977,578613	-2692509,333
G	-4071,451111	-2692702,366
H	-4120,537415	-2692913,58
J	-4127,142578	-2693023,362
K	-4130,419128	-2693618,318
L	-2111,804993	-2692839,375
M	-1040,970398	-2690690,063
N	-785,418823	-2690805,297
P	-419,26001	-2694364,97
Q	290,325073	-2695043,533
R	-1417,541321	-2695970,244
S	-1916,126709	-2695568,016
T	-2770,844604	-2695666,742
U	-5160,599976	-2692769,89
V	-5085,581604	-2691024,954
W	-4847,190308	-2690851,904
X	-4590,102783	-2690565,327
Y	-4243,49469	-2690883,369
Z	-4258,352478	-2690828,617
Aa	-3650,046997	-2690198,087
Ab	-4018,067505	-2689857,76

srk consulting	**VOLSPRUIT PEA** Volspruit Project – surface rights excluded from Grasvally NOMR (source: Sylvania, 2024)	Project No. 601183

Figure 3-4: Volspruit Project - surface rights excluded from Grasvally NOMR

4 Geological Setting, Deposit and Mineralisation

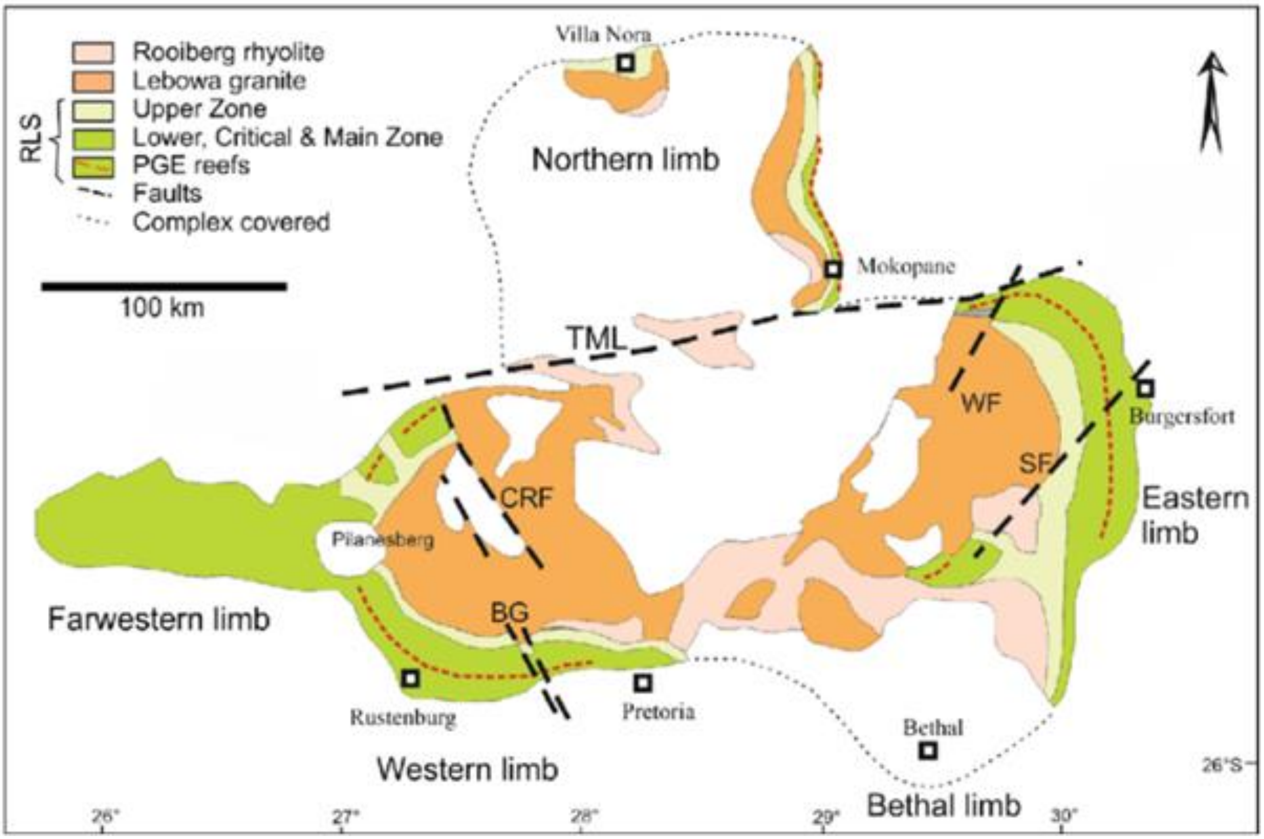
This section has been compiled by the Company, with additional detail and descriptions available in the Earthlab reports in Appendix B.

4.1 Regional Geology

The Palaeoproterozoic Bushveld Complex is the world's largest layered igneous intrusion and comprises the Lebowa Granite Suite, Rashoop Granophyre Suite, Rustenburg Layered Suite and the Rooiberg Group Volcanics (Kinnaird). Although lateral continuity of layering is observed across parts of the complex, the emplacement and evolution of this large intrusive body is still not fully understood (Cawthorn, 2015).

The Rustenburg Layered Suite (RLS) is economically the most important with significant global platinum group element (PGE), chromium and vanadium resources being hosted in this layered mafic complex (Kinnaird). The RLS is further subdivided into five zones, from the base upwards, the Marginal, Lower, Critical, Main and Upper Zones, and can be up to 9 km thick in places.

Large portions of the complex outcrop in the Eastern, Western, Far Western and Northern limbs, while the less known Bethal (southeastern) limb is largely obscured by cover (Figure 4-1). The Northern Limb has been separated from the rest of the complex by the Thabazimbi-Murchison Lineament (Kinnaird).



srk consulting	**VOLSPRUIT PEA** Geological map of the Bushveld Complex (modified from Maier et al., 2013)	Project No. 601183

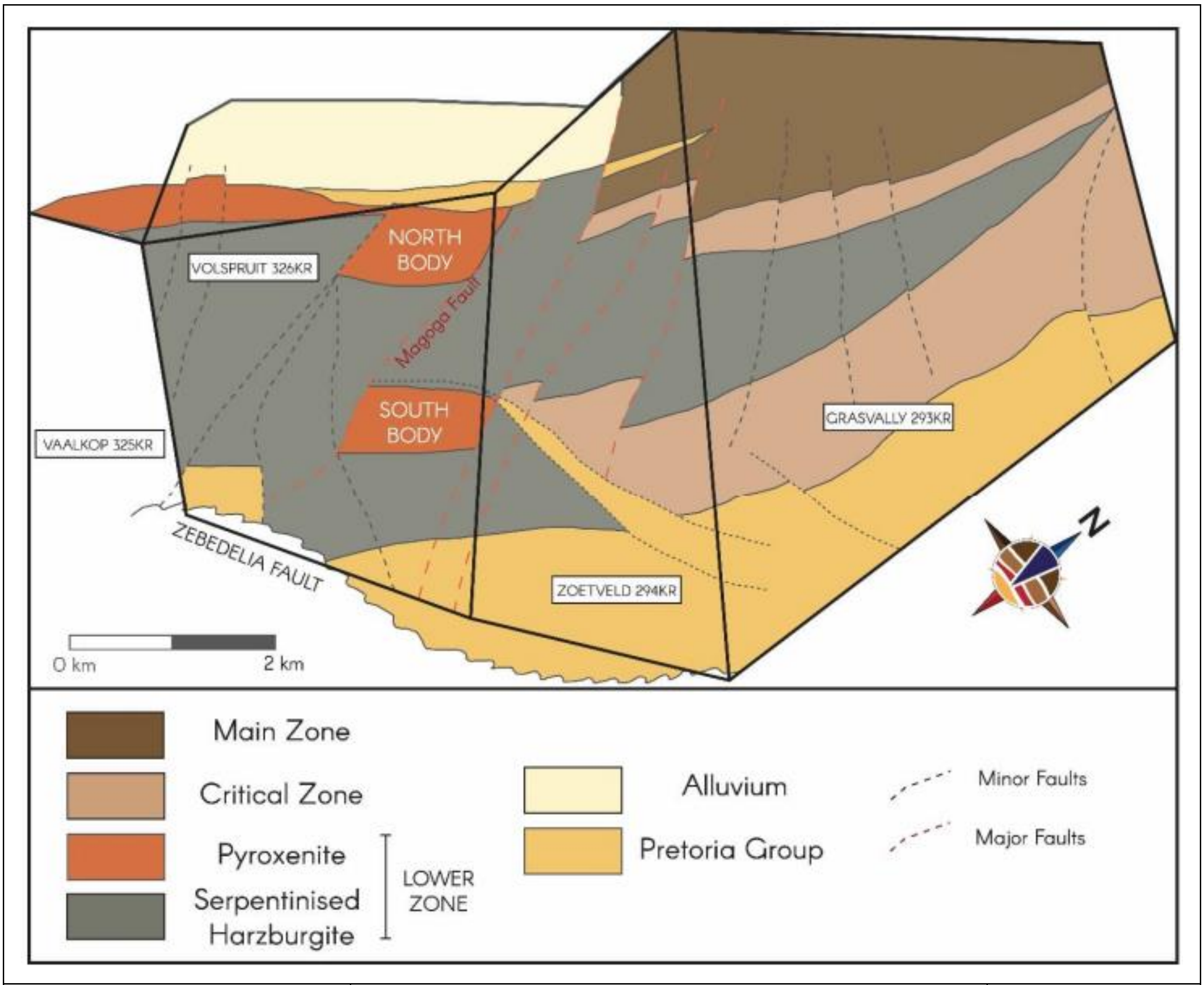
Figure 4-1: Geological map of the Bushveld Complex (modified from Maier et al., 2013)

Notes: TML Thabazimbi Murchison Lineament, BG Brits Graben
CRF Crocodile River Fault, WF Wonderkop Fault, ST Steelpoort Fault

4.2 Local Geology

The Volspruit Project is located within the southern portion of the Northern Limb just south of Mokopane and was described by Hulbert in 1983 (Hulbert, 1983). A summary of Hulbert's interpretation of the local geology is given below as outlined in Earthlab's 2024 Mineral Resource Estimate Report (Earthlab, 2024).

Hulbert based his geological interpretation of the structurally complex area on available borehole data as outcrop is very limited (Figure 4-2). Geophysical surveys completed in 2001 and 2002 correlate well with his initial interpretations.



srk consulting	**VOLSPRUIT PEA** Volspruit local geology as interpreted by Hulbert (Earthlab 2024)	Project No. 601183

Figure 4-2: Volspruit local geology as interpreted by Hulbert (Earthlab 2024)

The region, which is dominated by horst and graben structures, has undergone at least four deformational events, summarised below:

- An initial episode of north-south trending reverse faulting (age unknown). This event resulted in a Lower Zone block being displaced by approximately 800 m upwards through a set of imbricate faults into the Critical Zone. This fault system was later intruded by a granitic dyke swarm which may represent the formation of the Lebowa Granite Suite;

- The exposure of the Lower Zone Blocks within the Zoetveld, Volspruit and Vaalkop farms through WNW-ESE reverse faulting. This event resulted in a step-like displacement of the RLS towards the west. The age of this event is unknown;
- NE-SW striking faults resulting in slices of the Pretoria Group quartzites being thrust into the RLS. The age of these faults is believed to be post-Waterberg; and
- The final faulting event is estimated to have occurred post-Karoo resulting in Karoo basalts being brought into contact with the Lower Zone lithologies along the TML.

Locally, the stratigraphy of the Lower Zone has been sub-divided into three main groups, the Volspruit Pyroxenite, the Drummondlea Harzburgite Chromitite, and the Moordrift Harzburgite Pyroxenite, from the base upwards, with PGE-Cu-Ni mineralisation being hosted by the Volspruit Pyroxenite (Figure 4-3). This mineralised pyroxenite is observed in two separate bodies within the project area, the North and South bodies, which are separated by the Magoga Fault.

The Lower Zone stratigraphy comprises approximately 37 cyclic units, numbered from the base upwards. The Volspruit Reef (VR) sits within the upper portion of Cyclic unit 11, consisting predominantly of orthopyroxenite and varying proportions of olivine, chrome and minor plagioclase. Although sulphide mineralisation occurs within the units surrounding the Volspruit Reef, no grade has been reported for these units.

To better define the mineralised zones within the VR, Earthlab established a modified naming convention to assist with capturing a higher level of detail. The sub-units VR1, VR2 and VR3 were observed as being the most consistently developed mineralised units and subsequently utilised to redefine the Mineral Resource.

Mineralisation observed within the units is typically disseminated to net-textured with no marker lithological units being present to assist in defining reef contacts. Sulphide minerals present, in order of abundance, are pyrrhotite, pentlandite, chalcopyrite and cubanite.

Further detail on regional and local geology can be found in the Mineral Resource Technical Reports included in Appendix B.

4.3 Exploration History

Volspruit has had a long history of exploration with prospecting permits being held by various companies since the 1950s. A summary of work completed is given below and has been extracted from Earthlab's Mineral Resource Statement (2024):

- 1950 – 60: African Metals Corporation (Amcor) drilled 27 diamond holes (739 m). Anglo American drilled 13 boreholes (950 m). No data related to either campaign has been recovered;
- 1970 - 80: Rio Tinto Zinc completed soil geochemistry and drilled 66 boreholes. Resources for both the North and South were defined:
  - North – 7 Mt at a grade of 1.99 g/t 2E, 0.15% Ni and 0.06% Cu (based on 24 boreholes);
  - South – 39 Mt at a grade of 1.15 g/t 2E, 0.17% Ni and 0.05% Cu (based on 42 boreholes);
- 1988: Further soil geochemistry and drilling completed by Genmin resulting in updated resources:
  - North – 12.7 Mt at a grade of 2.25 g/t 2E and 0.19% Ni (39 additional boreholes);
  - South – 24 Mt at a grade of 1.33 g/t 2E (10 additional boreholes);
- 1992: Genmin complete ground water and pit optimization studies for the North;
- 2001 - 2012: Pan Palladium (PPD) drilled a further 151 boreholes and completed a number of studies covering the geotechnical, geophysical, metallurgical, hydrogeological, biodiversity and flood modelling with several consultants. During this time various smelter and concentrator options were considered along with a lower cut-off grade being applied. Mineral Resources for

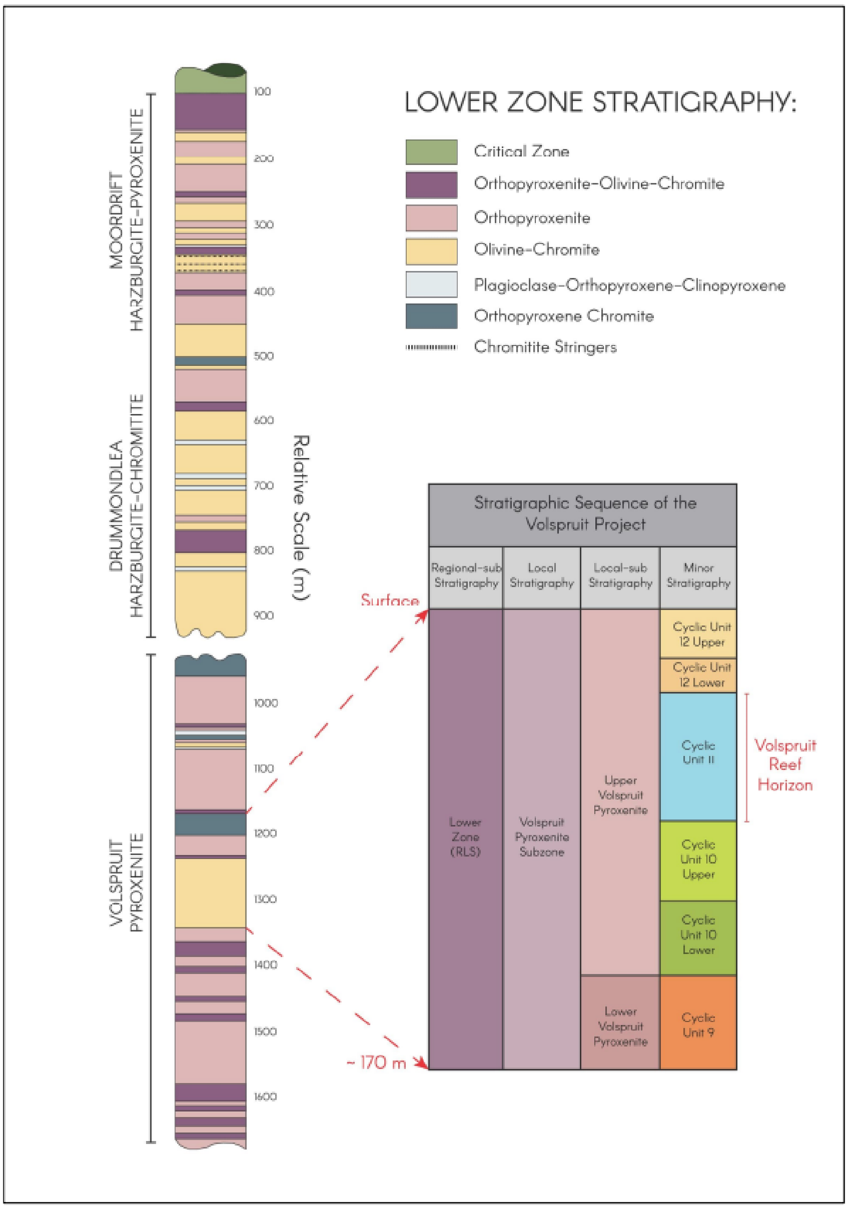
both the North and South were declared in 2012 (including a 10% geological loss factor) as follows:

- North – 44.8Mt at 1.22g/t 2E+Au, 0.14% Ni and 0.04% Cu;
- South – 29.3Mt at 1.29g/t 2E+Au, 0.18% Ni and 0.05% Cu.

PPD was acquired by Sylvania Platinum; and

- 2017: A mining right was granted for the project.

For further details on this historical work, the reader is referred to the Earthab Mineral Resource Technical Reports included in Appendix B.



srk consulting	**VOLSPRUIT PEA** Lower Zone stratigraphy for the Volspruit area as defined by Hulbert (Earthlab 2024)	Project No. 601183

Figure 4-3: Lower Zone stratigraphy for the Volspruit area as defined by Hulbert (Earthlab 2024)

4.4 Recent Exploration

Earthlab Technical Division was appointed by Sylvania in 2021 to carry out a Scoping Study on Volspruit. In 2022 positive results from this study were released based on an updated MRE statement signed off earlier in the same year.

In the next phase of work conducted by Earthlab all core from the North and South was relogged to assess if a narrower mineralised zone could be identified to improve the overall grade of the deposit.

Along with the reef reinterpretation, ten metallurgical boreholes totalling 701.80 m were drilled in the North to allow fresh samples to be collected for processing test work (approx. 655 kg). The NiS method was utilised for Pt, Pd, Rh, Ru, Ir and Au analysis. 288 samples from the metallurgical boreholes as well as 203 samples from selected historic core from the South were analysed by SGS Laboratories in Rustenburg. Historically only Pt, Pd and Au had been determined and previous metallurgical test work had indicated that Rh may add further value to the overall resource.

The new Rh and Ru information was utilised to regress values into the remainder of the borehole database for both the North and the South once a correlation between the various elements had been proven (please refer to the Metallurgical Drilling and Relogging report for further details on this work for the North and the Volspruit South MRE Technical Report for the South). Ir values returned from the sampling were largely below the lower detection limits and as such were not included in the updated MRE statement.

Earthlab declared updated MREs in February 2024 (Included in Appendix B) which included Mineral Resources from both the North and the South and estimates on 4E grades.

5 Mineral Resources and Estimation

5.1 Introduction

The Mineral Resources which form the basis of this study were estimated and compiled by Earthlab. SRK reviewed the Earthlab estimates and generally considers the Earthlab approach to be technically sound. This section gives a summary of the Earthlab technical work, with a focus on areas where SRK considers additional context is required. The reader is referred to the Earthlab reports in Appendix B for the full disclosure. The Earthlab reports are included in full in the Appendix B and comprise individual documents for Volspruit North and South, and also include additional Earthlab reports which are referenced in the Earthlab Mineral Resource estimate documents.

Earthlab's approach to both deposits is materially similar, and SRK and this summary will describe the common approach and identify where the methods or parameters differ.

The Competent Person (CP) taking responsibility for the Mineral Resource estimates is Mr Deon du Plessis from Earthlab. Mr du Plessis is a Professional Natural Scientist registered with the South African Council for Natural Scientific Professionals (SACNASP) with a membership number of 400050/05, and a Fellow of the Geological Society of South Africa with a membership number of 963338. Mr du Plessis is independent of Sylvania. His JORC statement is included in the Earthlab Mineral Resource estimate report in Appendix B.

5.2 Database

The data informing the estimates is based on historical data from previous operators, and new data generated under Sylvania which primary includes re-logging and verification results and includes a combination of:

- Exploration geophysics (Aeromagnetic and radiometric surveys);
- Soil geochemical sampling; and
- Surface drilling (diamond core and reverse circulation).

The historical data was stored in a Microsoft Access database, and Earthlab converted this into a relational database (Sable) and undertook data validation and cleaning of the historical data prior to using the data. Some of the work completed by Earthlab included detailed re-logging of the core, and reinterpretation of the detailed stratigraphy, replacing the original interpretation.

Earthlab did not confirm drill hole locations in the field but did compare the collar positions of the holes with the topography supplied to them. No adjustments were made to the collar locations as the differences between the positions for the holes containing potentially economic mineralization were typically less than 1 m. Earthlab analysed the historical analytical quality assurance and quality control (QAQC) results from the previous operators as contained in the original database. It was not possible to relate the data to specific batches or times series. Earthlab's assessment of the QAQC results indicates that in their opinion, the data demonstrate an acceptable accuracy and precision for the Pt, Pd, Au, Cu and Ni. The QAQC demonstrated accuracy and precision were considered by Earthlab in the Mineral Resource classification.

5.3 Geological modelling

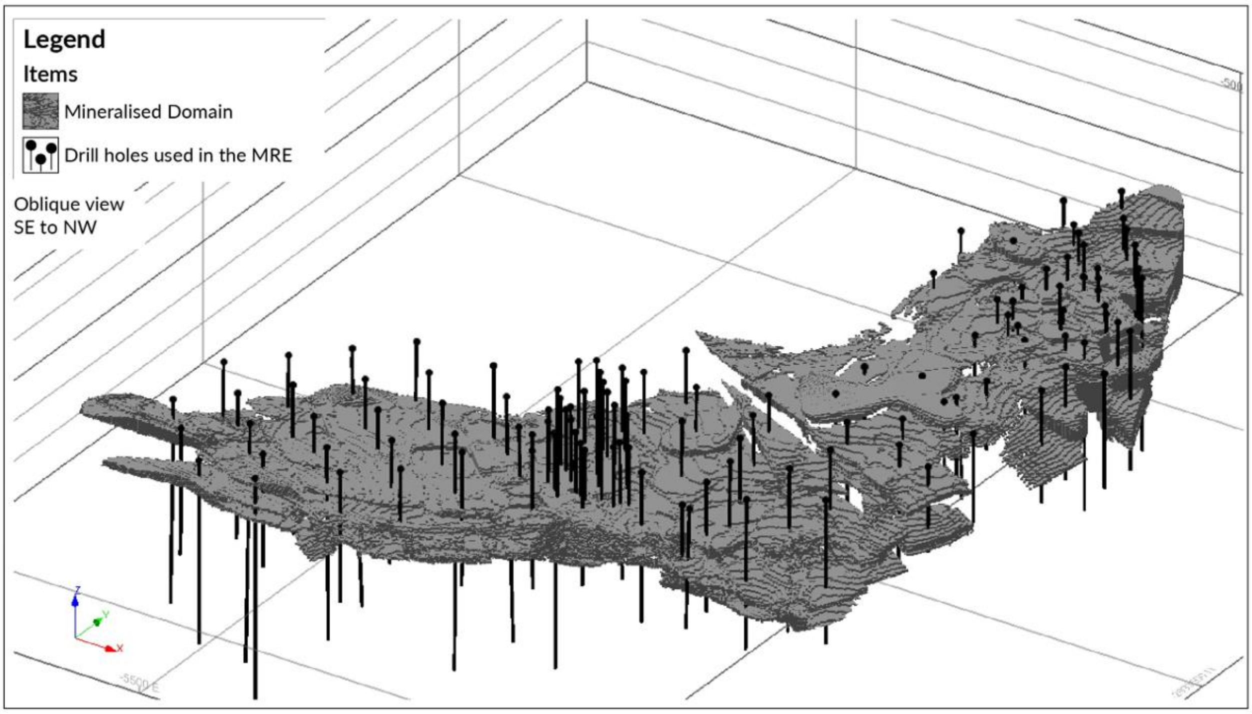
As noted in section 4, the VR is confined to Cyclic Unit 11 which Earthlab has been readily able to identify within the core based on the re-logging undertaken on all the core. Although the sub-units

VR1 to 3 are observed as being the most consistently developed mineralised units within Cyclic unit 11, the mineralization is not stratiform and lateral correlation of the mineralization proved challenging.

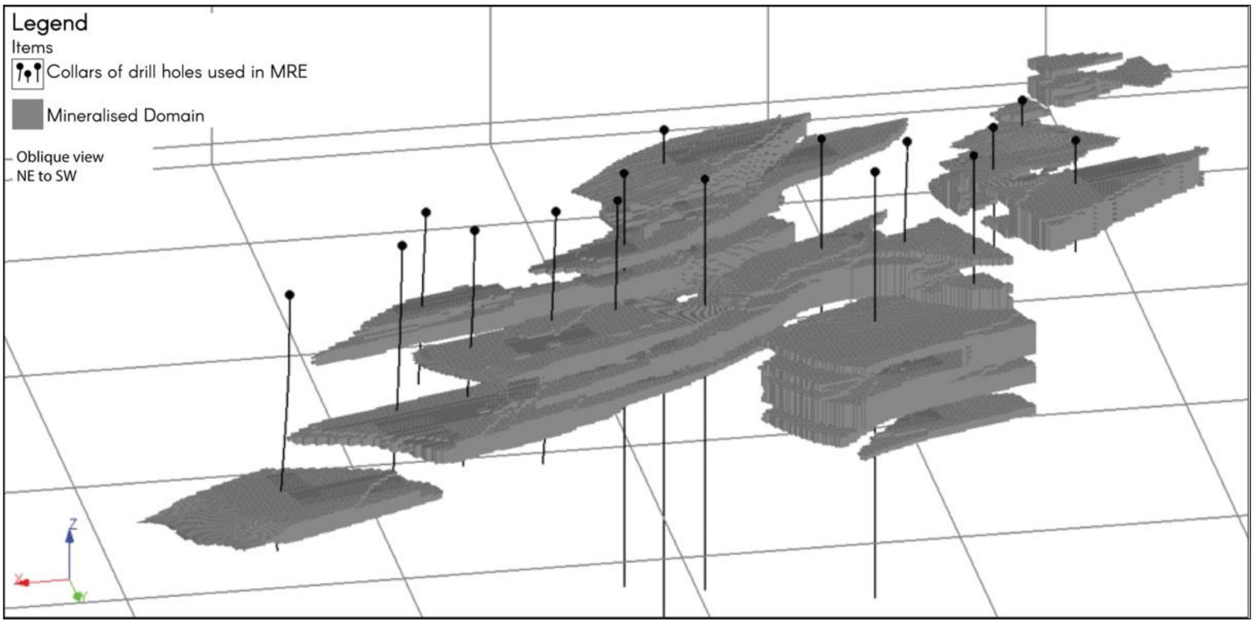
To define a mineralized domain Earthlab coded the drill holes with an indicator of ‘ore’ or ‘waste’ based on a 2E cut-off grade of 1.2 g/t, over a minimum vertical thickness of 2.5 m with 2.5 m of internal waste allowed. 1m composites were chosen as this was the mean and mode of the sample interval. Considering the highly variable nature of the mineralization, SRK recommends that in future work the use of longer composites is considered. Longer composite lengths will reduce the variance of the composite dataset, and, where the potential smallest mining unit (SMU) is planned as 2.5 m vertical, there is scope for using longer composites without overly smoothing the estimates.

The indicators were estimated using inverse distance weighting (rather than Kriging) as Earthlab reports that testing showed too much smoothing and poor honouring of the drill holes. At Volspruit North the selected weighting was inverse distance to the power of four (which will very highly weight the nearby samples ensuring close correlation at the drill hole intersections) and local anisotropy (which rotates the search ellipsoid to match the local orientation of the mineralization), while at Volspruit South inverse distance to the power of two with no local anisotropy was selected given the much wider spaced drilling.

The resultant indicator estimates were used to code the blocks into the mineralized and un-mineralized domains. At Volspruit North a threshold of 0.4 was selected, while at Volspruit South a value of 0.518 was selected. Isolated or blocks considered as inconsistent with Earthlab’s interpretation or artifacts of the estimation and data configuration were removed from the mineralized domain coding. The blocks coded as the mineralized domain are shown in Figure 5-1 sourced from the Earthlab reports. Earthlab undertook some validations of the model including assessment of the vertical thickness of mineralized units in the drill holes and model, the proportion of the intersections and the mode in the mineralized and unmineralized domains, and at Volspruit North a visual comparison with the previous explicit mineralization domain wireframe.



Volspruit North



Volspruit South

srk consulting	**VOLSPRUIT PEA** Coded Mineralized domains for Volspruit North and South	Project No. 601183

Source: Earthlab, Volspruit North and South MRE Technical Reports, 30 January 2024

Figure 5-1: Isometric views of the Volspruit North and South mineralized domains

The indicator estimation at both Volspruit North and South produces a credible model which SRK considers can be used for Mineral Resource estimation. The difficulty in generating a wireframe of the mineralized domain, and the differences between the previous wireframe model and the current domain indicate the challenges with modelling the continuity of the mineralization at both deposits.

The short-range variability in the mineralization thickness and location within the stratigraphy may present challenges during mining, and SRK considers this to be a risk to the achievement of production targets (potentially the planned tonnages or achieving a consistent run of mine (RoM) grade). SRK recommends that a detailed grade control drilling programme during mining should be planned, and the benefits of a close spaced infill drilling programme in an area where the mineralization is close to surface prior to commencing mining considered to address the risk that the mineralization is more variable than modelled and is too inconsistent to allow highly selective mining and production of a higher-grade RoM feed.

5.4 Grade modelling and estimation

The Volspruit North data are grouped into two domains for estimation, based on a combination of major structures and metal tenor and variance. Volspruit South has too little and widely spaced data to allow for definition of estimation sub-domains.

As is to be expected from the preceding discussion on variability of the mineralization, the semi-variograms are relatively poorly structured and show relatively short ranges of continuity. Although semi-variogram modelling is subjective and results from different modellers are rarely identical, SRK considers the effective range of continuity may be between 50 and 150 m. SRK considers some of the ranges modelled by Earthlab to be optimistic, and at times are modelling longer range trends within the data. The paucity of data at Volspruit South makes robust interpretation of the ranges of continuity challenging.

Earthlab reports undertaking a kriging neighbourhood analysis before selecting a block size and search parameters. The selected block size parameters are detailed in Table 5-1. SRK consider that these are appropriate given the typical drill hole spacing and the planned SMU dimensions.

Table 5-1: Block model dimensions

Deposit	Rotation (Z)	X Size	Y Size	Z Size
North	45	50	50	2.5
South	73	80	40	2.5

The search volume dimensions are set to the modelled semi-variogram ranges. At Volspruit South this is 600 m x 150 m x 24 m – 30 m for all variables. At Volspruit North the long ranges are typically between 220 and 425 m and the intermediate direction ranges from 70 to 309 m. The vertical ranges are typically of the order of 15 to 25 m. As indicated above, SRK considers these to generally be optimistic interpretations of the continuity of the mineralization and therefore also optimistic ranges for the search.

The number of samples selected for estimation at Volspruit South is a minimum of 8 composites, and a maximum of 100 composites for all variables, with no more than 4 composites selected from any drill hole. Considering the limited number of drill holes (16 intersecting the mineralization) this maximum will never be reached, and the only effective limitation on the maximum is the 4 composites per drill hole limit.

At Volspruit North a minimum of 10 composites and maximum of 100 was selected and a maximum of 3 composites from any drill hole applied. An octant search was applied (it is uncertain if this is four sectors with no vertical split of the ellipsoid or eight sectors with a vertical split as the terminology applied in the software in ambiguous) with a minimum of 4 octants required to be filled, and a minimum of 2 samples per octant.

At Volspruit South Simple Kriging was selected as the interpolation algorithm, with Ordinary Kriging applied at Volspruit North for the metal grade estimates. Simple Kriging was used for some of the density estimates. Given the low number of drill holes available at Volspruit South, SRK agrees with the application of Simple Kriging, however Earthlab applied a local mean (i.e. for each block the mean applied in the Simple Kriging matrix is the mean of the samples within the ellipsoid) which SRK do not support as it is inconsistent with the premise for Simple Kriging – that the local mean cannot be reasonably estimated from the sparse data.

For the models of both deposits, the Rh and Ru grades are generated based on a regression analysis and the grades are assigned based on the modelled relationship with Pt, Pd and Au.

5.4.1 SRK Comments on Grade Modelling and Estimation

Given the choice of 1 m composites, a 2.5 m vertical block dimension and the highly variable mineralization discussed above, all of which point to generating a highly localised estimate, SRK is of the opinion that the choice of a very large number of composites in both search neighbourhoods is somewhat incongruous, as this is likely to result in smoothing of the estimates. While it is generally true that increasing the number of composites used in an estimate will result in improved kriging statistics, this comes at the expense of local precision and at the risk of over smoothing and high negative weights.

As a result of this, SRK considers that the estimates to be globally accurate, but locally imprecise. Where bulk mining is envisaged, with low selectivity, this can be appropriate. However, if highly selective mining is planned, the model may be poorly suited to informing the true variability in metal grades that will be experienced, with the consequence of a stable RoM grade that may not be achievable in practice.

5.5 Reasonable Prospects for Eventual Economic Extraction

Earthlab describes in their report the testing that was undertaken with respect to the reasonable prospects for eventual economic extraction (RPEEE) of the orebodies, and the reasons why conventional pit optimisations were not undertaken as part of their work stream. For Volspruit North there does not appear to be a constraint applied by Earthlab, and Earthlab describes that the strip ratio for the current estimate was verified to be similar to that for their 2022 Mineral Resource estimate which is assumed to have been constrained by a pit shell at that time. At Volspruit South the constraining pit shell is described as a rudimentary pit designed with ~50° pit slopes, for which Earthlab determined the strip ratio was appropriate.

5.5.1 SRK Comments on the RPEEE

As part of the Scoping study, SRK generated pit optimisation shells which are considered suitable for use in Mineral Resource reporting. The details of the optimisation parameters are provided in Section 8.2.2 in Table 8-3. The price assumptions used for the Mineral Resource are higher than those for the mining study (Table 8-2), by approximately 30%, except for Rh, where the price premium is 8%. The Mineral Resource price assumptions are listed in Table 5-2. The selection of the mining study price assumptions are discussed in more detail in sections 18 and 19.

Table 5-2: Mineral Resource containing pit shell price assumptions

Metal Prices	Unit	Mineral Resource Price
Platinum	USD/oz	1 550
Palladium	USD/oz	1 360
Rhodium	USD/oz	7 000
Gold	USD/oz	2 080
4E (based on Prill Split)	**USD/oz**	**1 745.8**
Copper	USD/t	10 800
Nickel	USD/t	23 900

Based on this assessment, SRK quantified the Mineral Resources within the optimised pits, and compared these with the Earthlab Mineral Resources. Note that SRK was unable to exactly replicate the Earthlab reported Mineral Resource statement (see Table 5-3) but was able to approximately match the Earthlab tabulation from the block model provided.

SRK compared the tonnages reported by Earthlab within their constraining shells against those constrained using the SRK pit shells. For Volspruit North the SRK pit constraint was slightly larger than that of Earthlab (SRK was not supplied with the Earthlab pit shell, but the block model contains coding assumed to represent the portion of the Mineral Resource within the shell). Using the SRK shell results in an increase of approximately 1.5 Mt and 140 koz (5E) with no change in the mean grade. The unconstrained Earthlab statement reports approximately 1.7 Mt and 169 koz more than that contained in the SRK pit shell. This indicates that the Earthlab statement may be considered slightly conservative based on the SRK RPEEE assumptions of their pit shell coding is applied, and optimistic in the un-constrained scenario. For Volspruit South the SRK constraint resulted in approximately 1.2 Mt and 76 koz reduction compared to the Earthlab Mineral Resource.

5.6 Classification

The Mineral Resource classification assigned by the Earthlab CP considers primarily the kriging statistics, such as slope of regression kriging efficiency, and in the case of Volspruit South, the weight assigned to the mean in the kriging matrix, but also the geological complexity and confidence in mineralization location and structures. The kriging statistics provided an initial indicator of confidence, which is reviewed by the CP and adjusted where considered appropriate.

5.6.1 SRK Comments on Classification

SRK considers the classifications assigned to the Mineral Resources to be appropriate and adequately supported in the Earthlab report.

5.7 Mineral Resource statement

Earthlab has classified and reported the Mineral Resources in accordance with the definitions and guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2012 edition, prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia. Mr Deon du Plessis from Earthlab is the CP for the Mineral Resource estimate. His JORC statement is included in the Earthlab Mineral Resource estimate report in Appendix B.

The Mineral Resources are reported on an in-situ basis, and inclusive of any Mineral Reserves that may be derived from them.

The Mineral Resource are reported excluding a 10% geological loss factor applied globally to the tonnage and metal contents.

No cut-off is applied to the Mineral Resources, and where constrained by a pit optimisation, SRK considers this to be appropriate. In the case of Volspruit North, the SRK reporting indicates that higher metal price assumptions or lower costs are required to support the Earthlab statement which appears to be unconstrained by an economic pit shell.

At Volspruit North, the Mineral Resource reporting is constrained to be within the mining right, and also inside a flood barrier perimeter described in section 7.1.5. At Volspruit North, the Copper and Nickel metal content is limited to the portion of the orebody within the mining right, since the adjacent Mining Right on Zoetveld 294 KR RE, also held by Sylvania, did not include Cu and Ni.

The Mineral Resource statement in Table 5-3 is as reported by Mr du Plessis in the Earthlab MRE Reports, which are in Appendix B. The attributable Mineral Resource statement is given in Table 5-4.

Table 5-3: Mineral Resource Statement for the Volspruit Projects, effective 30 April 2024 (per Earthlab MRE Report)

Deposit	Class	Mt	PGM Grades							PGM Content		Base metal Grades		Base metal content	
			3E (g/t)	5E (g/t)	Pt (g/t)	Pd (g/t)	Au (g/t)	Rh (g/t)	Ru (g/t)	3E (koz)	5E (koz)	Cu (%)	Ni (%)	Cu (t)	Ni (t)
Volspruit North	Indicated	16.4	2.37	2.58	1.09	1.22	0.054	0.16	0.050	1 251	1 361	0.067	0.18	9 956	27 897
	Inferred	1.2	2.30	2.50	1.07	1.17	0.057	0.15	0.048	90	98	0.071	0.18	866	2 138
Total		**17.6**	**2.36**	**2.57**	**1.09**	**1.22**	**0.054**	**0.16**	**0.050**	**1 342**	**1 460**	**0.067**	**0.18**	**10 822**	**30 035**
	Prill Split				**42.4%**	**47.4%**	**2.1%**	**6.2%**	**1.9%**						
Volspruit South	Inferred	10.6	2.00	2.16	1.08	0.87	0.050	0.11	0.050	682	736	0.063	0.20	6 728	21 307
Total		**10.6**	**2.00**	**2.16**	**1.08**	**0.87**	**0.050**	**0.11**	**0.050**	**682**	**736**	**0.063**	**0.20**	**6 728**	**21 307**
	Prill Split				**50.0%**	**40.3%**	**2.3%**	**5.1%**	**2.3%**						
Total	Indicated	16.4	2.37	2.58	1.09	1.22	0.054	0.16	0.050	1 251	1 361	0.067	0.18	9 956	27 897
Total	Inferred	11.8	2.03	2.19	1.08	0.90	0.051	0.11	0.050	772	834	0.070	0.20	7 594	23 445
Total Resource		**28.2**	**2.23**	**2.42**	**1.09**	**1.09**	**0.052**	**0.14**	**0.050**	**2 023**	**2 195**	**0.068**	**0.19**	**17 550**	**51 342**

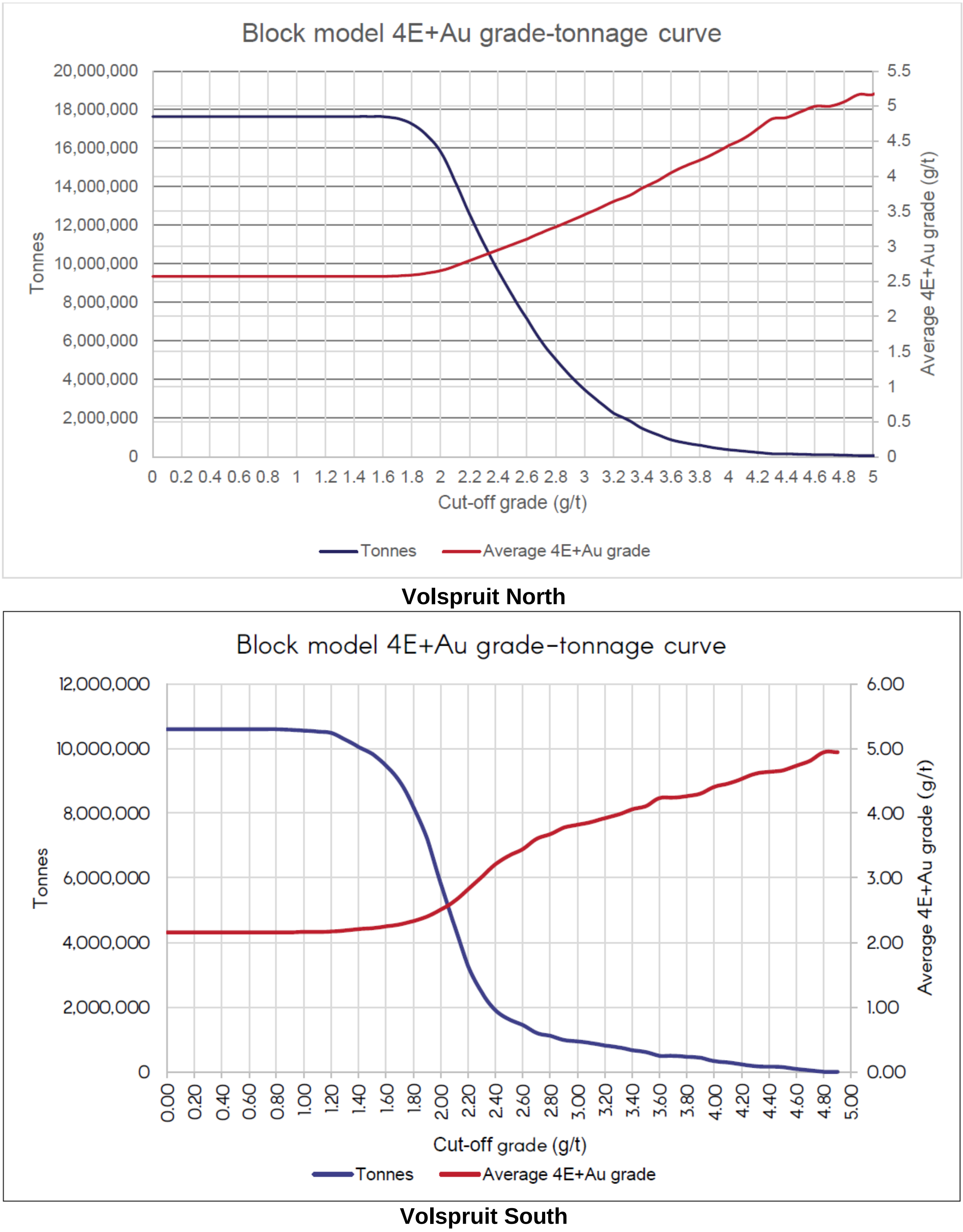
Notes:

- A Troy ounce = 31.1034768 metric grams.
- 3E is a shorthand notation for the summed grades of Pt + Pd + Au
- 5E is a shorthand notation for the summed grades of Pt + Pd + Rh + Ru + Au. Ir is below detection limits.
- Mineral Resources are reported with rounding to reflect the accuracy of the estimates. Totals may not sum correctly as a result of the rounding.
- Mineral Resources are not Mineral Reserves and are not guaranteed to be converted.
- For Volspruit North only the portion of the Mineral Resource within the flood barrier are reported. The metal content reported for Cu and Ni is only that which is situated within the Volspruit Mining Right, since the adjacent Mining Right on Zoetveld 294 KR RE (also held by Sylvania) does not include Cu and Ni. The tonnage within this portion is 1.0 Mt.
- Mineral Resources are reported discounted with a geological loss factor of 10%.
- Mineral Resources are reported with consideration of RPEEE. At Volspruit North this was based on the strip ratio of the 2022 pit shell designed by Earthlab during a previous study. At Volspruit South this is based on a rudimentary pit shell with ~50° pit slopes, for which Earthlab determined the strip ratio was appropriate. No cut off grades are applied to the mineralization within the pit shells.
- Rh and Ru are calculated based on a regression analysis and are not historically routinely assayed.

Table 5-4: Attributable Mineral Resource Statement for the Volspruit Projects (74% attributable to Sylvania), effective 30 January 2024

Deposit	Class	Mt	PGM Grades							PGM Content		Base metal Grades		Base metal content	
			3E (g/t)	5E (g/t)	Pt (g/t)	Pd (g/t)	Au (g/t)	Rh (g/t)	Ru (g/t)	3E (koz)	5E (koz)	Cu (%)	Ni (%)	Cu (t)	Ni (t)
Volspruit North	Indicated	12.2	2.37	2.58	1.09	1.22	0.054	0.16	0.050	926	1 007	0.067	0.18	7 367	20 644
	Inferred	0.9	2.30	2.50	1.07	1.17	0.057	0.15	0.048	67	73	0.071	0.18	641	1 582
Total		**13.1**	**2.36**	**2.57**	**1.09**	**1.22**	**0.054**	**0.16**	**0.050**	**993**	**1 080**	**0.067**	**0.18**	**8 008**	**22 226**
	Prill Split				**42.4%**	**47.4%**	**2.1%**	**6.2%**	**1.9%**						
Volspruit South	Inferred	7.8	2.00	2.16	1.08	0.87	0.050	0.11	0.050	505	545	0.063	0.20	4 979	15 767
Total		**7.8**	**2.00**	**2.16**	**1.08**	**0.87**	**0.050**	**0.11**	**0.050**	**505**	**545**	**0.063**	**0.20**	**4 979**	**15 767**
	Prill Split				**50.0%**	**40.3%**	**2.3%**	**5.1%**	**2.3%**						
Total	Indicated	12.2	2.37	2.58	1.09	1.22	0.054	0.16	0.050	926	1 007	0.067	0.18	7 367	20 644
Total	Inferred	8.7	2.03	2.19	1.08	0.90	0.051	0.11	0.050	571	617	0.072	0.20	5 620	17 349
Total Resource		**20.9**	**2.23**	**2.42**	**1.09**	**1.09**	**0.052**	**0.14**	**0.050**	**1 497**	**1 624**	**0.068**	**0.19**	**12 987**	**37 993**

The grade tonnage curves reported in the Earthlab reports are reproduced in Figure 5-2 for convenience. For a full description of the reporting refer to the Earthlab reports in Appendix B.



srk consulting	**VOLSPRUIT PEA** 4E + Au Grade tonnage curve for Volspruit North and South	Project No. 601183

Source: Earthlab, Volspruit North and South MRE Technical Reports, 30 January 2024

Figure 5-2: 4E + Au Grade tonnage curve for Volspruit North and South

6 Mining Geotechnics

The open pit slope angles used for the pit optimisation were provided by Sylvania based on the recommendations from Knight Piésold (2004). The recommended slope angles included an overall angle of 49° for North Pit and 39° for South Pit, with the flatter angles for South Pit due to poorer quality rock mass and deeper pit. The design recommendations were reviewed by SRK in 2010. The outcome recommended significant additional work to be undertaken for further studies. On review of the Earthlab's 2024 Mineral Resource Estimate Report the following should be noted on the geotechnical conditions at Volspruit:

- Rock types are typically cyclic units of pyroxenites, harzburgites and chromites, with varying levels of serpentinisation observed in places;
- The layered units are interpreted to be generally flatly dipping;
- The area is structurally complex with several generations of brittle faulting, some of these faults have been interpreted due to offset in the cyclic units and are modelled as vertical. However, it is reasonable to assume that the structures will dip, which may have an impact on the pit slopes;
- Alteration is localised around structures where full mineral replacement can take place. Zones of alteration contain chlorite and serpentinite, so geological structures are expected to have a weak shear strength and will weather deeper than the surrounding rock;
- Weathering surfaces developed by Earthlab (2024) were smoothed twice to remove spikes, which were assumed to be caused by logging inconsistency. However, due to the structural complexity of the area, the propensity of the structures to be highly altered, the groundwater preference to flow on structures, it is very likely structures will be deeper weathered than the surrounding rock, which can result in spikey weathering profiles. This does not only impact on slope stability, but also the ability to separate oxides and un-oxidised ore while mining; and
- Groundwater is relatively shallow, with measurements on site as low as 6 m below surface, but generally around 26 m. Groundwater studies to date have focused on environment impact to neighbouring water users. More information is required on the groundwater regime around the pits, and the expected pore pressures in the host rocks.

The above-mentioned conditions result in a high level of complexity in the geotechnical model, which will have to be considered in further slope design recommendations. To account for this, the following is recommended for further work:

- Mining geotechnical site characterisation is required to develop the geotechnical model and investigate the anticipated geotechnical complexities, this should include:
  - A geophysical survey including electrical resistivity imaging (ERI) and Time Domain Electromagnetic Methods (TDEM). The ERI surveys will be used to map faults, fractures zones and lithological boundaries to a depth of ~80 m where possible. The TDEM surveys will be used to map electrical conductivity changes to a depth of ~200 m. This maximum depth of penetration will depend on the overburden conductivity and might be shallower. Since the ERI and TDEM methods both measure electrical conductivity, they can be integrated into a holistic interpretation that extends to ~200 m. The survey should be designed by a geophysicist with extensive experience in these methods prior to commencement;
  - A dedicated geotechnical drilling campaign designed to intersect the planned pit slopes and account for drilling orientation bias. These holes should be fully orientated, triple tube and they should terminate in at least NQ3 sized core. Whole core samples should be available for geotechnical testing;
  - Geotechnical testing programme to assess the intact strength of the rock as well as the shear strength of discontinuities;
  - Groundwater monitoring and testing should be increased in the pit areas to a level that will inform a three-dimensional pore pressure model;

- The site characterisation work should lead to the updating of the three-dimensional litho-structural model with improved definition of the location and orientation of large-scale brittle faults;
- Updating of the groundwater models in order to ultimately develop a three-dimensional pore pressure model;
- Development of a geotechnical model which will inform slope stability analyses; and
- Slope design recommendations based on the geotechnical model and stability analyses.

7 Hydrology and Hydrogeology

7.1 Hydrology

7.1.1 Introduction

The hydrological assessment informing the PEA included the following investigations:

- Describe the existing baseline hydrological characteristics of the study area, informed by past studies and current desktop assessments utilising currently available data;
- Undertake a desktop review of past water-related studies to re-evaluate water-related impacts and risks and re-interpret these where required within the context of the latest developments in water-related authorisations and relevant changes in mining related guidelines and principles such the Global Industry Standard on Tailings Management (GISTM). Data and findings from recent reports were prioritised over findings in older reports.
  - Key of these recent water-related studies are;
    - The Water Balance simulation model covering the planned mine development (Water Hunters, 2024);
    - The Wetland Assessment Report for the Volspruit Mine Project (WCS, 2023);
    - The Volspruit North MRE Technical Report (Earthlab, 2024);
    - Surface Water and Hydrological Aspects pertaining to the proposed Volspruit Mining (2011 assessment updated in 2022) (AED, 2022);
  - Older reports consulted included;
    - Volspruit Hydrogeological Survey (Escience, 2010);
- Develop cross sections and chainages for the Nyl River adjacent to the pit and berm, to plot floodlines and levels;
- Evaluate the 1:50-year and 1:100-year floodlines against the planned berm to;
  - Determine an updated floodline with the berm in place;
  - Evaluate what scale of event the planned berm height can safely retain;
- Identify the water-related risks and any fatal flaws in the mine development plan, which may halt the proposed mine based on water-related impacts; and
- Additional recommended mitigation measures for proposed mine infrastructures within the floodline, if the planned berm is found inadequate.

7.1.2 Climate and rainfall

The Nyl River forms a large flat-lying valley, which is filled with semi-marsh-like areas and shallow running outlets. Flow within the tributaries feeding the Nyl River is strongly seasonal, with peak flows during the wet summer months. The climate is semi-arid with moderate winter temperatures, ranging from 3°C to 25 °C, and warm to hot summer temperatures, ranging from 16°C to 36°C. The average annual rainfall in the area has been recorded as 612 mm, which is mostly confined to the summer months (Earthlab, 2024). The Mean Annual Runoff (MAR) is 20.5 mm.

7.1.3 Wetland and riparian habitat

Wetland and riparian characterisation

The wetland and riparian habitat of the Nyl River in proximity to the proposed Volspruit mine area is characterised by the following findings (WCS, 2023);

1. The project study area falls within the Nyl & Dorps River Valley Groundwater Strategic Water Source Area. This highlights the area as being nationally important due to a high groundwater availability and because the available groundwater forms an important resource for water supply. (Le Maitre et al., 2018);

2. The habitat appears on the National Wetland Inventory 5 (CSIR, 2018), listed as floodplain wetland of the Nyl River;
3. The Wetland Ecosystem Type of the Nyl Floodplain wetland is categorised as floodplain, depressions, and seep habitat of the "Central Sandy Bushveld Bioregion", where Floodplain and Seep habitat is classified as "critically endangered" (Mbona et al., 2015);
4. The Nyl River and associated wetland habitat are classified as a wetland FEPA (Freshwater Ecosystem Priority Area);
5. In terms of land use category for biodiversity protection, the bulk of the project study area is classified as a Critical Biodiversity Area 1 (LEDET, 2016). CBA 1 is classified into the following Land Management Objectives: "*Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate*";
6. The Nylsvlei Wetland within the Nylsvley Nature Reserve is a listed RAMSAR site, being a wetland of international importance for the protection of waterfowl;
7. Water lost to groundwater recharge by the western tributaries is expected to support a large alluvial aquifer within the sandier sediments underlying the Nylsvlei floodplain. The existence of this alluvial aquifer, and its response to rainfall, can be verified through monitoring of water levels within and immediately adjacent to the wetland. In the case of the Volspruit study area, shallow groundwater levels within and near the wetland have been monitored by Geo Pollution Technologies (GPT) since 2011 (GPT, 2022).
8. The floodplain wetland is well placed to provide ecosystem services related to water quality maintenance such as Nitrate Assimilation, Phosphate Assimilation, and Toxicant Assimilation. The diffuse nature and extended residence of flows within the wetland provide ample opportunity for biogeochemical cycling. These characteristics also provide ideal opportunities for sediment trapping.

Current wetland impacts and risks

1. Flow within the tributaries feeding the Nyl River is strongly seasonal, with peak flows during the wet summer months (WCS, 2023).
2. A High demand was identified for "Water for Human Use" – although little direct abstraction takes place from the wetland, the wetland does contribute towards recharge of the shallow aquifer, which provides the main source of agricultural water on site (WCS, 2023).
3. Supply scores for Cultural Services were High to Very High, though demand was only High for Tourism and Recreation. The Nylsvlei is considered to be well placed to provide Cultural and Spiritual value, though little information is available in this regard, resulting in the demand scores being very low (WCS, 2023).
4. The floodplain wetland system is already assessed to be under stress from reduced catchment flows. The Nyl River Hydrological Analysis report by eScience Associates (2015) indicates a 12.9% reduction in MAR that has already occurred between natural (historic) flows and current day flows. This corroborates the observations of decreased wetland extent and wetness on site. Comparison of historical aerial imagery with recent images suggests a reduction in the seasonal wetting front within the wetland (increase in the temporary zone) and encroachment of woody vegetation into the wetland margins – observations which are consistent with decreased flows and wetting (WCS, 2023).
5. Analysis of satellite imagery (McCarthy et al., 2011) indicates that the Nyl wetland receives most of its surface water from the Groot and Klein Nyl Rivers in the south, as well as from several of

its western tributaries, with virtually no water inputs from the east. Work undertaken by McCarthy et al (2011) indicates that up to a 100% of annual flow within the western tributaries of the Nyl River infiltrates into the sandy sediments along the western edge of the Nylsvlei wetland prior to reaching the floodplain. This view is based on the decreasing channel sizes and eventual disappearance of the channels, and the loss of water that this represents, of the western tributaries as they approach the floodplain. Thus, in order for flooding of the Nylsvlei floodplain to occur, 110% or more of the average annual rainfall is required (McCarthy, 2012) so that surface runoff generated within the Waterberg mountains reaches the Nylsvlei wetland and is not all lost to groundwater recharge (WCS, 2023).

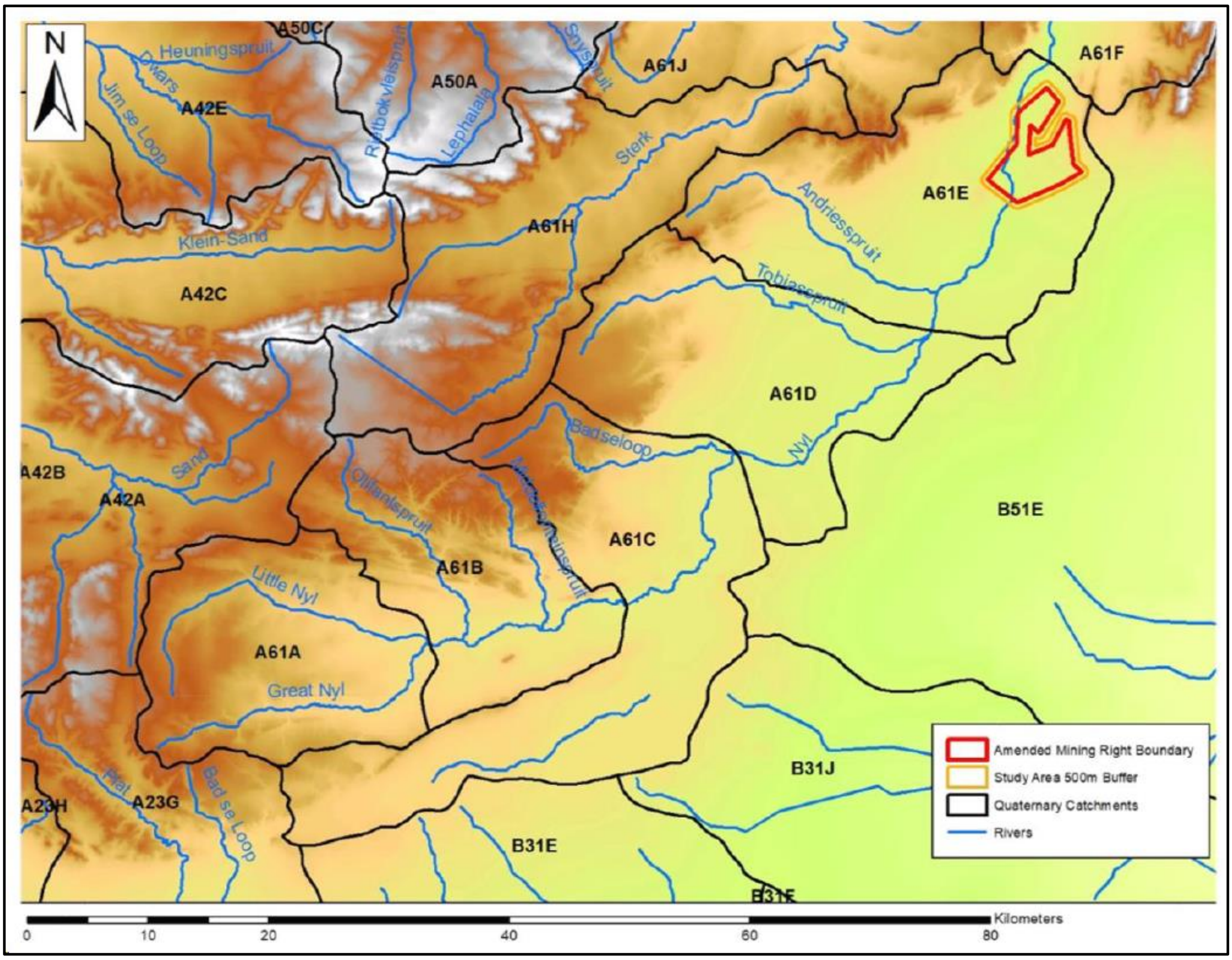
Current impacts on flow volumes within the Nyl River are discussed further in Section 7.1.4.

7.1.4 Catchment Hydrology and mine water balance

Nyl River catchment hydrology

Quaternary catchments A61A to A61E contribute flows to the Nyl River flowing past the proposed Volspruit mine site (Figure 7-1Figure 7-1). For reference a site plan is shown in Figure 12-1. Assessment of the catchment detail in the Water Resources of South Africa (WRC, 2012) shows very high abstractions from the catchments for agricultural irrigation and other uses.

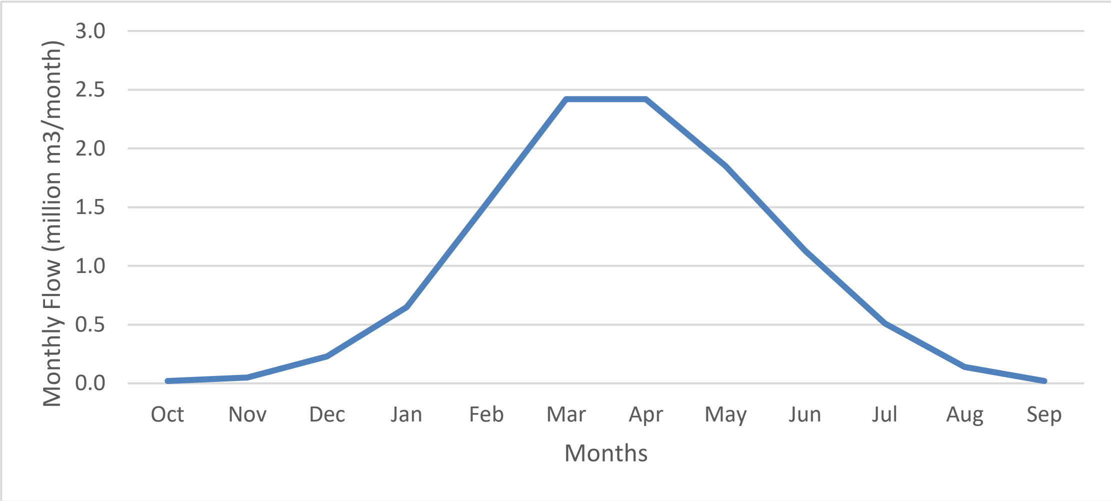
Observed streamflow from flow gauge A6H033 on the Nyl River immediately downstream of catchment A61E is only provided for 2005 to 2009 (after WRC, 2012), showing annual flows that vary between 0 and 34.3 million m^3/annum. 2005 and 2007 recorded annual flows in the order of 4 million m^3/annum.



srk consulting	**VOLSPRUIT PEA** Nyl River catchment boundaries showing the five quaternary catchments contributing flow past the proposed mine site	Project No. 601183

Figure 7-1: Nyl River catchment boundaries showing the five quaternary catchments contributing flow past the proposed mine site (WCS, 2023 & WRC, 2012)

The flow records (limited) and simulated catchment flows show high variability in seasonal and interannual flows within the Nyl River. Run for 89 years of simulation but populated with present day catchment abstractions and impacts, the WR2012 model yields monthly average flows which vary from 0.02 to 2.4 million m^3/month (Figure 7-2Figure 7-2).



srk consulting	**VOLSPRUIT PEA** Average monthly flows from the WR2012 model at the outlet of quaternary A61E	Project No. 601183

Figure 7-2: Average monthly flows from the WR2012 model at the outlet of quaternary A61E (cumulative, therefore includes A61A-A61D) (after WRC, 2012)

These monthly flows translate to annual average flows that vary between 0.02 to 150 million m^3/annum. Over the 89-year period the annual average flows are 10.99 million m^3/annum while the median annual flows (50th percentile) are 0.1 million m^3/annum (WRC, 2012). This shows the highly variable nature of the flows in the catchment, confirmed by limited site observation (AED 2011, 2022) and the four years of observed flows (after WRC, 2012).

Over the same 89-year simulation populated with present day catchment abstractions and impacts, the WR2012 model yields annual flows at the outlet of quaternary A61E (cumulative, therefore includes A61A-A61D) which range from zero to 150 million m^3/annum (WRC, 2012). Plotting the percentiles of the annual flows from the 89-year simulation in Table 7-1 we see the high variability in the flows. While the average flow (previously quoted) is 10.99 million m^3/annum the median flow is 0.1 million m^3 and the maximum reaches 150 million m^3/annum.

Table 7-1: Percentiles of annual flows from the WR2012 model simulations at the outlet of quaternary A61E

Percentiles	Annual flow (million m^3)
10	0.0
25	0.1
50	0.1
75	4.1
90	43.3
95	69.3
100	150.3

As example of the abstractions within the catchment, WR2012 simulations reveal that while quaternary A61E in itself generates in the order of 10 million m^3/annum of runoff, only annual average volumes in the order of 2 million m^3 contribute to the downstream catchment due to abstractions. As such, despite the upstream catchment area, the five quaternaries yield an annual average of 10.99 million m^3/annum.

This illustrates that the catchment water resources are under significant pressure. During site visit for the surface water and hydrological study AED (2011, 2022) observed no surface water flows within the Nyl River.

The simulations from WR2012 populated with current catchment abstractions and impacts, combined with observed flows (minimal record) and site observation all show that the surface water flows within the Nyl River system are highly variable and under pressure from abstraction. Despite this, the Nyl River is still able to recharge and sustain critical floodplain and wetland habitat (albeit shrinking due to catchment abstractions and other impacts – Section 7.1.4). Critical to the recharge and sustained water flow through the wetlands are the subsurface flows and groundwater within the system, which are recharged by rains, runoff and all flows from baseflows to floods. Any large-scale abstractions and impacts on the groundwater and subsurface water of the floodplain are likely to have a significant impact on downstream wetland habitat. The volumes and balances of the potential impact are investigated in the following two sections.

Water Balance covering the proposed mine operations

The latest update of the CWBM (Water Hunters, 2024) estimates that the Volspruit Mining Company (based on the production curve supplied for the production period of January 2024 until December 2043) will use an average of:

- About 8 100 m^3/month of raw water - supplied from the Grasvally borehole;
- About 71 600 m^3/month of raw water from toe-drain recoveries;
- About 205 800 m^3/month from groundwater inflows into the pits;
- About 3 700 m^3/month of water is added to the system from moisture in the Run-Of-Mine ore; and
- Rainfall runoff contributes a further 46 400 m^3/month, making up the total of approximately 335 600 m^3 water used per month.

Assuming a steady state production rate of 150 000 tonnes/month, Table 7-2 outlines the monthly water consumption of the wet tailings and the process water use within the concentrator.

Table 7-2: Water consumption at a steady state production rate of 150 000 tonnes/month (after Water Hunters 2024)

	m^3/ton	m^3/month	%
Wet tailings SD (slurry)	1.24	186 000	49.6
Concentrator: Process water	1.22	183 000	48.8

The water balance report (Water Hunters, 2024) states that only a negligible amount of raw water (50 m^3 per month) would be used as make-up water to the system, and that optimising operational rules could reduce this requirement to zero. "*Based on calculations using the current input data, and the set of assumptions made in the model, there is therefore practically no shortfall of water for normal operations as planned by the Volspruit Mining Company*" (Water Hunters, 2024).

Quoting an annual rainfall of 624 mm, an MAR of 46.3 mm and mine surface area of 3.43 km^2, AED (2022) calculated that 158 066 m^3 per annum of surface runoff could be intercepted by the mine activity. This is significantly less than the figure provided by Water Hunters (2024) at 46 400 m^3 per month or 556 800 m^3 per annum. Given that the AED assessment was undertaken in 2011, with the report updated in 2022, the figure provided by Water Hunters (2024) is taken forward in the evaluation of potential impacts.

Catchment and water balance risks and impacts

With no external water added to the water balance, all water used by the mine (surface and subsurface) will subtract from the overall balance of the Nyl River system which sustains the Nylsvlei wetlands and provides flows to maintain riparian, wetland and aquatic habitat downstream, and for existing downstream users. There is very little flow from the east to the Nyl River in the mine area, so even if this is all used in the mine, there should be minimal impact.

The storage of high flows such that low flows can be maintained, could mitigate the impact of the mine water use on the downstream habitat, but a detailed environmental flows requirement and reserve study would need to be undertaken looking at the seasonal flow requirements needed to maintain downstream riparian, wetland and aquatic habitat and existing, licensed water users. The study would need to account for seasonal low flows that need to be maintained but including any need for high flow or flood events that may naturally be required to maintain downstream habitat.

From the data present in Table 7-3 (after Water Hunters 2024 & WRC 2012), it is evident that the proposed mine relies heavily on groundwater abstractions, constituting 82% of its annual usage of new water, with the remainder sourced from rainfall-runoff (Table 7-3). However, the Wetland Assessment Report highlighted a 12.9% reduction in MAR, leading to decreased wetland extent and wetness (WCS, 2023). This reduction is concerning as groundwater availability is linked to the Nylsvlei wetlands and recharge from the upstream catchments. Upstream catchments A61A to E are already associated with large-scale groundwater abstractions and the estimated groundwater recharge rate constituting 3.2% of rainfall. The total mine water use of new water at 3.1 million m^3/annum is concerning given the average catchment flows of median 10 million m^3/annum but with a median flow of only 0.1 million m^3/annum given the high flow variability. These factors collectively highlight the risk and potential impact of the planned new water abstractions from surface and groundwater.

Table 7-3: Water use estimates for the Volspruit Mine (after Water Hunters 2024 & WRC2012)

Category	Source	monthly (m^3)	annual (m^3)			
Groundwater	Borehole	8 100	97 200			
Groundwater	Pit water ingress	205 800	2 469 600			
Groundwater	Ore moisture	3 700	44 400	**2 611 200**	82%	Total new groundwater
Surface water	Rainfall runoff	46 400	556 800	**556 800**	18%	Total new surface water
Process water	Toe drain recoveries	71 600	859 200	n/a	n/a	Recycling
	Total mine water use	**335 600**	**4 027 200**	**3 168 000**		
	Nyl River annual flows (quat A61E) (after WRC, 2012)	**Average**		**10 990 000**		
		Median (50th)		**105 000**		
		75th percentile		**4 097 500**		

The Water Hunters (2024) report notes that due to ample water from pit dewatering, an excess of water will be produced by the planned mine activity. It is suggested that this excess water could be provided to farmers for irrigation given that groundwater abstractions in the catchment are already on the threshold of the estimated sustainable yield. The best use for the excess water can be evaluated following more detailed investigations and planning, balancing the needs of users with mitigation of environmental impacts.

The slurry density used in the current water balance developed by Water Hunters is 1.24 t/m^3 and this is lower than expected. This will be increased to 1.55 t/m^3 and will significantly reduce the

Return Water back from the TSF to the plant. This work will need to be done if the project is advanced to the next study phase.

A further run using the Slurry Density of 1.55 was run by Water Hunters and the following should be noted:

- The change in slurry SG value from 1.24 (2.55 m^3/t) to 1.55 (0.94 m^3/t) impacts the water in tailings deposited on the TSF. The water in tailings to TSF reduces from and average monthly value of 308 196 m^3 to 115 338 m^3; and
- The knock-on effect is that less water is required by the concentrator and therefore less water is pumped from the PWD to the Concentrator (down from 335 290 m^3/month to 123 168 m^3/month) and from RWD1 to the PWD (down from 343 531 m^3/month to 125 710 m^3/month).

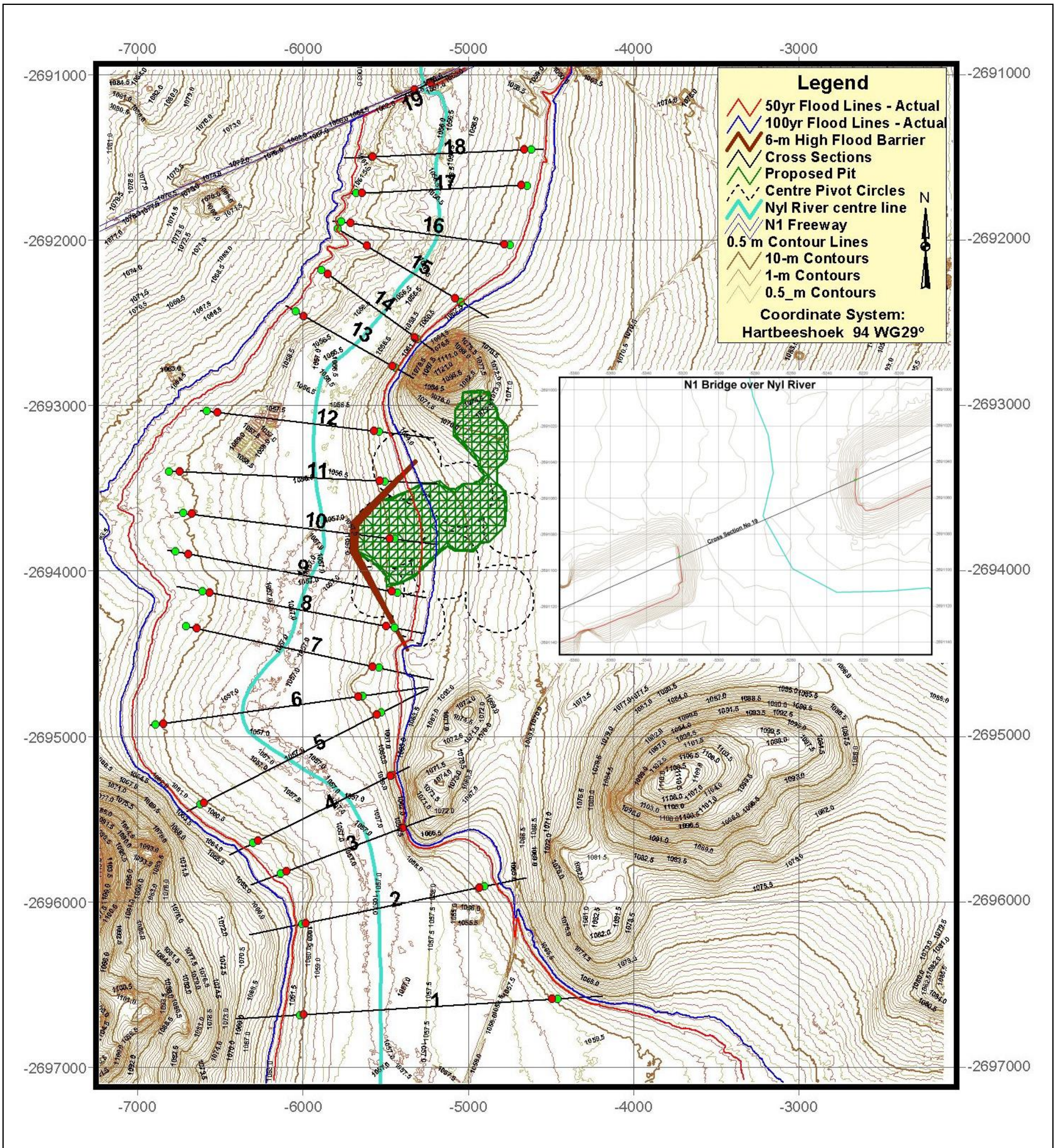
7.1.5 Flood Hydrology and Hydraulics

Contour Analysis

Figure 7-3Figure 7-3 is sourced from the 2010 floodline study undertaken by Escience (2010) and shows:

1. The Nyl River centre line and the 50- and 100-year floodlines as determined by Escience (2010).
2. The cross-section chainages, some of which were utilised in this study.
3. The proximity of the pit, and the location of the proposed berm.
4. The location of the N1 highway and bridge (cross section 19).

The contour map, featuring intervals of 0.5 meters, was used to analyse the terrain's elevation changes. The topographical data, combined with chainages was used to derive elevation, distance, and slope data along the river. By utilizing the chainages, precise measurements were obtained, enabling the delineation of cross-sectional profiles at regular intervals.



srk consulting	**VOLSPRUIT PEA** Nyl River cross sections (Escience, 2010) utilised in the flood analysis	Project No. 601183

Figure 7-3: Nyl River cross sections (Escience, 2010) utilised in the flood analysis

Floodline Modelling

These cross-sectional profiles, derived from the contour map data, served as inputs for the HEC-RAS model in simulating flow behaviour within the river system.

In assessing peak flow conditions, the HEC-RAS model simulated various scenarios, including the impact of both 50 and 100-year flood events. This analysis enabled a thorough evaluation of the river's hydraulic dynamics and flood risk under different flood magnitudes.

The analysis of slope, cross-section chainages, and modelling within HEC-RAS demonstrates that the N1 bridge and road embankment downstream of the Volspruit mine site plays a key role in influencing the floodlines in proximity to the pit. As such the construction of a berm is critical in attenuating flood risk to the pit. If the berm is designed to contain floodwaters up to the elevation at which the N1 bridge is surpassed, allowing floodwater to flow over it, subsequent overflow spreads the floodwaters over a wide area.

Once flood events exceed the 1:100-year return period event floodwaters flow over the N1 bridge and road embankment, spreading over the catchment such that when doubling the flow in HEC-RAS simulations, the observed change in flood height was less than 1m.

Therefore, the integration of the flood barrier as a berm of height constructed (Box 7-1) to tie with the flood elevation of the existing N1 bridge infrastructure effectively mitigates flood risk to the mine infrastructure protected by the flood barrier.

There is very little change to this even with the recent work undertaken.

Box 7-1: Flood barrier specification (Escience, 2010)

5.4 Construction of a Flood Barrier

From the results of the modelling scenarios, it is clear that both the 50- and 100-year flood line sets run through the proposed mining pit area of the Sylvania Resources opencast mine. Mining will not be possible until some sort of contingency has been put into place, in case the 50- or 100-year flood events actually occur during the life of mine.

For this reason, a basic flood barrier has been designed. This is effectively a large earth barrier wall that would keep the flood waters out of the mining pit in the event of a 100-year flood in the Nyl River.

Proposed specifications of the flood barrier wall:

- Should be 1.765 Km long, starting at 100 mm above the 1 063.5 mamsl contour line, with the crest of the wall remaining at this elevation (1 063.6 mamsl)
- Roughly 6.6 m high
- Crest of the wall should be 3 m wide and the slopes on either side of the wall should be 2.5:1
- Should be constructed from the overburden removed from the mining pit (provided that this material is suitable for this purpose)
- Layer (at least 300 to 500 mm) of rock cladding is placed along the outer edge of the wall to prevent erosion by the floodwaters.

During a 100-year flood this barrier would provide a freeboard of 0.45 m during the peak of the storm. Although 10- or 25-year flood lines were not modelled, it is predicted that they would also intersect the flood barrier and for this reason the barrier must be protected against scouring by flowing water on its side facing the river.

7.1.6 Conceptual Stormwater Management

This section covers a conceptual update to the Stormwater Management, taking into account the latest changes and updates to the mine layout planning (.dwg file received 2 April 2024), particularly relating to confirmation of the sizing for the Plant PCD and Product Stockpile PCD. The update is based on the Stormwater Management plan layout (Drawing Number 19-918-SW-004) developed by Eco Elementum (Eco Elementum, 2022).

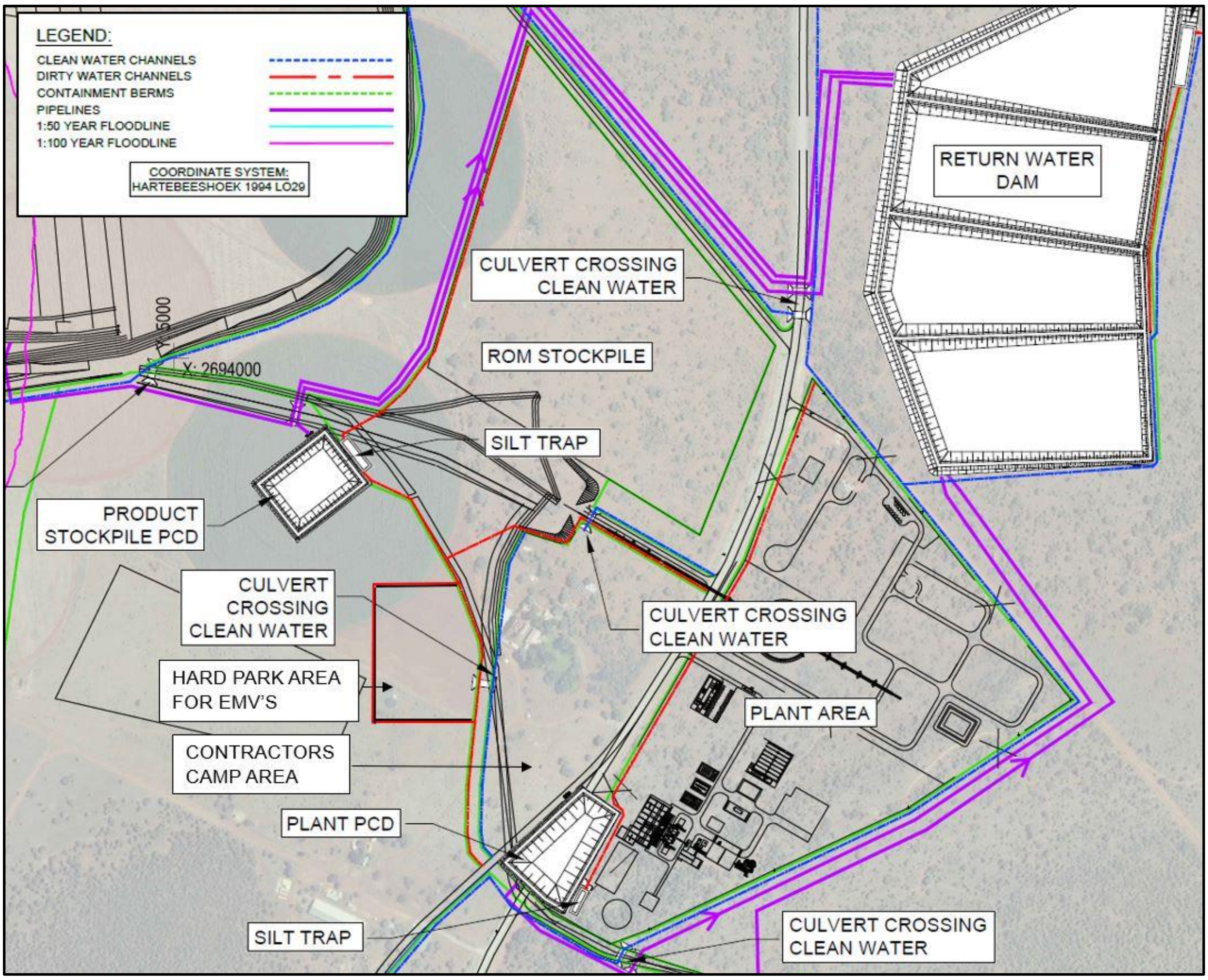
The 1:50 year return period 24-hour storm event was selected for use in the dam sizing (Table 7-4), drawn from design rainfalls developed by Eco Elementum (2022).

Table 7-4: Design rainfall adopted for the dam sizing (Eco Elementum, 2022)

Duration	Return period (years)					
	2	**5**	**10**	**20**	**50**	**100**
24 hour	69	93.9	111.9	130.2	**155.8**	176.3
1 day	57.3	78.1	93	108.3	129.5	146.6

Note: 1 day rainfall is observed on a particular day, where 24hr rainfall occurs within a moving 24 hour window.

Figure 7-4 shows a diagram of the updated mine layout footprints feeding the sizing of the Plant PCD and Product Stockpile PCD (after drawing Number 19-918-SW-004 (Eco Elementum, 2022)).



srk consulting	**VOLSPRUIT PEA** Updated mine layout footprints feeding the sizing of the Plant PCD and Product Stockpile PCD	Project No. 601183

Figure 7-4: Updated mine layout footprints feeding the sizing of the Plant PCD and Product Stockpile PCD (after drawing Number 19-918-SW-004 (Eco Elementum, 2022)).

Product Stockpile PCD

The second PCD receives dirty water from the ROM stockpile, contractors camp area and the hard park area for EMVs (Figure 7-4Figure 7-4). The dirty water channel would skirt the Western flank of the hard park area for EMVs such that all dirty water is contained and directed through a silt trap, and then to the Product Stockpile PCD.

The total volume determined for the Product Stockpile PCD is 50 000 m^3. This volume covers the 1:50 year return period 24-hour design storm runoff and includes an operating volume of 10 000 m^3 (Table 7-5).

Table 7-5: PCD sizing based on updated mine footprints

Dam	Total volume
Plant PCD	35 000m^3
Product Stockpile PCD	50 000m^3

7.1.7 Conclusions and Recommendations

Wetland and Riparian habitat – risks & mitigation

The Nyl River wetland and riparian habitat, encompassing portion of the proposed Volspruit mine area, hold significant national and international importance due to their designation as a Groundwater Strategic Water Source Area, inclusion in the National Wetland Inventory, and RAMSAR site status, which is a significant distance upstream of the site. However, this ecosystem faces multiple conservation challenges, including its classification as a critically endangered floodplain wetland, seasonal flow dynamics, and high demand for water resources within the upstream catchments. The planned development introduces considerable risks, including potential disruption of groundwater recharge, alteration of hydrological patterns and a reliance on groundwater abstractions for new water. These impacts highlight the need for careful assessment and sustainable management practices to mitigate risks and preserve the integrity of the Nyl River wetland, riparian habitat and flows volume and seasonality for downstream habitat and users.

Catchment hydrology and mine water balance – risks and mitigation

With no external water added to the water balance, all water used by the mine (surface and subsurface) will subtract from the overall balance of the Nyl River system which sustains the Nylsvlei wetlands and provides flows to maintain riparian, wetland and aquatic habitat downstream, and for existing downstream users. The storage of high flows such that low flows can be maintained, could mitigate the impact of the mine water use on the downstream habitat, but a detailed environmental flows requirement and reserve study would need to be undertaken looking at the seasonal flow requirements needed to maintain downstream riparian, wetland and aquatic habitat and existing, licensed water users. The study would need to account for seasonal low flows that need to be maintained but including any need for high flow or flood events that may naturally be required to maintain downstream habitat.

Headline findings illustrating the above include:

- The A61E catchment generates an average of 10 million m^3/annum of runoff, however, only 2 million m^3/annum contributes to the downstream catchment due to large scale abstractions;
- However, the median flows are only 0.1 million m^3/annum, showing the high variability of surface water flow, and the importance of groundwater resources and the recharge thereof to maintain the Nylsvlei wetlands and to sustain flows to downstream habitats and users;
- Groundwater use in the catchment is at the limit of the estimated sustainable yield and 80-100% of the recharge is already used, therefore the volume of allocatable groundwater for use in this catchment is limited;
- Groundwater recharge was estimated as 3.2% of rainfall; and
- The total mine water use of new water at 3.1 million m^3/annum is concerning given the average catchment flows of 10 million m^3/annum but with a median flow of only 0.1 million m^3/annum given the high flow variability. These factors collectively highlight the risk and potential impact of the planned new water abstractions from surface and groundwater. Given that a portion of the mine footprint will cover irrigated farmland, the irrigation abstraction no longer drawn will offset some of the new water abstractions related to the mine; however, it is a relatively small area of the irrigated agriculture along the Nyl River valley.

Hydraulics and floodline – risks and mitigation

The assessment of the Nyl River's hydraulic dynamics and flood risk identified the downstream N1 bridge as a key factor in determining the flood risk to the North Pit. The following should be noted:

- Once flood events exceed the 1:100-year return period event floodwaters flow over the N1 bridge and road embankment, spreading over the catchment such that when doubling the flow in HEC-RAS simulations, the observed change in flood height was less than 1m; and
- The analysis shows that the planned height of the proposed flood barrier Box 7-1is sufficient to mitigate flood risk of the North pit.

7.2 Hydrogeology

7.2.1 Hydrostratigraphy

Generally, the Bushveld Complex is characterised by low permeability strata where transmissivity is influenced by the degree of fracturing. However, the Northern Limb appears to have greater structural deformation, as observed at the Volspruit Farm (Figure 4-2) which has contributed to superior borehole yields and improved assurance of water supply. The Zebedelia Fault is a prominent regional water bearing zone and there are several NNW-SSE trending faults that traverse the mining properties. The geophysical surveys of the Volspruit Farm confirmed the presence of various vertical or sub-vertical faults. Boreholes which intercepted these faults recorded their first water strikes between 5 and 25 meters below ground level (mbgl). Information gathered from farmers in the area indicates that the groundwater is intercepted at *c*.23 mbgl. The underlying lithology of Harzburgite and Pyroxenite appear to be fractured and weathered across most of the site to a depth of 50-60 mbgl and, is pronounced, giving rise to intergranular and fracture flow. Groundwater flow and storage is likely to occur in the fractures and matrix. Pumping tests conducted indicated transmissive aquifer conditions (average T of 42 m^2/d), not only associated with the faults, but with deeply weathered/fractured areas as well. The groundwater recharge of the area was estimated as 3.2% of the rainfall (20 mm/a) based on the long-term MAR of 625 mm/a, GPT (2010).

As the weathering decreases with depth, fracturing becomes predominant particularly at *c*. 90 to 100 mbgl (also the depth of most irrigation boreholes in the area) where groundwater hydraulics is then influenced by fracture flow associated with large volumes of groundwater. This is observed from the hydrocensus data and from boreholes drilled on the faults. Borehole yields of 0.5 to 2 L/s are common, with >5 L/s of localised occurrence. The yields reported in the Volspruit area are significantly higher than expected for the area and is associated with deep weathering and fracturing, as well as fault structures forming preferential flow paths, GPT (2023).

Aquifer classification undertaken by GPT (2023) indicates:

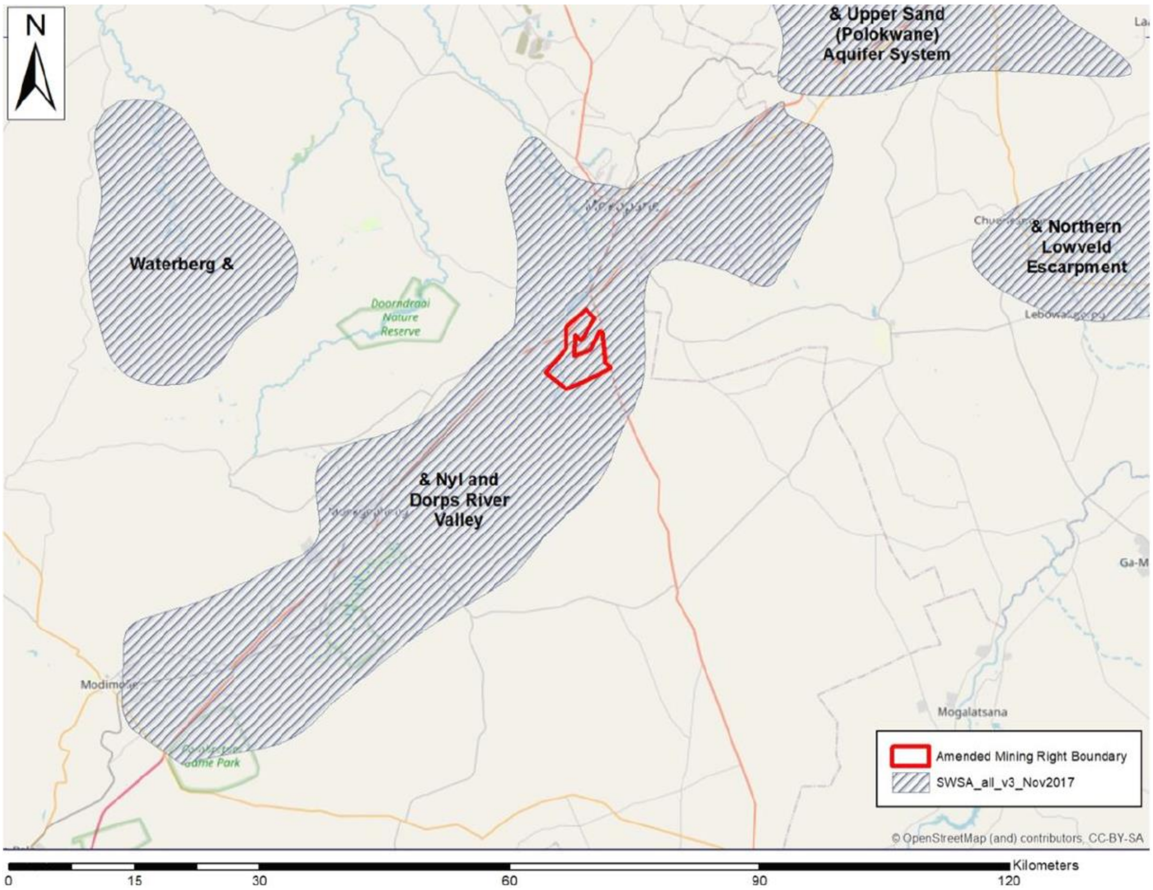
- The aquifer has a moderate vulnerability index of 45%, which suggests that the aquifer is susceptible to contamination and that reasonable measures should be in place to prevent impact to the aquifer;
- There is a high reliance by the surrounding communities, mainly farmers, within 2-3 km of the site on groundwater;
- The aquifer is a major, sole source aquifer; and
- Based on the above, a high level of aquifer protection is required.

Water level data measured on the Volspruit Farm during the GPT 2010 hydrocensus indicates poor correlation with topography as the disturbed water levels are associated with intensive groundwater abstraction including a highly transmissive aquifer. Shallow groundwater levels were measured near the Nyl River and deepen further away from it. Groundwater flow direction is towards the east away from the Nyl River, GPT (2010). The water table on the Volspruit Farm in un-pumped core holes is c.6-7 mbgl, SRK (2011). The North Pit is situated near the Nyl River whilst the South Pit is further away. There is no indication that the depth to the water table (6-7 mbgl) in both pits differs, SRK (2010).

7.2.2 Water Interdependencies

Groundwater Usage

The project study area falls within the Nyl & Dorps River Valley Groundwater Strategic Water Source Area (SWSA) (Figure 7-5Figure 7-5) and is of national significance due to high groundwater availability including an important resource for water supply, WCS (2023).



srk consulting	**Volspruit PEA** Nyl & Dorps River Valley Groundwater Strategic Water Source Area [Source WCS]	Project No. 601183

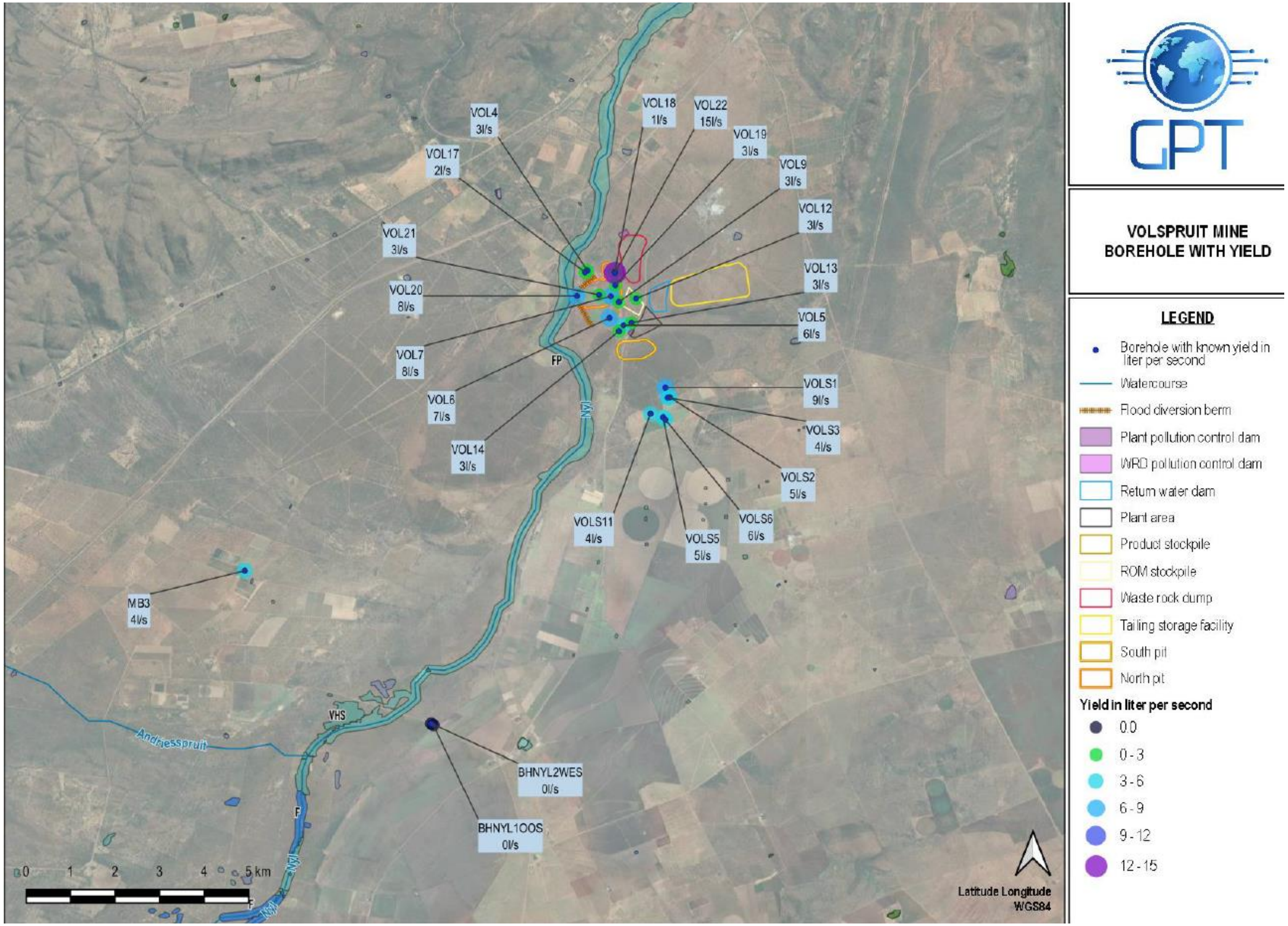
Figure 7-5: Nyl & Dorps River Valley Groundwater Strategic Water Source Area, WCS (2023)

Groundwater is intensively used for pivot irrigation, potable use, and livestock watering especially on the farms Volspruit and Bokpoort, where large volumes of groundwater are abstracted for irrigation purposes. Groundwater use in the A61E catchment is at its threshold of the estimated sustainable yield where 80-100 % of recharge is already use. This limits the volume of allocatable groundwater and infers aquifer distress particularly if abstraction exceeds recharge.

During the 2010-2011 hydrocensus, 72 boreholes and one surface water body (Nyl River) were identified within a 2 km radius of the site and up to 50 km in the Zebediela Fault. Boreholes identified within the 2 km radius have an average yield of 6.5 L/s (Figure 7-6Figure 7-6) and are of significance as they may potentially be impacted by mining activities.

The Volspruit Farm is being targeted to supplement municipal water supply due to groundwater abundance. A water supply scheme through the installation of boreholes on the Volspruit and Grasvally farms is currently part of Sylvania's revised Social & Labour Plan pending DMRE approval. The water requirements and quantity of boreholes that are required for this scheme are unclear at this stage.

The Grasvally borehole, which has a yield of 10 L/s, is the only operational borehole available to supply raw water for drinking and can fully address the water requirements at the Volspruit Operations, (Water Hunters (2024)). In addition, the Grasvally borehole will supplement the municipal water supply scheme.



srk consulting	**Volspruit PEA** Borehole positions on Volspruit 326 KP and estimated borehole yields	Project No. 601183

Figure 7-6: Borehole positions on Volspruit 326 KP and estimated borehole yields, GPT (2023)

Surface Water – Groundwater Interaction

Surface and groundwater interaction has been examined by AED (2022) and the section below summarizes pertinent aspects pertaining to this relationship.

Thin clay layers deposited by sheet flow developed a relatively impermeable floor (aquitard), through which very limited water movement can occur. The hydropedological assessment indicated that river water infiltration would be limited, and this is evident by the presence of a significant unsaturated zone below the Nyl Riverbed, even during and after extreme flood and rainfall events. Contrary to what would be expected from an alluvial-filled river basin, the seasonal floodwaters inundating the Nyl River floodplain do not contribute to any significant amount of groundwater recharge of the alluvial aquifer. This suggests that there is no direct hydraulic link between the surface water in the Nyl River floodplain and the aquifer below the floodplain.

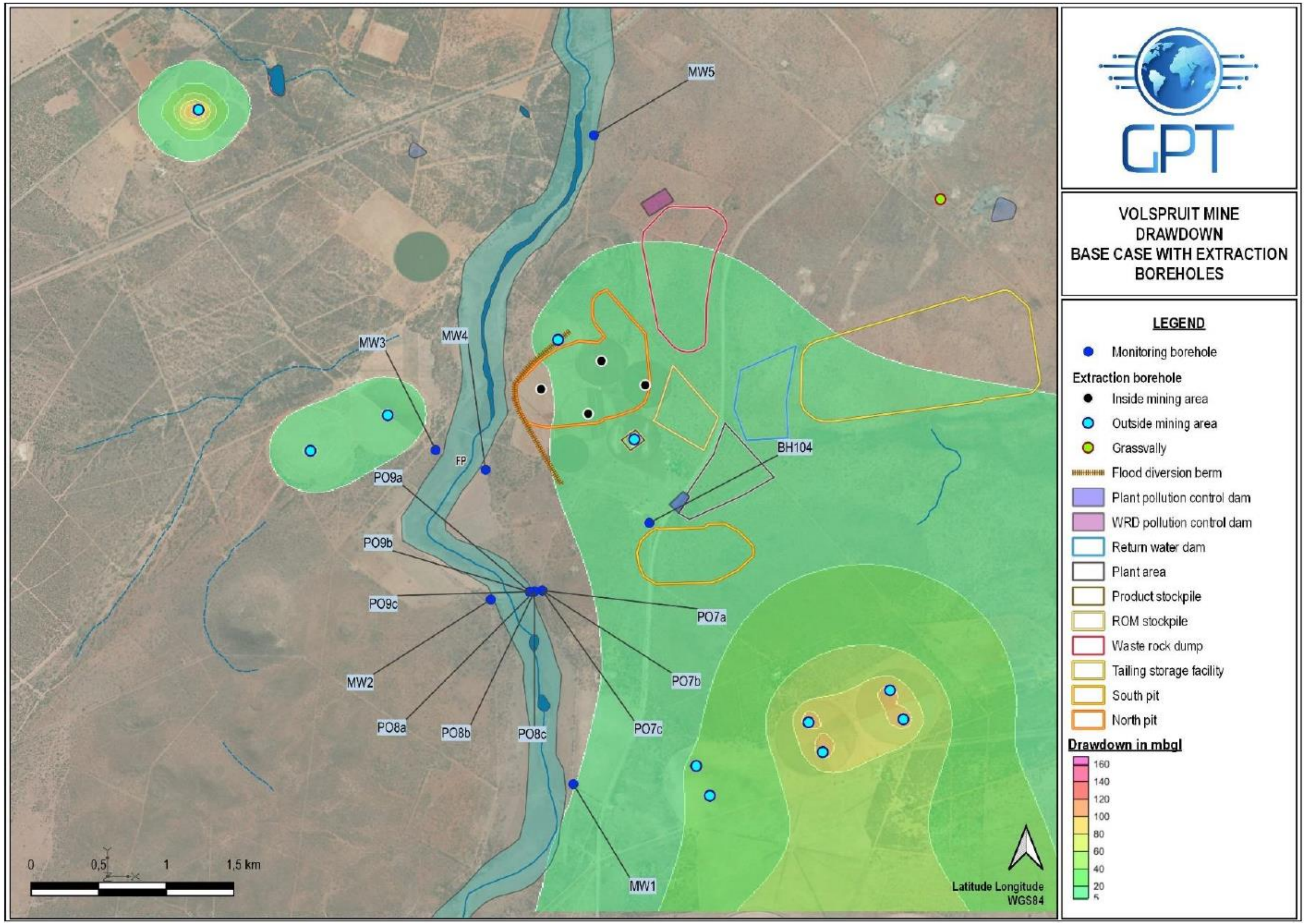
Due to the extent and morphology of the Nyl River floodplain, except from the areas along the edges of the floodplain and along the channels of the incoming river, there is very limited surface water – groundwater interaction due to the presence of an aquitard separating the water on the surface of the wetland and the deeper, coarser parts of the alluvium in-fill underlying the wetland. Although there is some surface water – groundwater interaction, this interaction is not pronounced. Therefore, the abstraction of groundwater alongside the Nyl River may not have a great impact on the surface water environment.

7.2.3 Groundwater Model

The 2010 numerical groundwater model was updated in 2023 by GPT, details with respect to updates and refinement of the model from 2010 and 2023 are not explicit and updated calibration results are not provided. Therefore, the model confidence could not be assessed. The findings of the model simulations are summarised below:

- At year 9, when mining at the North Pit has reached final depth, the cone of depression could extend to *c*. 1 km in all directions;
  - The cone of depression will spread slowly from east to west with mining progression and will most likely extend to the aquifer below the Nyl River. The cone reaches the Nyl River in c.6 years and is then of the same order of magnitude as the irrigation drawdown. However, large scale irrigation abstraction has already lowered the groundwater levels in the Volspruit and surrounding areas by at least 5 to 10 m. In contrast, at the south pit the influence on the Nyl River is predicted to be less severe. Even at end of mining the impact on the river is expected to be less than 5 metres;
  - Boreholes on Volspruit especially VOL7, VOL11, VOL13, VOLS1 and ABDUL could be impacted both in terms of quality and quantity (degree of impact is unclear in GPT (2023)) due to the North pit operations and should be monitored;
- After year 8, drawdown of the groundwater level will extend beyond the Nyl River and is predicted to be in the order of 10 m at the river. In contrast, at the south pit the influence on the Nyl River is predicted to be less severe. Even at end of mining the impact on the river is expected to be less than 5 m (Figure 7-7Figure 7-7: , Figure 7-8Figure 7-8: and Figure 7-9Figure 7-9:);
- Due to the thick clay layer separating the river surface water from the aquifer below during periods of normal flow, the normal flow of the Nyl River will not be affected;
  - Only when the river is in flood and overflowing its banks could surface water seep through the gravelly and sandy regolith to the aquifer below;
  - If surface water ingress into the open pits is prevented by adequate berms, the normal flow of the river and the progression of major floods should not be changed significantly;
- The numerical model has made provision for dewatering at an average of 5 000 m^3/d and maximum of 14 000 m^3/d but omits mentioning the requirements for the dewatering boreholes which is a gap requiring urgent attention;

- Drawdown at the time of deepest mining is shown to demonstrate the maximum zone of impact; and
- Post mining, groundwater will rebound very close to surface and could lead to decant should layout or parameters change. However, direct surface decanting of the pits is unlikely due to the flood protection berm that would assumingly remain post closure.

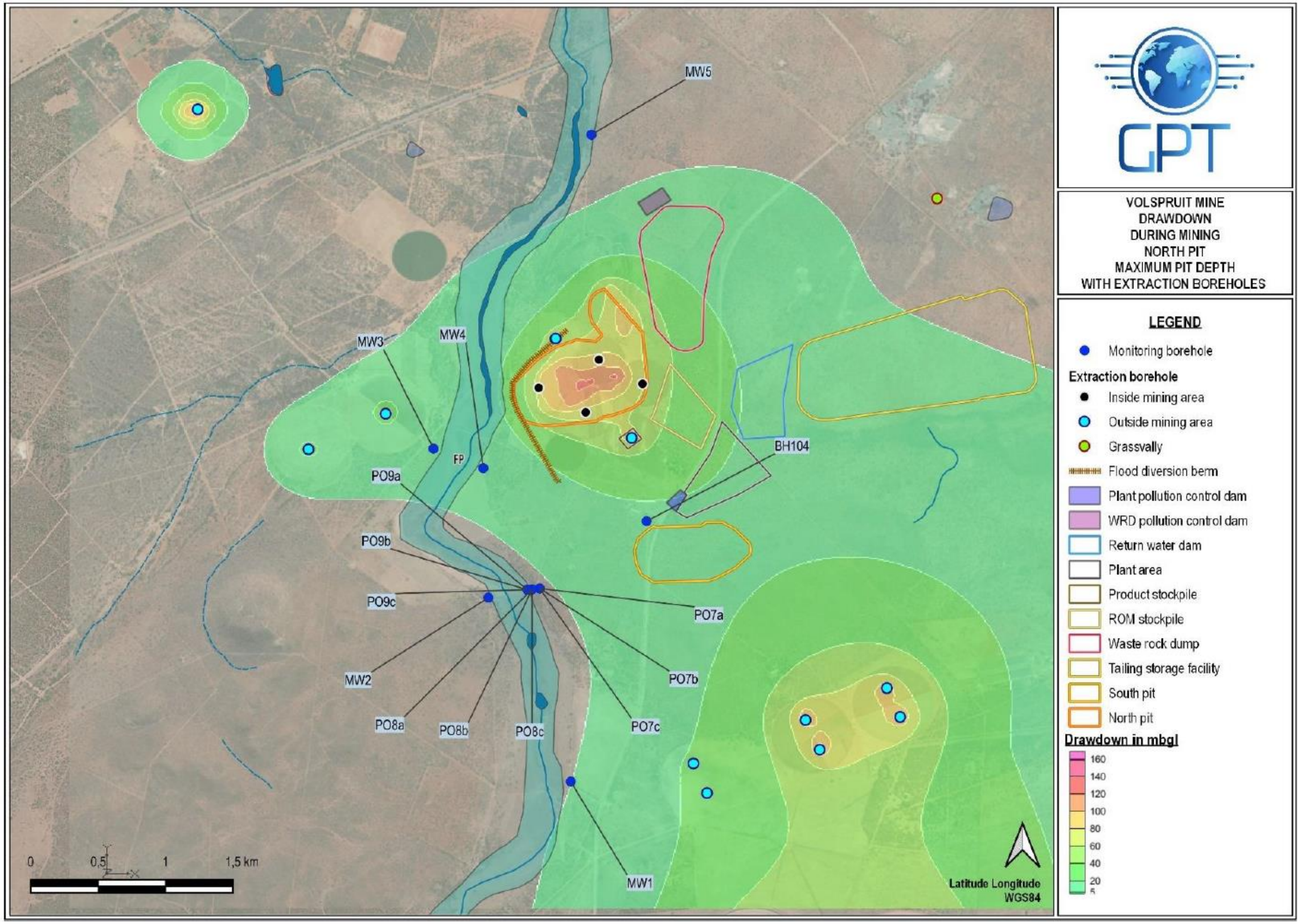


srk consulting

Volspruit PEA
Predicted drawdown due to irrigation only [GPT, 2023]

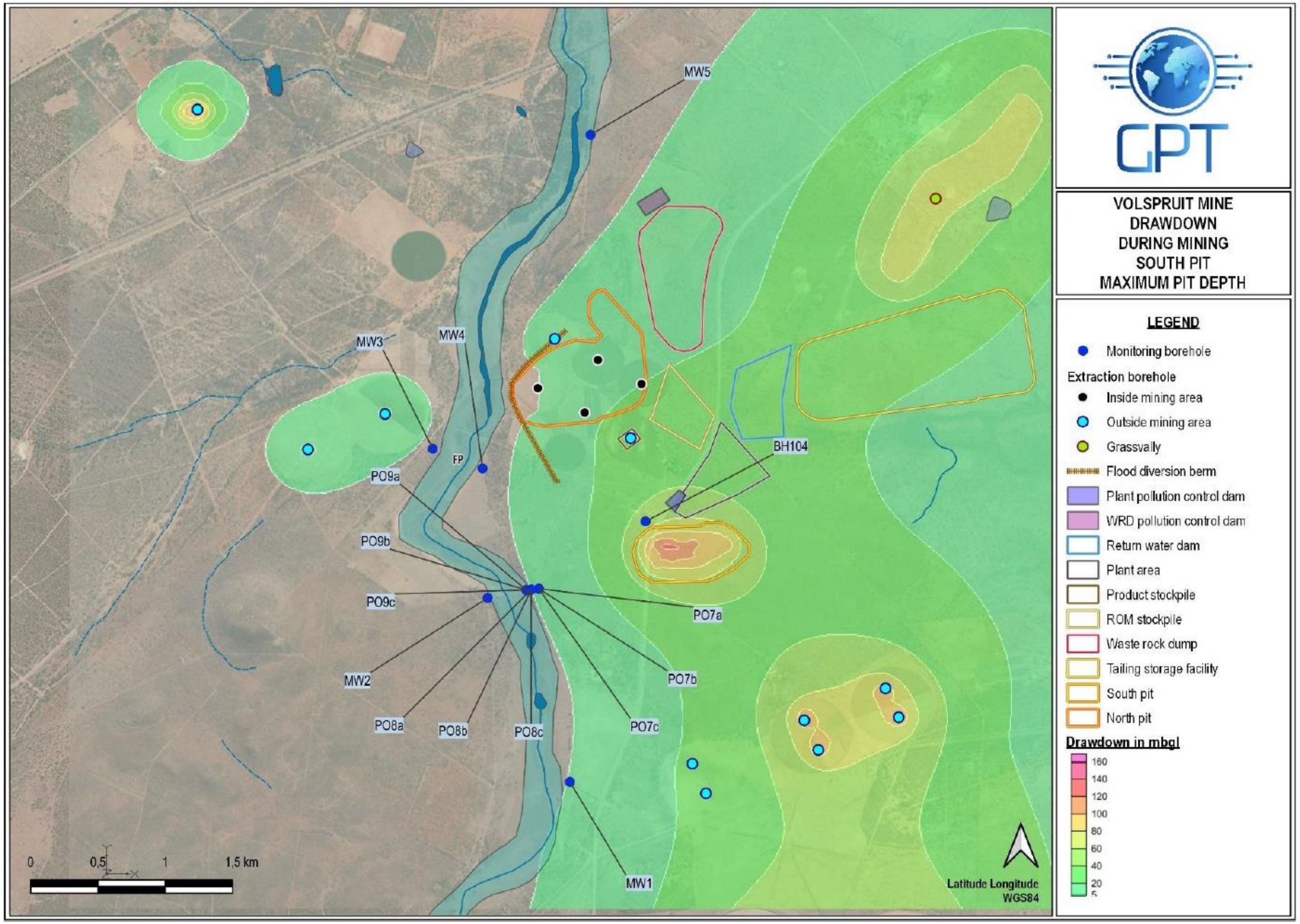
Project No.
601183

Figure 7-7: Predicted drawdown due to irrigation only, GPT (2023)



srk consulting | **Volspruit PEA** Predicted drawdown due to irrigation and mining at North Pit maximum (GPT, 2023) | Project No. 601183

Figure 7-8: Predicted drawdown due to irrigation and mining at North Pit maximum, GPT (2023)

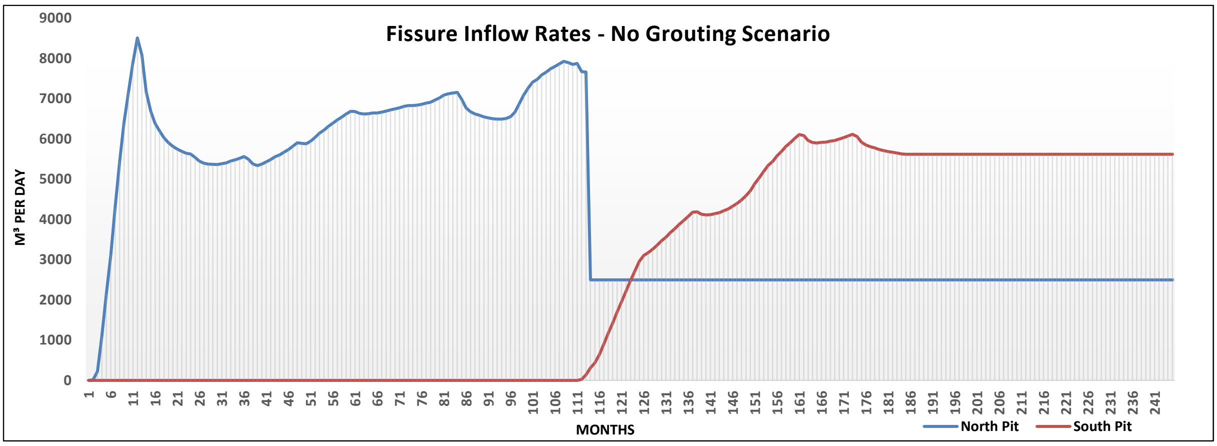


srk consulting	**Volspruit PEA** Predicted drawdown due to irrigation and mining at South Pit maximum (GPT, 2023)	Project No. 601183

Figure 7-9: Predicted drawdown due to irrigation and mining at South Pit maximum, GPT (2023)

To update the water balance and understand make up water requirements and potential excess water, a Computerised Water Balance Simulation Model (CWBSM) was developed by Water Hunters (2024). The following are summarised from this model relating to hydrogeology:

- Groundwater inflows (Figure 7-10Figure 7-10:) made up the largest portion of the total water supply for the Volspruit Operations at 61%, followed by water from the TSF through toe drain recoveries at 21%, and rainfall runoff collected at 14%. Water from the Grasvally borehole was only required for drinking and service water and contributed 2% of total water used;
- Model simulations indicate the following:
  - Groundwater inflows amounts to 60% of make-up water requirements over 20 years. It should be noted that the groundwater inflows from GPT (2010) used in the 2024 CWMSM are lower than the values reported in GPT (2023) which range from 5000 m³/d (average) to 14 000 m³/d (maximum). Therefore, it is likely that would be surplus water;
  - Water returned from the North and South Pits, together with toe drain recoveries from the TSF and rainfall runoff, provides sufficient water to sustain the planned production at Volspruit mining operations. No make-up water is required from external sources;
  - Surplus water could then be provided to either the farmers for irrigation or augment municipal water supply subject to water quality criteria being met. This results in increase in irrigation supply to the farmers and or municipality from at least 29 000 to 103 000 m³/month;
  - The Grasvally Borehole is the only external source required and this is only needed to supply the requirement for drinking and service water at the plants. This made up only 2% of total water consumed. Only 30% of the maximum potential yield of the Grasvally borehole was utilised.



srk consulting	**Volspruit PEA** Groundwater inflow rates for the North and South Pits under a No Grouting scenario [Water Hunters, 2024]	Project No. 601183

Figure 7-10: Groundwater inflow rates for the North and South Pits under a *No Grouting* scenario, Water Hunters (2024).

7.2.4 Groundwater Quality and Decant

Water quality analysis undertaken by GPT (2023) of 25 boreholes and one water sample from the Nyl River indicate the following:

- Most groundwater samples contained nitrate and chloride that exceed the maximum allowable standard for domestic use (SANS 241:2015) and contribute to the elevated electrical conductivity / TDS measured across multiple boreholes. Natural sulphate concentrations (main contaminant of concern in mining) are low in all samples;

    - Nitrate concentrations in the groundwater at the Volspruit and Grasvally farms are elevated and are probably associated with fertiliser application as commercial scale farms occur in the surrounding area. Concentrations of 100 to 200 mg/L is common and exceed the drinking water guideline of 44 mg/L and therefore groundwater is unsuitable for potable use without treatment;
    - Elevated Cl was reported and is likely to be associated with increased salinity of the groundwater due irrigation and agricultural practices; and
- The chemistry of the Nyl River sample is significantly different from the groundwater particularly the magnesium concentration and suggests that the origin of the river water was not from groundwater.

Results of geochemical analysis undertaken by GPT (2023) indicate the following:

- The ore is intermediate to potentially acid forming. However, the sulphides in the ore are mostly chalcopyrite and pentlandite, which are not reactive enough for long term acid generation;
- Analysis of 15 samples taken from the roof bedrock indicate that the neutralisation potential exceeds the acid forming potential by one to two orders of magnitude. It is thus very unlikely that the pit backfill material will produce acid rock drainage; and
- Core samples collected in 2010 were analysed for leachable major ions and metals. Results confirm that very few leachable contaminants are to be expected.

Numerical model simulations by GPT (2023) indicate the following:

- Impact on the underlying aquifer and groundwater receptors water quality will be insignificant due to the low acid generation capacity of the ore and bedrock. There is low potential for neutral mine drainage due to low concentrations reported from leachate testing; and
- Contaminant transport simulations indicates that the plume is drawn towards groundwater abstraction areas (irrigation) towards the west of the Nyl River and underflows the Nyl River. There is also a substantial plume migration to the irrigation areas south of the mining area but is not predicted to reach those boreholes in the forecast period.

7.2.5 Conclusions and Recommendations

Based on SRK's review of the desktop information, the following are summarised with regards to the Hydrogeology of the proposed Volspruit Mine:

- Groundwater is intensively used for pivot irrigation, potable water and livestock watering especially farms Volspruit and Bokpoort where large volumes of groundwater are abstracted for irrigation purposes:
    - The Grasvally Farm and current borehole is being targeted to supplement municipal water supply due to groundwater abundance. A water supply scheme currently part of Sylvania's revised SLP is pending DMRE approval;
- Groundwater quality has been impacted by commercial scale farming evident in the elevated concentrations of EC, TDS, nitrate, and chloride that exceeds the SANS 241:2015 drinking water guideline;
- Both the ore and bedrock are relatively inert and is thus not expected to contaminate the aquifer to the extent that it will render the groundwater unusable for domestic and agricultural purposes;
- The 2023 numerical model simulations indicate that:
    - At year 9, when mining at the North Pit has reached final depth, the cone of depression could extend to c. 1 km in all directions;
    - The cone of depression will spread slowly from east to west with mining progression and will most likely extend to the aquifer below the Nyl River;
    - Due to the thick clay layer separating the river surface water from the aquifer below during periods of normal flow, the normal flow of the Nyl River will not be affected; and
    - Boreholes on Volspruit could be impacted both in terms of quality and quantity due to the North Pit operations;
- Impact on the underlying aquifer and groundwater receptors water quality will be insignificant due to the low acid generation capacity of the ore and bedrock. There is low potential for neutral mine drainage due to low concentrations reported from leachate testing;

- According to the Water Hunters (2024) computerised water balance simulation model, it appears that the mine's water supply can be addressed via the onsite Grasvally borehole and from dewatering activities. Groundwater from dewatering will make up the largest portion of the total water supply for the Volspruit Operations at 61%;
  - The Water Hunters' report is based on an average dewatering rate of c. 8000 m3/d which is lower than GPT (2023) estimates of a maximum of 14 000 m3/d (combined North and South pits) and an average of 5 000 m3/d. Pit dewatering boreholes will be required, but the current models do not provide guidance on the number of boreholes required nor their effectiveness. The groundwater model will need to be refined and confidence improved as the project progresses as the dewatering volumes are critical to managing excess water. Based on boreholes yields of 5 to 10 L/s, multiple dewatering boreholes maybe required for dewatering;
  - External make-up water is not required. Surplus water could then be provided to either the farmers for irrigation and or augment municipal water supply subject to water quality criteria being met. This results in increase in irrigation supply to the farmers and or municipality from at least 29 000 to 103 000 m^3/month; and
- Groundwater use in the A61E catchment is at its threshold of the estimated sustainable yield and infers aquifer distress particularly if abstraction exceeds recharge where 80-100% of recharge is already in use. This limits the volume of allocatable groundwater and may potentially impact on mining operations if authorisation and water security is not actively pursued.

The following is recommended:

- The potential conflicting demands from dewatering, water supply to municipality and excess water management will need further investigation and confirmation through an updated water balance and reserve determination. The water balance was updated in 2024 but the reserve determination (DWS responsibility) has been long outstanding and is unlikely to be completed in the near future;
- Engagement with authorities pertaining to water use licenses needs to be prioritised. Given that the aquifer at the mine is a sole source aquifer and heavily utilised, dewatering activities whilst necessary will further constrain the aquifer. The groundwater reserve is in a delicate balance and mediation with the regulators will serve to promulgate good environmental stewardship and mine water management;
- Simulation of dewatering boreholes network to confirm number of boreholes, abstraction rates, and impacts on aquifer should be undertaken; and
- Characterisation of the South ore body is limited and should be undertaken to provide a holistic overview of potential impacts arising from mining operations.

8 Mining

8.1 Introduction

The previous open pit technical report was submitted in May 2012. The study used the 2010 Resource block model and the optimum pit limit determined from the economic assessment at the time to deliver a premium quality PGM alloy. Because of the environmental sensitivity of the project, the 2012 mining study aimed to include a waste backfilling method to meet the EIA requirements.

The Volspruit orebody comprises two separate deposits that are approximately 1 400 meters apart. In the 2012 study, the idea of mining the pits in sequence to allow waste to be backfilled into the mined-out voids to minimise the waste dump footprint was examined.

The Resource block models have been updated by Earthlab Consulting, the economic parameters have been updated and Sylvania has decided to combine the two deposits and mine them simultaneously as much as is feasible. This will help balance out the waste stripping ratio and improve the feed quality at the processing facility. The downside is that all waste from the South pit cannot be placed into the mined-out area at the North pit (at best, less than half of the total waste amount from the South pit can be dumped in the North pit void during the last years of the mining schedule). Therefore, for each pit, a separate waste dump area is needed.

The current report presents an overview of the open pit layout consistent with optimisation practice to obtain the optimum pit limits, life of mines (LoM) practical pit design, and a high-level production schedule. SRK understands that Sylvania will use a contractor for the mining; therefore, the mining cost has been adjusted accordingly, and a fleet estimation was performed solely as a guideline for operations.

8.2 Optimisation

The open pit optimisation was conducted using Geovia Whittle software. Based on the resource block models and a set of technical and economic criteria described below, the Whittle programme employs the Lerchs-Grossman algorithm to build a pit shell that maximises the project's operating profit margin or cash flow. The pit shell result is used to perform early project economic evaluations, determine the project's sensitivity to changes in input parameters, and to guide intermediate and final pit designs.

8.2.1 Source of Information

The optimisation data and input parameters agreed to with Sylvania prior to the optimisation exercise are described hereunder.

Resource Block Models

The Mineral Resource estimation and block models comprising the Volspruit North and South deposits have been presented by Earthlab consultants (*Source files: "GVS_block_model.dm" and "gvn_block_model.dm")*.

To facilitate scheduling and optimisation, both north and south block models were merged to be one individual model. Then, to approximate the mining dilution, the model was further regularised to utilise SMU block sizes of X=5m, Y=5m, and Z=2.5m. Due to the geometry of the orebody, it is not advisable to utilize the larger SMU primarily in the Z direction. SRK's investigation with the larger SMU led to increased waste-to-ore dilution, which caused substantial ore losses. This will need to be considered during mining.

The Mineral Inventory from the regularised model (including dilution) is summarised in Table 8-1.

Table 8-1: Mineral Inventory (Regularised by SMU)

Pit	Resources M+I+I	Volume (Mm³)	Tonnes (Mt)	Au (g/t)	Pt (g/t)	Pd (g/t)	Rh (g/t)	Cu (g/t)	Ni (g/t)
North	FRESH	5.28	16.01	0.050	1.001	1.166	0.152	615	1 755
	OXIDE	0.25	0.61	0.062	1.205	0.948	0.125	785	1 884
	TRANS	0.63	1.76	0.056	1.123	1.134	0.148	701	1 814
Sub Total		6.17	18.38	0.051	1.020	1.156	0.150	629	1 765
South	FRESH	4.04	11.56	0.044	1.021	0.656	0.104	611	1 956
	OXIDE	0.03	0.07	0.049	1.104	0.753	0.118	606	1 909
	TRANS	0.14	0.37	0.044	1.060	0.677	0.110	588	1 995
Sub Total		4.20	12.00	0.044	1.022	0.658	0.104	610	1 957
Grand Total		**10.37**	**30.38**	**0.048**	**1.021**	**0.959**	**0.132**	**621**	**1 840**

Table 8-1 is not a representation of the Mineral Resource but rather an input to the optimisation process. It exclusively comprises the blocks lying inside the flood barrier and the present mining right at Volspruit. Earthlab has suggested 10% geological losses should be included and this was applied to the ore tonnages.

For the optimisation, a total of six elements (Gold, Platinum, Palladium, Rhodium, Copper, and Nickel) and all classes (Measured, Indicated, and Inferred) were utilised. The unclassified mineralised material was considered waste. A 10% geological loss has also been incorporated into the ore tonnage and the Resource was constrained by the flood line and mining right.

Metal prices

Table 8-2 shows the alternative sources of metal prices considered by SRK. These include the prices used by Earthlab in 2022 for the Mineral Resource declaration, metal price forecasts from Standard Bank Group at June 2023 provided by the Company, Consensus Economics Market Forecast prices from Consensus Economics Inc and spot values at January 2024. The projected price to use for Rh presents a challenge due to its rarity in the market, recent price volatility and lack of a forecast from Consensus Economics.

SRK suggests using the forecast metal prices as shown in Table 8-2 as the base case for pit optimisation and Mineral Reserve declaration, which has been agreed to by Sylvania.

Table 8-2: Metal Prices

Metal	Unit	PFS Earthlab 2022 RPEEE	Std Bank – June 2023 LT Real	Consensus Jan'24	Spot Jan'24	SRK Forecast
Pt	(USD/oz)	1 138	2 200	1 190	916	1 190
Pd	(USD/oz)	1 463	800	1 045	963	1 075
Rh	(USD/oz)	8 913	10 000	-	4 500	6 500
Au	(USD/oz)	1 538	1 300	1 600	2 050	1 600
Ni	(USD/t)	17 813	16 000	18 400	16 195	18 400
Cu	(USD/t)	8 886	7 800	8 300	8 238	8 250

It is assumed the final products would be 4E, Copper and Nickel concentrates. The estimated selling basket price of USD1 418/oz for 4E metal was determined using the prices of the four elements' metals and the prime division of the metal contents in the concentrate. The payability factor, or smelter return percentage, affects the selling final prices. It is 75% for 4E, 70% for copper, and 75% for nickel from the data obtained from Sylvania.

Restrictions

The mine is restricted by the wetland and flood berm located on the western side of the North pit. SRK limited the North pit extension to the west, using the river diversion berm, where the berm was provided with a 50 m buffer from the wetland as provided by Sylvania. At present, no other physical restrictions have been identified to limit pit development.

8.2.2 Input Parameters

Sylvania has assisted the optimisation by providing economic and technical parameters by incorporating data gathered from previous studies, including the PFS by Earthlab 2022 and the La Pucella scoping study. The technical and economic parameters that were agreed and utilised in the optimisation process for this study are summarised in Table 8-3.

Table 8-3: Summary of Optimisation Input Parameters

Input Parameter	Value	Unit
Ore Production Rate	150,000	t/month
Mining Cost	40	ZAR/t waste
Grade Control	14	ZAR/t ore
Vertical Mining Cost Adjustment Factor	0.15	ZAR/t/10m
Marginal transport cost (over 1km)	3	ZAR/t/Km
Mining Recovery	88%	Including 10% geological losses
Mining Dilution	-	As per block model
Additional Ore Mining Cost – SP re-handle	10	ZAR / RoM tonne
Process Cost	276.7	ZAR / RoM tonne
Administration Cost	55	ZAR / RoM tonne
Royalty	4.6	% Revenue
Interest rate	10	%
Prill split in Fresh Ore / Oxide Ore Conc.		
Platinum	37 / 42	%
Palladium	56 / 50	%
Rhodium	5 / 5	%
Gold	2 / 3	%
Process Recovery (Oxide Ore)		
Platinum	30.3	%
Palladium	36.7	%
Rhodium	26.6	%
Gold	47.7	%
3E +Au	33.30	%
Copper	27.3	%
Nickel	24.10	%
Process Recovery (Fresh Ore)		
Platinum	64.90	%
Palladium	78.50	%
Rhodium	64.60	%
Gold	53.60	%
3E + Au	71.6	%
Copper	48.6	%

Input Parameter	Value	Unit
Nickel	61.7	%
Payability and Smelter Cost		
3E + Au payability	75	%
Copper / Nickel payability	70/75	%
Transport Cost for concentrate	?	Not included at this stage
4E smelter cost	10	USD/oz
Copper Smelter cost	200	USD/t
Nickel Smelter cost	100	USD/t
Pit Slope Angle (Overall)		
North pit – Overall pit slope angle	49	degrees
South pit – Overall pit slope angle	39	degrees

Typical contractor mining rates in South Africa are used to determine the base mining expenses applied to the pit optimization. This cost includes those associated with loading, hauling, drilling, and blasting waste. The haul cost rate should then be modified based on elevation and marginal hauling distances, which is thought to add ZAR0.15/t for every 10 m of vertical advance to the mining cost. For Volspruit, where the waste dumps are located more than a kilometre away from the mines' exits, a marginal hauling cost of ZAR3/t.km was added to the waste mining cost. The mining cost was also adjusted for weathered material, where the blasting cost will be lower. The cost of mining weathered rock was determined at 90% of the unit mining cost. These modifications were made to the Whittle model as a component of the mining cost adjustment factor (MCAF) field.

Additional mining expenses, such as those associated with grade control and administration have been added in conjunction with Sylvania.

As advised by Earthlab (the geological modeller), 10% of geological losses is allocated to the mining recovery. There was no further dilution taken into consideration because the dilution of waste to the ore was added to the block model by regularizing the block model to the SMU selected size.

The processing cost and recoveries are derived from a review of the recent metallurgical test results provided by Sylvania. It was assumed the final products would be 4E, Copper and Nickel concentrates.

Sylvania has no plans to establish a smelter refinery, but the applied smelting costs are considered based on the industry standards of such these costs. Although the target is to sell the concentrate, the concentrate hauling cost to the smelter remains uncertain and hence is ignored.

Sylvania recommended a royalty payment of 4.6% of the revenue and an interest rate of 10% for this study.

There are no upgraded geotechnical parameters for a pit wall stability analysis and therefore the pits' overall slope angles were obtained from the 2010 study.

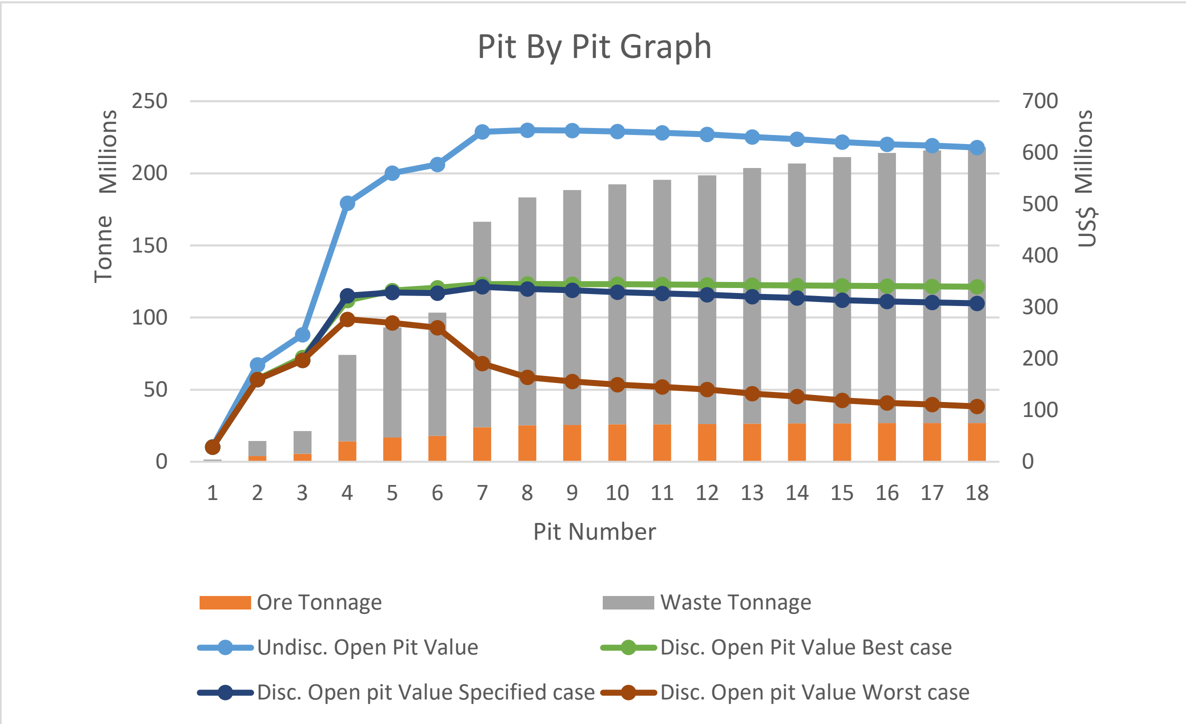
8.2.3 Optimisation Results

The optimisation process utilizes block values which are determined by the input parameters to generate pit shells using the Lersch-Grossmann algorithm. These pit shells serve as guidance for determining the pit limit, where the Mineral Inventory can be economically extracted. The pit optimisation technique not only determines the final open pit size but also indicates potential mining pushbacks.

The pit shells can be generated at varying prices. The revenue factors are used to scale the entered selling price, resulting in the production of different pits that are optimal for different price points.

Figure 8-1 represents the size and values of the pit shells. Pit shell number 8, characterised by a revenue factor of 1, represents the pit with the highest potential value (undiscounted) when using the metal prices detailed above. This graph's pit value, or undiscounted cashflow, for pit number 8 is close to USD644 million. The interim pit selection and the LoM production schedule comprise the basis of the discounted cash flow with the amount of about USD335 million as shown in this graph, which excludes the capital cost.

Subsequent pit shells demonstrate revenue factors that vary in increments or decrements of 10%. The graph illustrates that increasing the revenue does not notably alter the pit size, while diminishing the revenue does have a significant impact.



srk consulting	**VOLSPRUIT PEA** Optimisation pit by pit graph	Project No. 601183

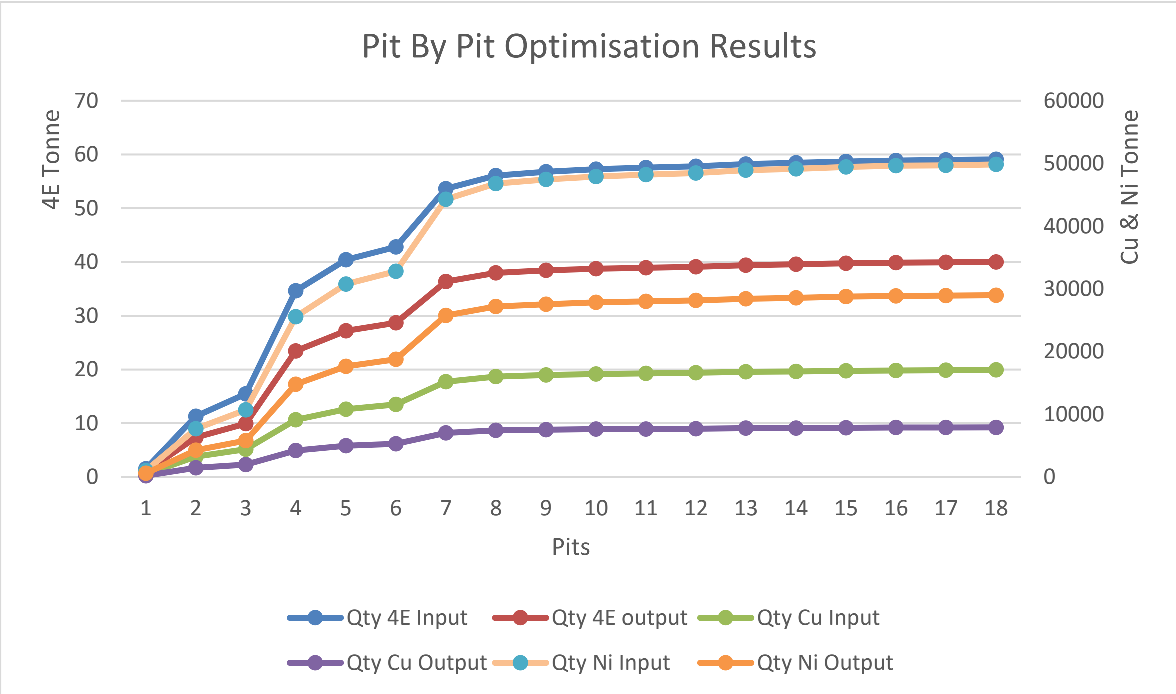
Figure 8-1: Optimisation pit by pit graph

Figure 8-2 illustrates the quantity of metal mined for processing and quantity of metals output for each pit. The metal output in this graph does not include the smelter recoveries.

SRK selected the pit shell number 8 with the revenue factor 1 as the ultimate pit limit for purpose of designing the final pit and shells 3 and 4 (revenue factor of 0.5 and 0.6) as the pushbacks for the purpose of production scheduling. Pit shell number 8 contains of 25.2 Mt of ore which nearly 8.5 Mt, or approximately 34%, was classed as an Inferred Resource. Additionally, about 2.3 Mt, or roughly 9% of the entire ore, is classified as oxide ore. The rock inventory within the pit shell number 8 is shown in Table 8-4.

Table 8-4: Rock inventory within the pit shell number 8

Rock Types	Resource Class	Tonne (Mt)	4E (g/t)	Cu (g/t)	Ni (g/t)
Ore Fresh	M+I	15.0	2.36	629.2	1 799.0
	Inferred	7.9	1.90	617.4	1 940.8
Ore Oxide	M+I	1.8	2.51	759.2	1 871.2
	Inferred	0.5	2.15	623.6	1 986.4
Total Ore	M+I	16.8	2.38	643.1	1 806.7
	Inferred	8.5	1.92	617.8	1 943.6
Subtotal Ore		**25.2**	**2.22**	**634.6**	**1 852.7**
Waste		**158.2**			
Total Rock		**183.4**			



srk consulting	**VOLSPRUIT PEA** Elements quantity input and output (Ex. Smelter recoveries)	Project No. 601183

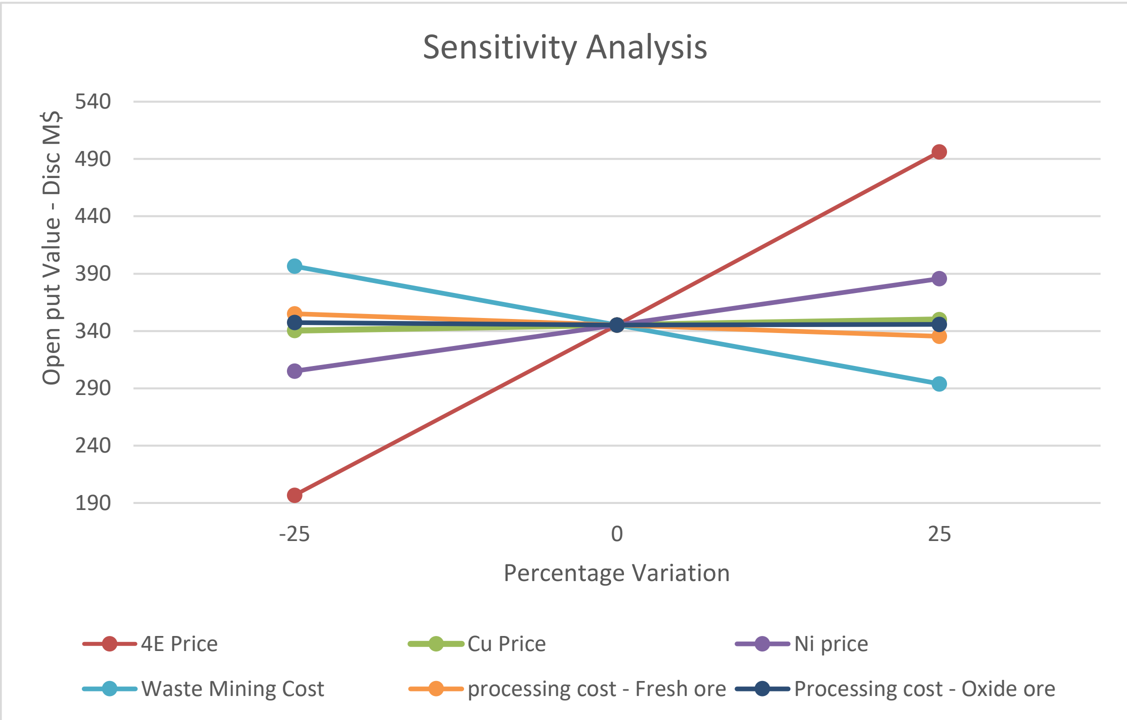
Figure 8-2: Elements quantity input and output (Ex. Smelter recoveries)

The economic parameters used in the optimisation process help to determine the metals' economic cut-off grades as indicated in Table 8-5. It should be noted that when there are multiple elements that add value to a project, Whittle uses an approach which has the same effect as using an equivalent metal. It means in some ore blocks, the average grade of an element processed may be below the cut-off for that element. Because of this, the rejected ore is very small in quantity compared to the total ore processed and so most of the oxide and fresh ore were chosen to be processed.

Table 8-5: Economic cut-off grades

	Fresh			Oxide		
	4E	Cu	Ni	4E	Cu	Ni
Cut-off grade (g/t)	0.85	7 595	2 430	1.82	13 522	6 244

The sensitivity of the open pit limit and pit value to changing the values of the input parameters was also studied. There is no notable sensitivity to the pits' size when the cost values or pit overall slope angles are changed, but a decrease in the 4E selling price has an impact. The open pits' value (discounted) is however sensitive to the costs or selling prices, as demonstrated in Figure 8-3.



srk consulting	**VOLSPRUIT PEA** Open Pit value sensitivity to the costs and selling prices	Project No. 601183

Figure 8-3: Open Pit value sensitivity to the costs and selling prices

8.3 Practical Pit Designs

The pit design procedure aimed to convert the optimal pit shell generated from the pit optimisation study into a practical pit with ramps, and bench and berm designs, while taking design criteria and geotechnical constraints into account.

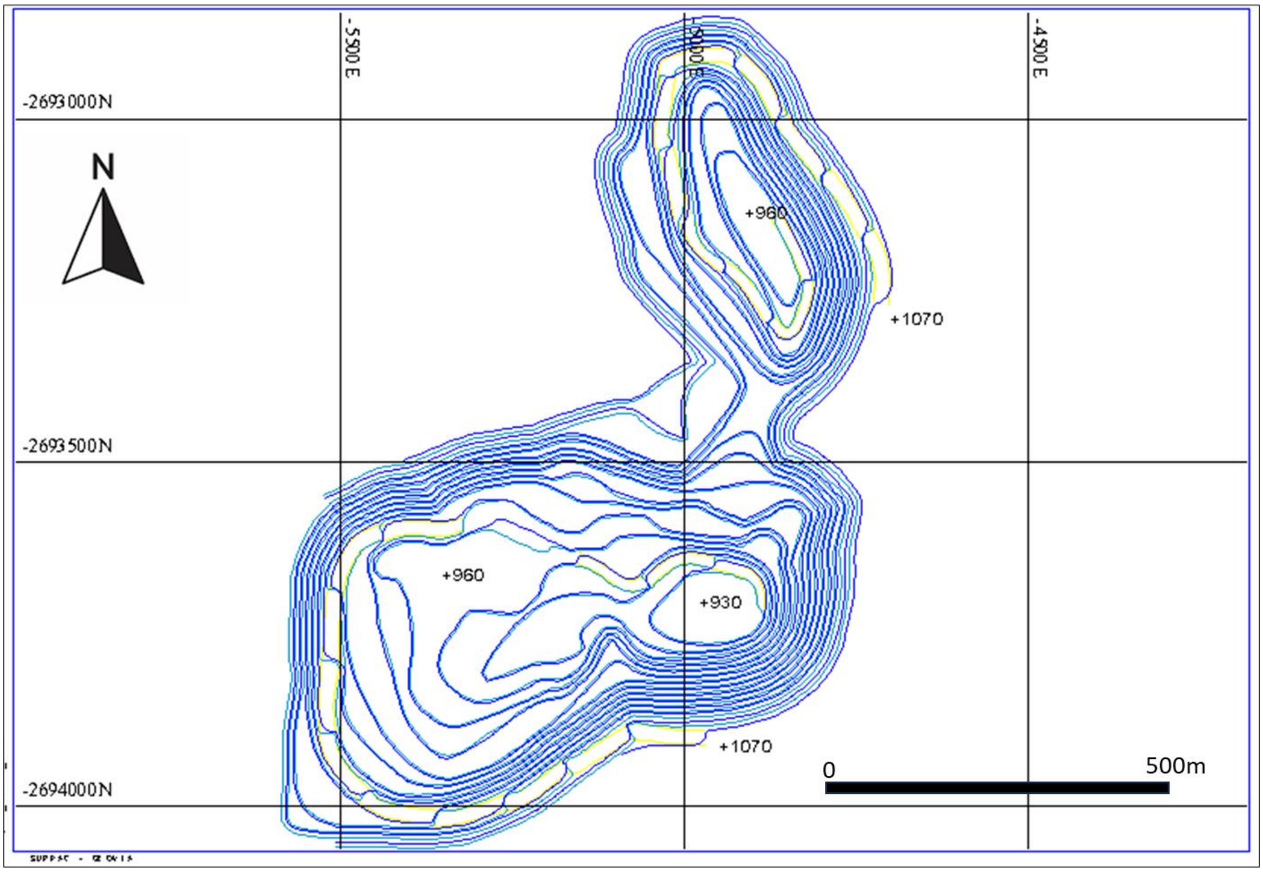
Only the ultimate (final) pit for North and South deposits were designed at this stage, with the interim selected Whittle shells serving as pushbacks during the production schedule process.

The design criteria have been set as follow:

- Overall slope angle: 49º north pit and 39º south pit;
- Bench height: 10m;
- Batter angle: 55º weathered rocks and 75º fresh rocks;

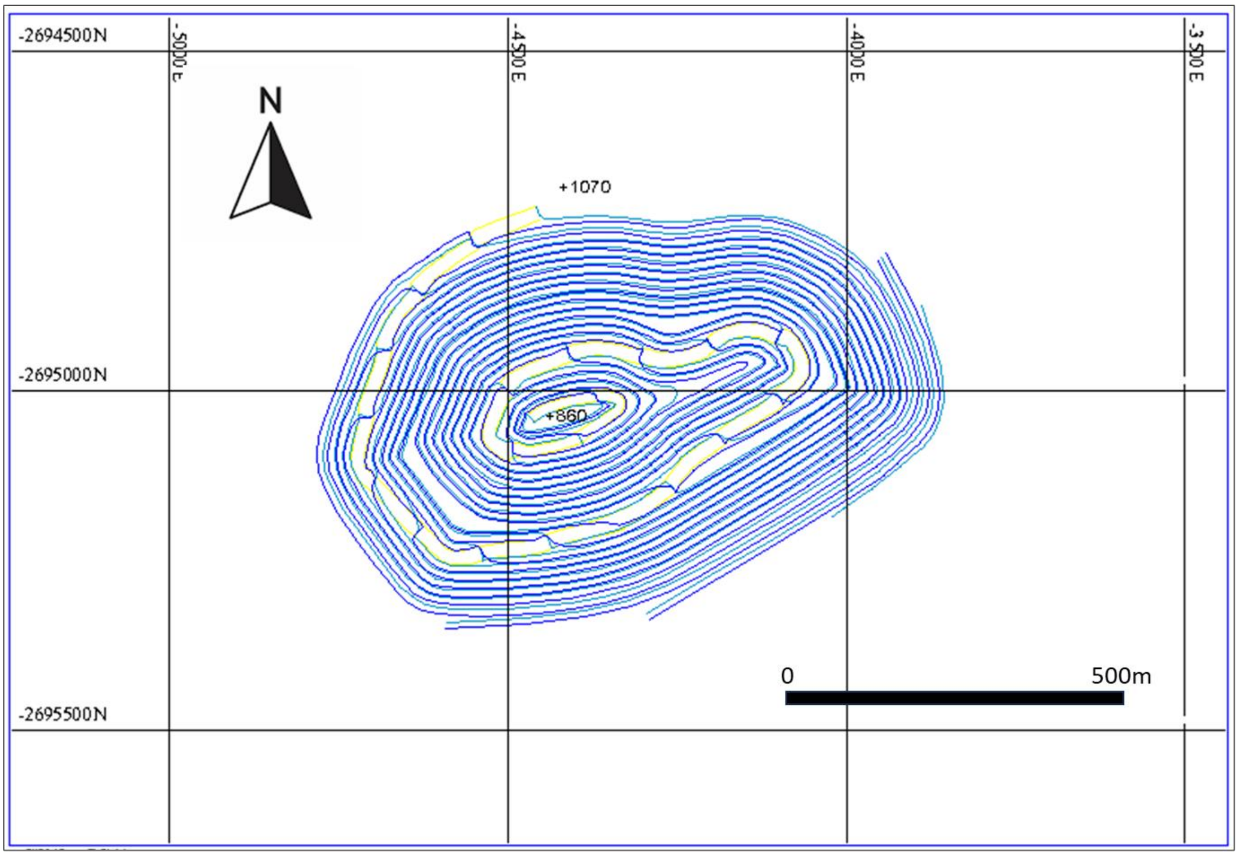
- Berm width: 6m for north pit and 9.5m for south pit;
- Ramp width: 21m (based on 5.7m (90t trucks operating width) x 3 + 4m (safety berm and ditch)); and
- Ramp gradient: 10%.

Figure 8-4 and Figure 8-5 show the practical pits for the North and South orebodies.



srk consulting	**VOLSPRUIT PEA** North Pit Practical Pit Design	Project No. 601183

Figure 8-4: North Pit Practical Pit Design



srk consulting	**VOLSPRUIT PEA** South pit Practical Pit Design	Project No. 601183

Figure 8-5: South pit Practical Pit Design

The North Pit west wall was constrained by the river diversion berm, where the berm was allocated with 50 m buffer from the wetland. The flood berm design submitted by Sylvania is to be used as the North Pit limit.

A ramp width of 21 m was calculated for the 90 t rigid trucks by using three times the truck's operating width, plus 4 meters for safety berms and a water collection ditch, although it is anticipated that 60 t trucks may be a better option for this scale of mining, which would reduce the ramp width.

The wide area in the North Pit will allow for channels and a sump to dewater seepage and rainwater. Similarly, the wide berms in the South Pit should be sufficient for this purpose. It is expected that the dewatering boreholes outside the pits will control most of the seepage water.

Table 8-6 and Table 8-7 show the rock inventories within the North and South Pits. No mining or geological losses have been applied to the figures in these tables. From a geological point of view, 10% of the ore tonnage may be treated as waste. The metal content of the unclassified resource (mineralised material), as measured by the resource block models and shown in these tables, is typically below the cut-offs and so deemed as waste (mineralised waste).

Table 8-6: Rock Inventory within the north pit

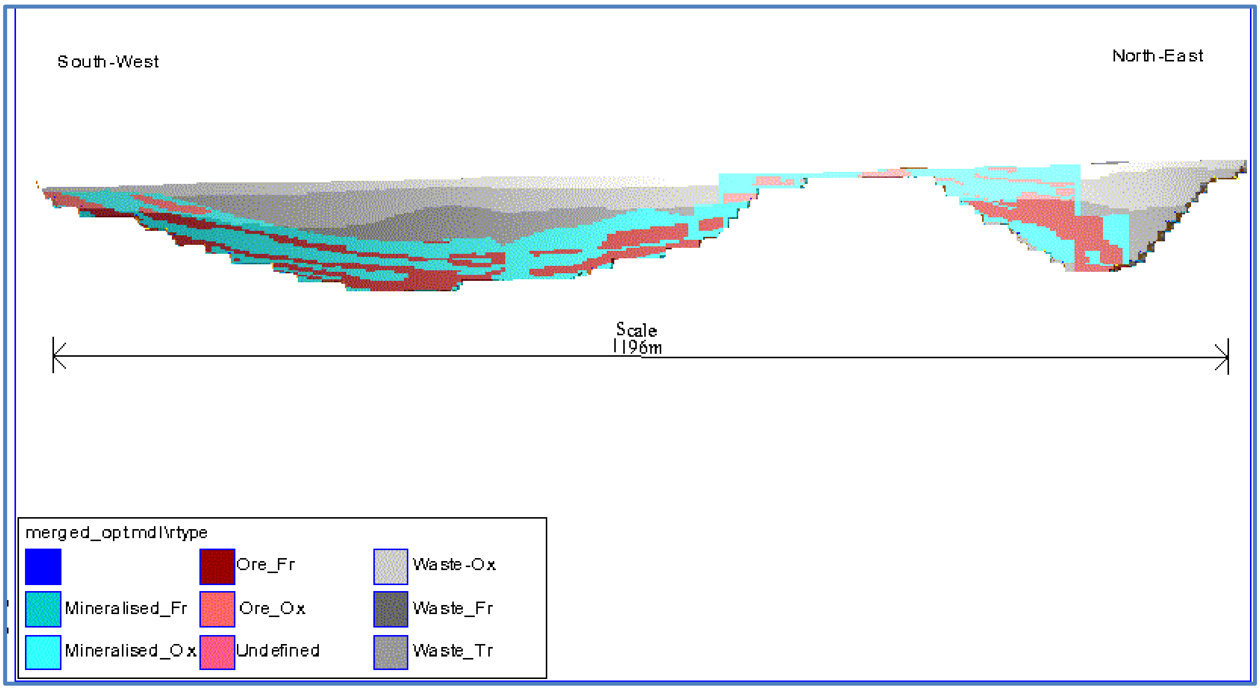
Rock types	Volume	Tonnes	4E	Cu	Ni
North Pit			**(g/t)**	**(g/t)**	**(g/t)**
Ore_Fresh	4 981 375	15 081 923	2.4	631	1 762
Ore_Oxide	799 188	2 145 506	2.5	736	1 852
Sub_total_Ore	**5 780 563**	**17 227 429**	**2.4**	**644**	**1 773**
Mineralised_waste_Fr	9 440 000	28 154 588	0.42	189	1002
Mineralised_waste_Ox	4 108 562	10 435 169	0.36	181	879
Waste-Ox	5 674 375	12 661 336	0	0	0
Waste_Tr	7 722 438	20 721 260	0	0	0
Waste_Fr	5 088 688	14 760 677	0	0	0
Sub_total_Waste	**32 034 063**	**86 733 030**			
Grand Total	**37 814 625**	**103 960 459**	**0.55**	**176**	**653**

Table 8-7: Rock inventory within the south pit

Rock types	Volume	Tonnes	4e	Cu	Ni
South Pit			**(g/t)**	**(g/t)**	**(g/t)**
Ore_Fresh	3 042 125	8 714 526	1.9	607	1 971
Ore_Oxide	166 250	455 167	1.9	588	1 979
Sub_total_ore	**3 208 375**	**9 169 693**	**1.9**	**606**	**1 972**
Mineralised_waste_Fr	5 381 000	15 464 860	0.61	314	1451
Mineralised_waste_Ox	1 112 750	2 946 850	0.50	255	1323
Waste_Fr	8 281 688	24 285 507	0	0	0
Waste_Tr	5 085 375	14 216 537	0	0	0
Waste-Ox	8 746 875	22 618 201	0	0	0
Sub_total_waste	**28 607 688**	**79 531 955**			
Grand Total	**31 816 062**	**88 701 648**	**0.31**	**126**	**501**

Figure 8-6 and Figure 8-7 show north-west to south-east sections of the pits with rock inventories inside.

The weathered rocks vary from 10 to 20 m in the North Pit and 15 to 30 m in the South Pit. The orebody is close to the surface in the northern part of the North Pit and south-west of the South Pit.



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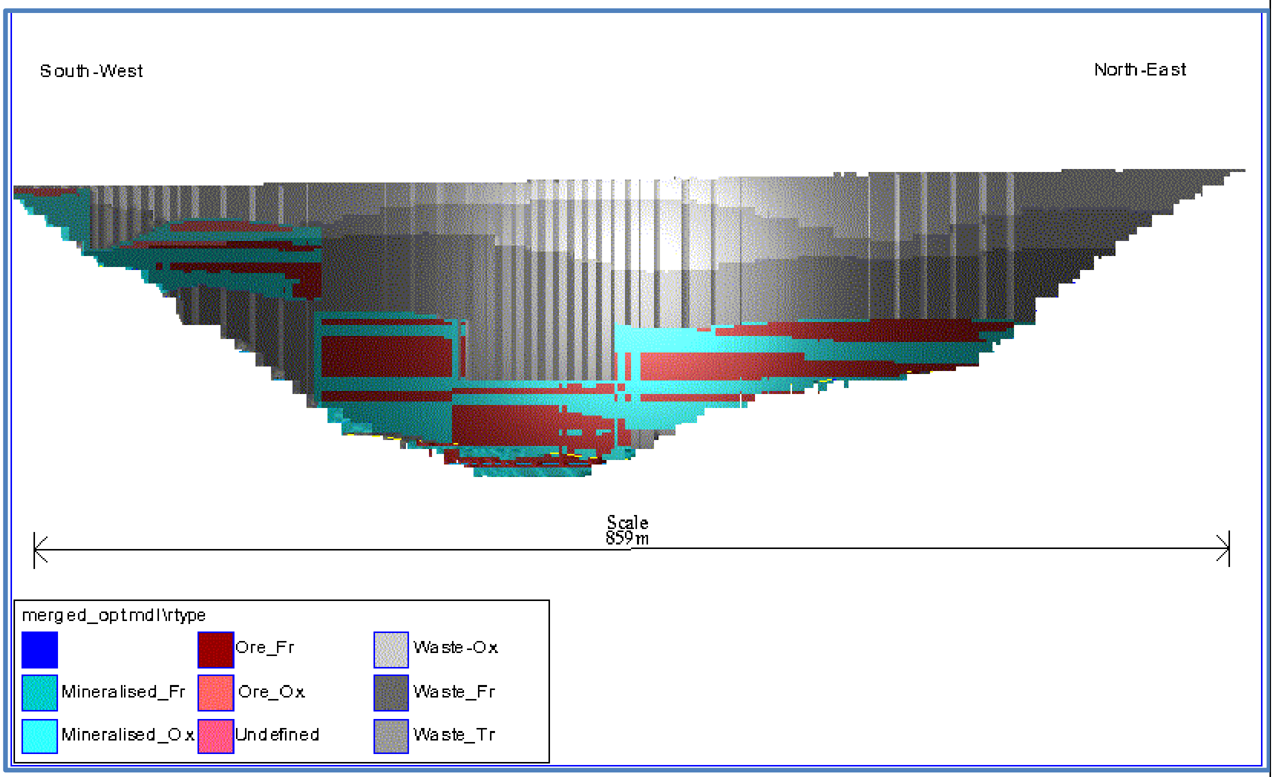
North pit long section

Project No.
601183

Figure 8-6: North Pit long section



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South Pit long section

Project No.
601183

Figure 8-7: South Pit long section

8.4 Production schedule

A high-level production schedule was built up using the ultimate and interim pit shells from the optimisation practice from the North and South Pits together. The steady production rate of 1.8 million tonnes ore per year (150 kt per month) was used as per Sylvania's recommendation. It is assumed the processing plant is able to process both the oxide and fresh ore.

To expose the necessary feed ore on time, mining should begin before the processing plant's commissioning date. Thus, the mining start date is determined by two criteria. The first factor is the processing ramp-up plan, while the second is the blending plan for the feed ratio of oxide and fresh ores. A six-month ramp-up of the processing plant is expected to achieve the target processing feed tonnage. However, no exact blending plan for oxide and fresh ore treatment ratios is known. If fresh ore processing is prioritized, the oxide ore exposed during the early mining year should be stockpiled and mixed in accordance with the goal blending plan. SRK anticipates that mining should begin at least six months before the processing plant is commissioned, and if the processing plant will primarily use fresh rock, then mining should start even earlier. This aspect should be investigated in more detail in the next study phase.

The combined mining production schedule is summarised in Table 8-8 on an annual basis. The initial year at the table is labelled as "Year 0" so that mining will commence prior to processing with full production.

The annual waste removal was balanced at approximately 13 Mt.

The ore in Table 8-8 comprises all Resource classes (Indicated and Inferred), while approximately 34% of the total includes Inferred ore. The waste consists of low-grade mineralized materials that have not been classified as ore (near 33% of total waste). The quantity of ore was adjusted to account for mining and geological losses of 12%, and grade dilution was estimated by regularizing the resource block mode.

The mining production from the Zoetveld mining right is shown separately in Table 8-9 on an annual basis. Sylvania cannot confirm if the "associated minerals" on Zoetveld transferred by Grasvally Chrome to Volspruit Mining Company include the base minerals of Cu and Ni. The contribution of the Cu and Ni from Zoetveld needs to be excluded from the economic evaluation.

Table 8-8: Combined Mining Production Schedule (Volspruit and Zoetveld)

					Ore Grade			Ore Mined out		Grade Fresh			Grade Oxide		
Period Year	Ore (tonne)	Inferred (%)	Waste (tonne)	Strip ratio	4E (g/t)	Cu (g/t)	Ni (g/t)	Fresh (tonne)	Oxide (tonne)	4E (g/t)	Cu (g/t)	Ni (g/t)	4E (g/t)	Cu (g/t)	Ni (g/t)
0	1 795 517	5.4%	13 204 483	7.35	2.66	733.91	1875.40	650 162	1 145 355	2.97	806.44	1959.96	2.48	692.75	1827.40
1	1 798 677	13.5%	13 201 323	7.34	2.85	774.01	1955.61	1 630 163	168 514	2.87	776.33	1956.80	2.61	751.55	1944.06
2	1 799 536	20.0%	13 200 464	7.34	2.92	853.83	2010.46	1 689 259	110 277	2.94	866.57	2019.42	2.69	658.62	1873.29
3	1 796 053	11.9%	13 203 947	7.35	2.28	641.49	1797.24	1 794 143	1 910	2.28	641.64	1797.37	1.56	496.77	1669.10
4	1 798 310	7.3%	13 201 690	7.34	2.07	517.89	1720.50	1 760 326	37 983	2.07	511.02	1718.22	2.02	836.23	1826.13
5	1 798 506	5.7%	13 201 494	7.34	2.14	551.27	1698.03	1 579 401	219 105	2.09	491.43	1652.93	2.46	982.59	2023.11
6	1 799 536	20.4%	13 200 464	7.34	2.27	576.02	1746.83	1 359 744	439 792	2.25	526.77	1676.60	2.33	728.29	1963.97
7	1 799 963	27.6%	13 200 037	7.33	2.24	587.10	1782.51	1 608 934	191 030	2.25	578.43	1755.44	2.15	660.08	2010.54
8	1 800 000	32.3%	12 325 935	6.85	2.15	599.26	1838.30	1 793 690	6 310	2.15	599.40	1838.58	1.76	558.26	1758.98
9	1 264 511	76.9%	13 735 489	10.86	1.70	562.03	1886.02	1 264 490	20	1.70	562.03	1886.03	1.60	462.13	1500.31
10	1 800 000	51.0%	11 455 859	6.36	1.94	555.55	1790.41	1 800 001	0	1.94	555.55	1790.41			
11	1 800 000	60.9%	6 696 581	3.72	1.91	595.18	1823.03	1 800 000	0	1.91	595.17	1823.03			
12	1 800 000	64.0%	4 727 138	2.63	1.86	609.03	1873.90	1 800 000	0	1.86	609.03	1873.90			
13	1 800 000	74.6%	3 206 295	1.78	1.82	636.96	1996.34	1 800 000	0	1.82	636.96	1996.34			
14	586 620	67.4%	393 352	0.67	2.65	848.32	2319.72	586 621	0	2.65	848.32	2319.72			
Total	**25 237 229**	**33.6%**	**158 154 551**	**6.3**	**2.22**	**634.61**	**1852.65**	**22 916 934**	**2 320 296**	**2.20**	**625.09**	**1848.14**	**2.43**	**728.63**	**1897.16**

Table 8-9: Zoetveld Mining Production Schedule

Period	Ore Mined out		Grade Fresh		Grade Oxide	
	Fresh	Oxide	Cu	Ni	Cu	Ni
Year	(tonne)	(tonne)	(g/t)	(g/t)	(g/t)	(g/t)
0	140 007	55 154	852.4	2138.6	732.4	1835.9
1	254 162		827.2	1980.8		
2	320 054		1019.1	2249.9		
3	192 353		1181.2	2296.2		
4	22 435		959.4	2157.4		
5	14 077		701.5	1777.4		
Total	943 088	55 154	969.54	2 161.06	732.4	1835.9

8.5 Material Movement

Mining should begin in the northern portion of the North Pit and in the south-west portion of the South Pit since the ore is closer to the surface and has a lower stripping ratio. As mentioned above, mining should start earlier, and the extracted ore (oxide or fresh) during this period should be stockpiled. A RoM stockpile has been designated in an area between the North and South pits. The anticipated 2 Mt stockpile capacity is sufficient for ore storage and blending when required, or as a buffer during processing plant repair shutdowns.

An example of material movement between the pits, stockpiles and processing plant is shown in Table 8-10. This plan will assist making the plant feed smoother with regard to blending the ore types (fresh and oxide). The plan includes the Zoetveld ore and Cu/Ni contribution, which is removed in the economic evaluation.

In this plan, SRK assumed:

- The mining should start at least six months before the plant commissioning (an estimated period to expose ore). The plant also needs a ramp-up of six months. Thus, year zero of the mining calendar comprises the mining and processing ramp-up;
- It is estimated that the processing facility would receive 675 kt of ore during the ramp-up phase; and
- The processing plant will treat ore with a blend of 90% fresh ore and 10% oxide ore.

The criteria above are assumptions and should be investigated in further detail.

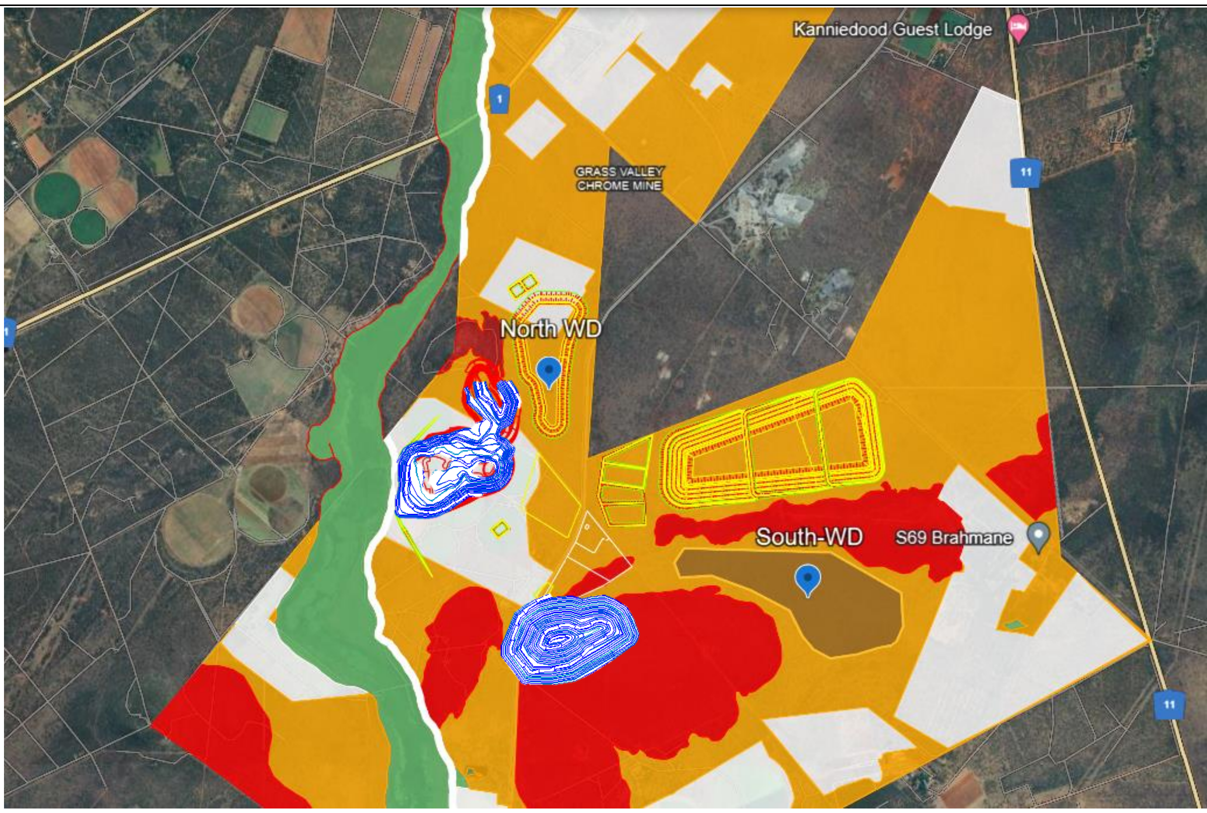
However, conditions will get worse if low-grade mineralized materials are also disposed in the same location. It appears that the low-grade mineralized waste was not intended to be dumped separately in the previous study and was probably backfilled in the North Pit void or mined-out area. SRK suggests that low-grade mineralized waste be separately dumped in the north waste dump, and that other wastes be moved to the south waste dump until the northern portion of the North Pit is fully depleted and suitable for waste backfilling. This ought to be addressed in the next stage of the study.

Figure 8-8 is a general view of the pits and waste dump locations.

A report by ESCIENCE, states that the wind generally blows from north to south. As a result, developing waste dump from north to south will reduce air pollution caused by winds.

Table 8-10: Ore movement illustration plan

	Mined out		Pit to Stockpile		Pit to Plant		Stockpile to plant		Total to Plant	
Period	**Fresh**	**Oxide**	**Fresh**	**Oxide**	**Fresh**	**Oxide**	**Fresh**	**Oxide**	**Fresh**	**Oxide**
Year	**tonne**	**tonne**	**tonne**	**tonne**	**tonne**	**tonne**	**tonne**	**tonne**	**tonne**	**tonne**
0	650 162	1 145 355	650 162	1 145 355			607 500	67 500	607 500	67 500
1	1 630 163	168 514	10 163	0	1 620 000	168 514	0	11 486	1 620 000	180 000
2	1 689 259	110 277	69 259	0	1 620 000	110 277	0	69 723	1 620 000	180 000
3	1 794 143	1 910	174 143	0	1 620 000	1 910	0	178 090	1 620 000	180 000
4	1 760 326	37 983	140 326	0	1 620 000	37 983	0	142 017	1 620 000	180 000
5	1 579 401	219 105	0	39 105	1 579 401	180 000	40 599	0	1 620 000	180 000
6	1 359 744	439 792	0	259 792	1 359 744	180 000	260 256	0	1 620 000	180 000
7	1 608 934	191 030	0	11 030	1 608 934	180 000	11 066	0	1 620 000	180 000
8	1 793 690	6 310	173 690	0	1 620 000	6 310	0	173 690	1 620 000	180 000
9	1 264 490	20	0	0	1 264 490	20	355 510	179 980	1 620 000	180 000
10	1 800 001	0	180 001	0	1 620 000	0	0	180 000	1 620 000	180 000
11	1 800 000	0	180 000	0	1 620 000	0	0	180 000	1 620 000	180 000
12	1 800 000	0	180 000	0	1 620 000	0	0	180 000	1 620 000	180 000
13	1 800 000	0	180 000	0	1 620 000	0	0	92 796	1 620 000	92 796
14	586 621	0	0	0	586 621	0	662 813	0	1 249 434	
Total	**22 916 934**	**2 320 296**	**1 937 744**	**1 455 282**	**20 979 190**	**865 014**	**1 937 744**	**1 455 282**	**22 916 934**	**2 320 296**



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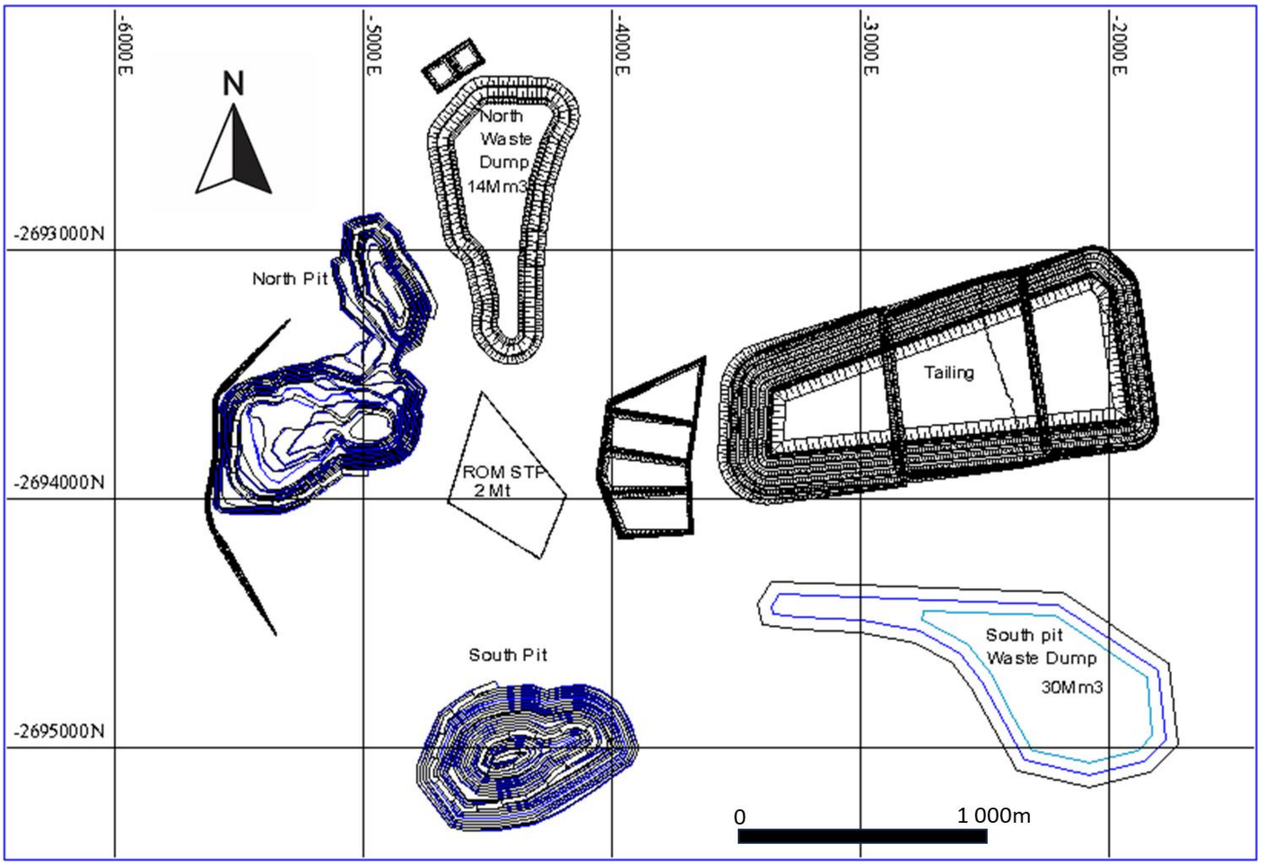
Overview of the pits and dump location

Project No.
601183

Figure 8-8: Overview of the pits and dump location

Courtesy of Sylvania



srk consulting | **VOLSPRUIT PEA** Waste dump locations | Project No. 601183

Figure 8-9: Waste dump locations

Courtesy of Sylvania

Using a mining contractor method was selected by Sylvania for mining and material movements. SRK, however, did a high-level mining fleet estimation for the LoM as shown in Table 8-11 as a guide for the operation. Due to the orebody's location and shape, a small loading unit is required for mining the ore, which necessitates the use of small mining fleet in order to increase mining selectivity and decrease dilution.

The fleet quantities were estimated based on selecting the 60 t articulated trucks (SRK recommendation) for hauling the waste from the pits to the nominated waste dumps and ore to the stockpile or crusher site. It was assumed that about 15% of total ore will be rehandled from stockpiles.

Five shovels with a 4-5 m^3 bucket size are suitable to load such trucks. The drill rigs are also suitable for 5-10 m bench height and to prepare the required mining blocks for blasting. The other auxiliary equipment should be available to assist the loading and hauling activities. Another assumption was 347 scheduled working days per year, on three shifts waste mining and two shifts' ore mining per day. This results in 5 710 operating active hours per year per fleet for waste mining and 4 175 hours for ore. The fleet replacement schedule was estimated by estimating the active operating hours and considering the standard equipment lifespan.

The access roads are shown in Figure 12-1 as is discussed in the infrastructure section of this report but for ease of calculations, an average hauling distance of 500 m from mine exits to the crusher site and an average of 1 500 m to the waste dumps has been assumed for the fleet quantity estimate.

Table 8-11: Mining fleet estimation for planned material movements

		Year								
Mining Fleet	**Model**	0	1	2	4	5	6	7	8	**Total**
Truck	55t Articulated trucks	12	2	1					1	16
Shovel	4.4 cu m bucket size	4	1				4	1		10
drill rigs	Ore (4 Inch)	1							1	2
	Waste (5.5-6 Inch)	2							2	4
Track Dozer	Cat D8R&D9R	2						2		4
wheel dozer	Cat 824H	1								1
Grader	Cat 16M	3								3
F.E.Loader		1								1
Anfo truck		1								1
Fuel Truck		1								1
Compressor		1								1
Sec.drill	1 Inch (26 mm)	1								1
Rock breaker	Atlas HB 3000	1								1
Water cart		1								1
LDV's		7					7			14
Lowbed		1								1
Compactors		1								1
lighting Plants		2								2
Radio Communications		2				2				4
Survey Instruments		1				1				2
Pumps		9				9				18
Workshop tools and initial spars		1				1				2

8.6 Conclusions and Recommendations

SRK recommends the following be addressed in future studies.

- The pits comprise approximately 25 Mt of ore, of which nearly 8.5 Mt have been classified as Inferred Resources, comprising about 34% of the total minable ore. For the next study phase, the Inferred Resource should be upgraded to the minimum required Indicated Resource class;
- The pit slope angles are derived from studies conducted in 2012, which are not regarded as detailed designs and should therefore be revised to incorporate more recent data;
- An estimated 9% of the total minable ore, or 2.3 Mt, is categorized as oxide ore. It is assumed that the processing facility should handle ore by combining 90% fresh ore with 10% oxide ore throughout the mine's life and commissioning phase. Further investigation and confirmation of this should be done for the mining production schedule; and
- Approximately 33% of the 158 Mt waste produced during the mining operation consisted of mineralized low-grade material. Separate disposal of mineralized waste is recommended by SRK and should be considered further.

9 Metallurgy and Mineral Processing

9.1 Introduction

This chapter of the CPR considers the mineralogical and metallurgical characteristics of the ore. From these results the test work is analysed, and the conclusions derived are considered.

Risks and opportunities are discussed, and what further work would be recommended in the future stages of the project.

9.2 Geology

Situated on the southern end of what is regarded of the Northern Limb of the Bushveld Igneous Complex, the deposit is near-surface and the preferred mining approach would be for an opencast mine. The deposit is interesting from a geological perspective and the ore is not classified as one of the three main platinum bearing ore types that have been mined on the Bushveld Igneous Complex i.e., Merensky, Platreef or UG2.

More detail of the structure of the ore body can be obtained from the Section 4 of the report. Suffice it to say that the ore body consists of sedimentary rocks from the Pretoria Group and Transvaal Supergroup, and igneous rocks of the Lower Zone, Rustenburg Layered Suite of the Bushveld Complex.

The Lower zone consists primarily of pyroxenitic and hartzburgitic rocks of various layers, and the PGM, Au and the associated Cu and Ni minerals are found in the Upper Volspruit Pyroxenite unit. Some of the base metal mineralisation occurs within one of the associated hartzburgite units.

As is commonly found in similar near-surface deposits, the degree of oxidation of the ore increases the nearer the ore is to the surface and demonstrates poorer metallurgical response with the degree of oxidation.

Two “fresh” ore bodies were considered in the test work, namely the Northern and Southern deposits, and a “transition/oxide” ore.

9.3 Mineralogy

The rock bearing the PGM and most of the base metal sulphides is pyroxenite. The PGMs occur as finely disseminated grains associated with the base metal sulphides of Cu and Ni. Unfortunately, detailed mineralogical analysis was not provided for this study, and we will consider the chemical analysis in our interpretation.

The PGM and gold splits are tabulated in Table 9-1 for the South, North and oxidised ores.

Table 9-1: PGM Prill Split

Ore	Grade							Pt:Pd	Distribution					
	Pt [g/t]	Pd [g/t]	Rh [g/t]	Au [g/t]	Ru [g/t]	Ir [g/t]	6E [g/t]	Ratio	Pt [%]	Pd [%]	Rh [%]	Au [%]	Ru [%]	Ir [%]
South Fresh 1	0.69	0.98	0.14	0.03	0.05	0.02	1.91	0.70	36.1	51.3	7.3	1.6	2.6	1.0
South Fresh 2	0.68	0.97	0.14	0.04	0.05	0.02	1.90	0.70	35.8	51.1	7.4	2.1	2.6	1.1
South Fresh [avg.]	**0.69**	**0.98**	**0.14**	**0.04**	**0.05**	**0.02**	**1.91**	**0.70**	**36.0**	**51.2**	**7.3**	**1.8**	**2.6**	**1.0**
North Fresh 1	1.04	1.26	0.16	0.04	0.04	0.03	2.57	0.83	40.5	49.0	6.2	1.6	1.6	1.2
North Fresh 1	1.05	1.3	0.17	0.06	0.06	0.03	2.67	0.81	39.3	48.7	6.4	2.2	2.2	1.1
North Fresh [avg.]	**1.05**	**1.28**	**0.165**	**0.05**	**0.05**	**0.03**	**2.62**	**0.82**	**39.9**	**48.9**	**6.3**	**1.9**	**1.9**	**1.1**
Ox/Trans 1	1.06	0.93	0.15	0.05	0.06	0.02	2.27	1.14	46.7	41.0	6.6	2.2	2.6	0.9
Ox/Trans 1	0.94	0.95	0.15	0.05	0.06	0.02	2.17	0.99	43.3	43.8	6.9	2.3	2.8	0.9
Ox/Trans 1	1.01	0.94	0.15	0.05	0.06	0.02	2.23	1.07	45.3	42.2	6.7	2.2	2.7	0.9
Ox/Trans 1 [avg.]	**1.00**	**0.94**	**0.15**	**0.05**	**0.06**	**0.02**	**2.22**	**1.07**	**45.1**	**42.3**	**6.7**	**2.2**	**2.7**	**0.9**

The prill split is illustrated in the graph in Figure 9-1.

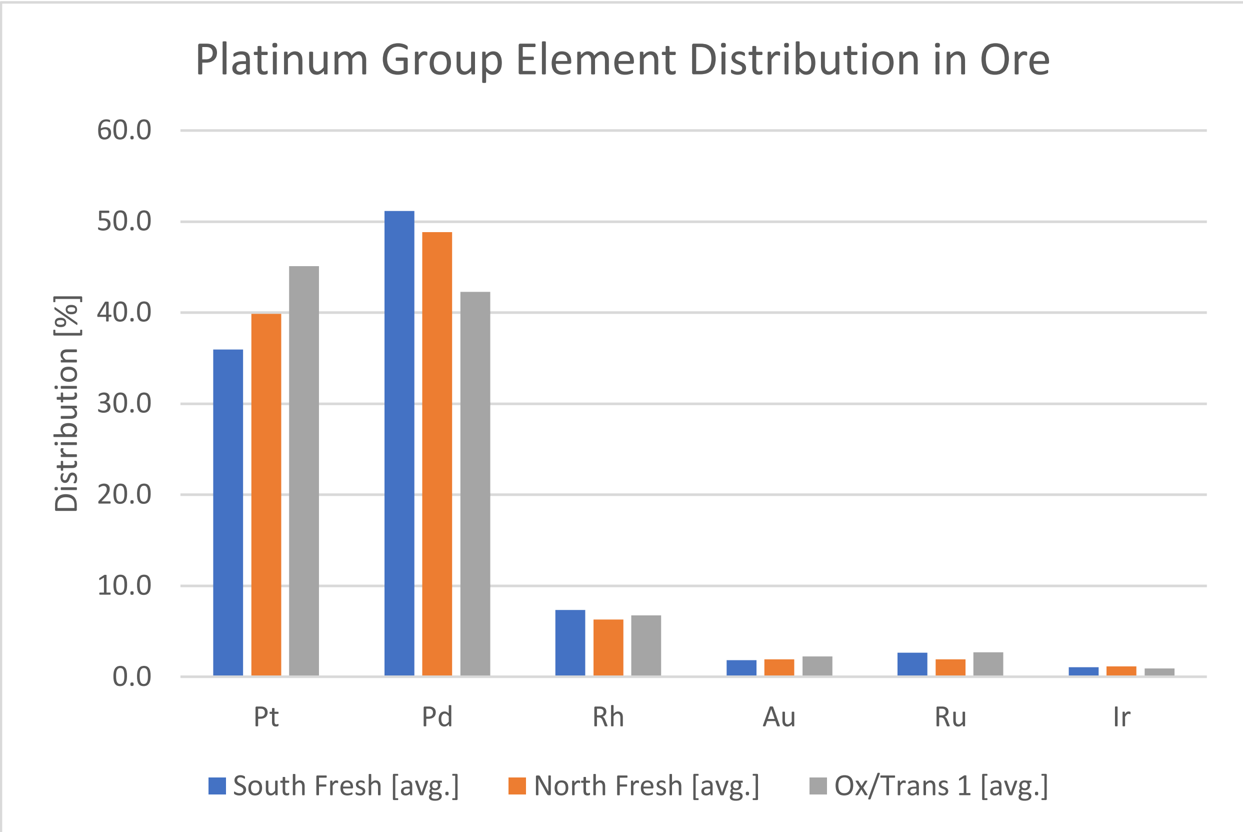


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Figure 9-1: Platinum Group Element Prill Split

It is interesting to note that the North ore has a significantly higher 4E grade, and a higher Pt:Pd ratio. The Rh is low at circa 0.15ppm yet makes up 7% of the 4E. Circa 89% of the PGM are made up of Pt and Pd.

The analysis of the oxidised ore is interesting in that it does not resemble either the North or South ores from a grade or a Pt:Pd ratio. The Pt and Pd do still however make up 87% of the PGMs in the ore. There is normally not a change in the PGE distribution from fresh to oxidised ore, and this anomaly should be investigated.

Considering the chemical analysis of the other elements of importance as tabulated in Table 9-2, that, as expected due to the oxidation, the sulphur grade (S) of the oxidised ore is significantly lower than the North and South Fresh ores.

Table 9-2: Alternate Elemental Analysis of the ores

Ore	Cu [%]	Ni [%]	S [%]	Al_2O_3 [%]	Fe_2O_3 [%]	MgO [%]	SiO_2 [%]	Cr_2O_3 [%]
South Fresh 1	<0.05	0.15	0.69	2.76	10.48	31.01	49.42	3.98
South Fresh 2	<0.05	0.15	0.69	2.74	10.61	31.17	50.06	3.98
South Fresh 3	<0.05	0.15	0.67	2.70	10.65	30.35	49.84	3.95
South Fresh [avg.]	**<0.05**	**0.15**	**0.68**	**2.73**	**10.58**	**30.84**	**49.77**	**3.97**
North Fresh 1	0.08	0.17	0.79	4.25	11.31	24.21	48.13	1.64
North Fresh 1	0.07	0.17	0.79	4.42	11.61	25.54	49.84	1.67
North Fresh [avg.]	**0.07**	**0.17**	**0.79**	**4.34**	**11.46**	**24.87**	**48.99**	**1.65**
Ox/Trans 1	0.06	0.15	0.28	4.14	10.82	23.05	46.21	3.36
Ox/Trans 1	0.07	0.15	0.27	4.27	11.11	23.88	47.70	3.48
Ox/Trans 1	0.07	0.15	0.28	4.40	11.29	24.54	48.99	3.62
Ox/Trans 1 [avg.]	**0.07**	**0.15**	**0.28**	**4.27**	**11.08**	**23.82**	**47.63**	**3.49**

As indicated in Figure 9-2, there appears to be a difference in the host rock and major gangue minerals between the three ore types. This may have an impact on the plant performance and require a blending strategy to be employed.

It must also be noted that the Cr_2O_3 levels are low and that chrome penalties will most likely not be a challenge in the sale of the concentrate.

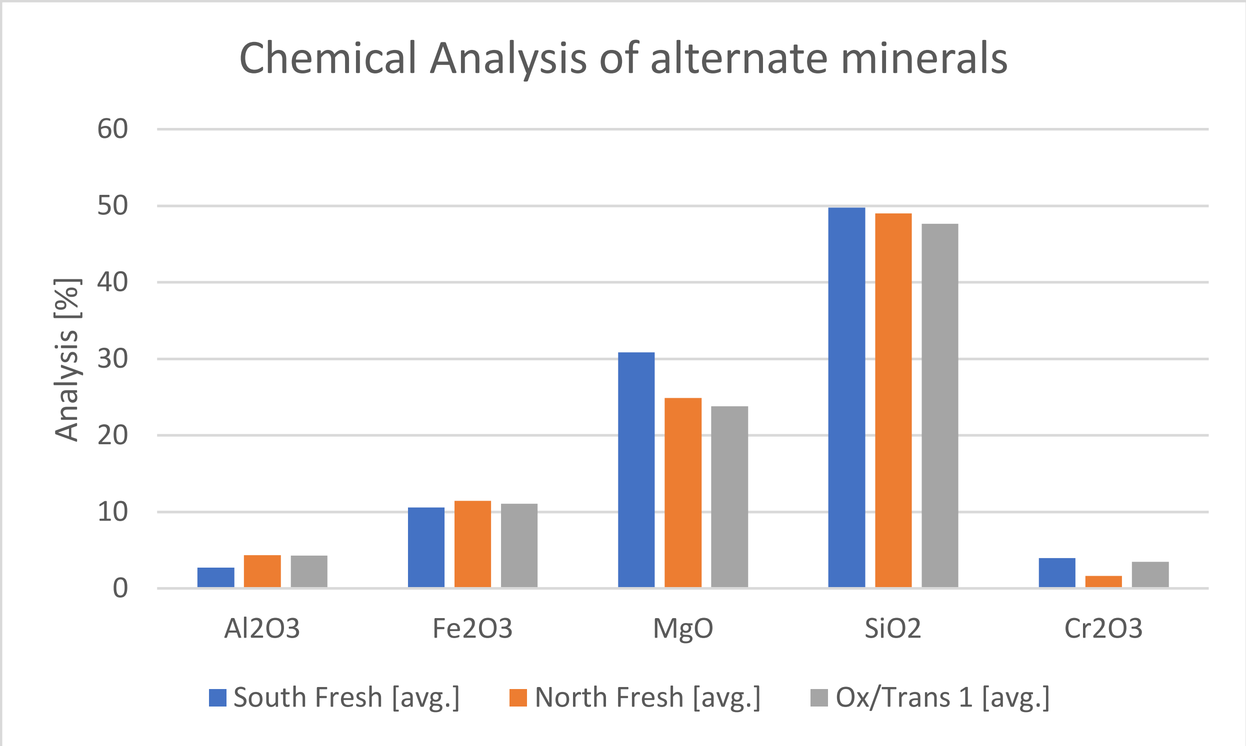

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Figure 9-2: Chemical Analysis of Alternate Minerals

9.4 Metallurgical Test Work

9.4.1 Comminution test work

Milling and flotation test work was conducted on samples from the North Fresh, South Fresh and oxidised ores. Test work was conducted in 2023 by Mintek, a well-respected international research organisation in South Africa. Mintek is well versed in the processing of PGM+Au ores and has conducted research programmes on PGM+Au bearing ores from across the globe.

No results were provided for the Crusher Work Index. Results of the Bond Ball Mill Work Index tests are tabulated in Table 9-3 and indicate that in order to achieve a particle size of approximately 80% passing 75 micron, the ore can be classified as hard to "very hard", with a Bond Ball Work Index of between 17 and 21 kW/t. The use of a limiting screen size of 106 micron is the correct size for this fine grind. Unfortunately, two stages of grinding would be needed to achieve this grind and it would have been advisable to also conduct tests at a coarser limiting screen size for the primary target grind to size the primary mill more accurately.

Table 9-3: Bond Ball Mill Work Index test results

Sample ID	Limiting Screen (µm)	F80 (µm)	P80 (µm)	Net Production (g/rev)	Work Index (kWh/t)	Classification
Domain North Fresh	106	2760	70	0.94	17.6	Hard
Oxide/Trans	106	2738	73	0.96	17.8	Hard
Domain South Fresh	106	2860	70	0.76	20.8	Very Hard

Bond work index (kWh/t)	7 – 9	10-14	15 - 20	> 20
Classification	Soft	medium	Hard	Very hard

The significant difference in the values for the North and South ores is explained by the difference in the chemical analysis reported in Table 9-2. This will impact the performance of the mills and a stockpiling/blending strategy will have to be developed.

9.4.2 Flotation Test Work

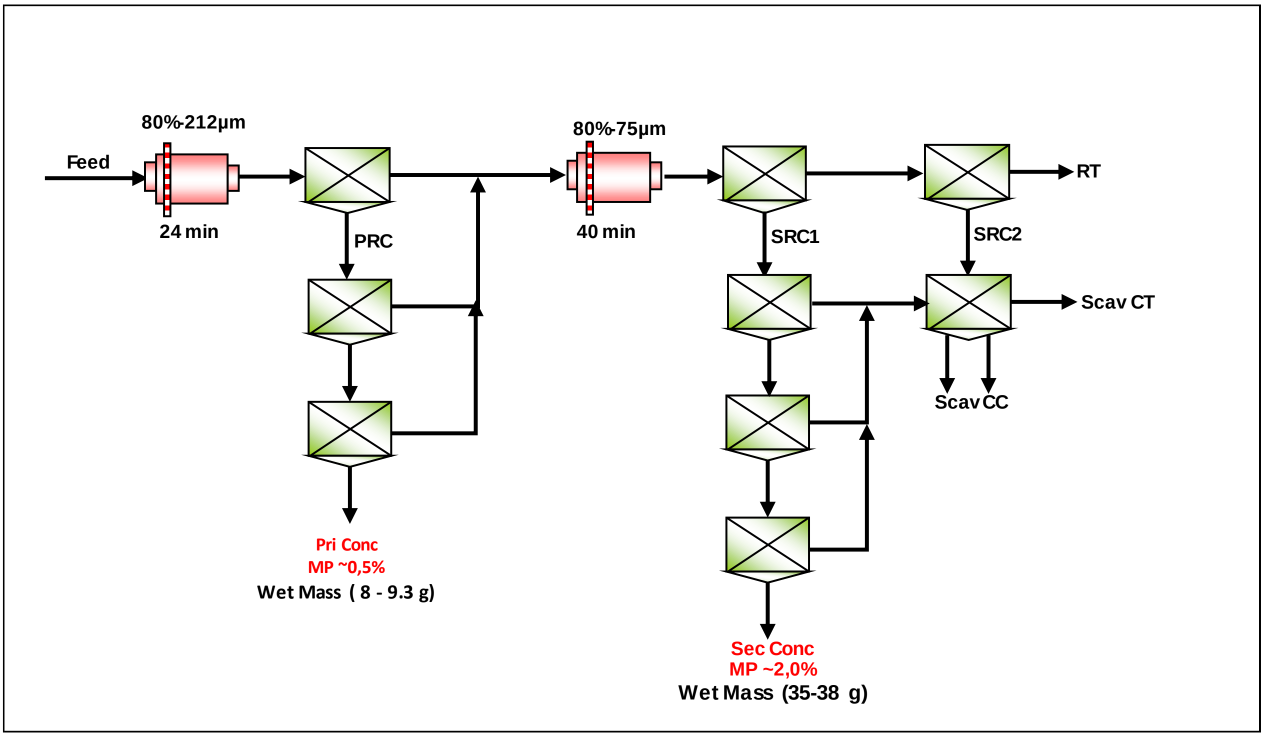
No rougher rate flotation tests were reported in the flotation test programme information provided. These tests are critical in determining the kinetic response of the ore. Normally, in a case where a known ore type is being processed, an assumption can be made as to the behaviour of the ore. The absence of detailed mineralogy and the difference in the PGM+Au distribution between the ores would have necessitated rougher rate flotation tests to determine the optimum flotation residence time for each of the flotation stages.

The single reference in the geological work to the fact that the PGM+Au was finely disseminated throughout the pyroxenite rock would also have necessitated flotation tests at various particle sizes to determine the optimum grind size, and milling strategy.

The tests that were conducted were open-circuit cleaner flotation tests and locked cycle tests as illustrated in Figure 9-3 and Figure 9-4 respectively. The only difference between the tests being that an open circuit test is conducted in only one cycle with no recycling of the tailing streams, and in a locked-cycle test multiple cycles are conducted as the tailing streams are recycled in closed-circuit.

Open-Circuit Cleaner Tests

The circuit for the open-circuit tests is illustrated in Figure 9-3.



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Open Circuit Cleaner Test circuit (courtesy of Mintek)

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601183

Figure 9-3: Open Circuit Cleaner Test circuit (courtesy of Mintek)

Two sets of open-circuit tests were completed on each of the three ore types. Depressant dosage was varied to try to address the low concentrate grades in the final concentrate produced. The total reagent dosages on all tests are tabulated in Table 9-4.

Table 9-4: Total reagent dosage for the open-circuit tests

Test	Xanthate Collector	Collector Blend	Frother	Depressant
	SIBX	SIBX/Senkol 9 (2:1)	Senfroth 522	Sendep 30E
	[g/t]	[g/t]	[g/t]	[g/t]
Low Depressant	120	50	297	**304**
High Depressant	120	50	297	**400**

The results of the open-circuit tests are summarised in Table 9-5.

Table 9-5: Open-circuit test results

Sample ID	Description	Rougher Mass Pull [%]	Final Conc. Mass Pull [%]	Head Grade	Grade - Final Conc.				Recovery				Upgrade Ratio
				3E+Au	3E+Au	Cu	Ni	S	3E+Au	Cu	Ni	S	3E+Au
				[g/t]	[g/t]	[%]	[%]	[%]	[g/t]	[%]	[%]	[%]	
South Fresh	Phase 1: T9 suite/ High depressant dosage	31.3	1.27	1.70	69.1	2.64	5.39	14.1	50.1	40.0	43.9	26.3	40.66
North fresh		30.7	1.42	2.56	84.5	2.84	5.50	18.4	50.2	43.2	46.9	34.0	33.08
Ox/Trans		36.2	0.88	1.96	46.0	1.26	2.71	17.6	20.5	16.7	15.7	58.2	23.45
South Fresh	Phase 1: T9 suite/ reduced depressant dosage	36.5	2.79	1.70	32.5	3.04	3.21	5.97	56.1	63.2	56.8	24.8	19.11
North fresh		32.0	2.42	2.56	56.2	1.96	3.99	11.1	56.0	48.6	57.9	36.6	22.00
Ox/Trans		31.9	2.32	1.96	22.1	0.63	1.43	7.74	25.1	21.3	21.0	67.4	11.29

Analysis of the results indicates that:

- With the exception of one result, the final concentrate produced does not meet the minimum grades normally required by the smelters. The minimum grade normally accepted by the smelters is 80 g/t 3E;
- The head grade of the Northern Fresh sample is significantly higher than the other two ores;
- The ore recovery achieved for the two fresh ores are identical, yet the concentrate grades are significantly different. The upgrade ratios are also significantly different;.
- Increasing of the depressant significantly reduced the recovery of copper and nickel, with the concomitant reduction in the sulphur recovery;
- In terms of the circuit:
  - The grind of the primary grind is too coarse and should be approximately 80% passing 150 micron;
  - The lack of tests at different particle sizes and assay-by-size analysis of the flotation tailing begs to question whether the target grind of 80% passing 75 micron is suitable. Assay-by-size analysis would also identify in what size fractions the losses occurred and what strategy should be employed in the milling circuit;
  - The residence time of the primary rougher is very short at three minutes, and has not been justified;
  - The residence time of the secondary rougher is low at 27 minutes;
  - Three stages of cleaning in the secondary cleaner circuit are unnecessary and will result in a loss in slow floating valuable mineral;
- In terms of the reagents:
  - The frother dosage of circa 300 g/t is well above the 50 g/t normally used in the industry for a similar test. This will result in excessive entrainment of gangue and may well be the reason for the poor grades;
  - The recoveries are poor and this may be attributed to the low head grade and the need to produce a saleable grade. The author is however concerned at the low collector dosage that was used. The norm in the industry for similar tests is 200g/t of SiBX compared to the 120g/t used in the tests. As this is an unknown ore, residual Xanthate test should have been conducted to determine the minimum dosage;
  - The increase in depressant dosage certainly has had a positive influence on the concentrate grade, albeit with a concomitant reduction in the recovery. This reduction may have been offset with and increase in collector dosage; and
  - No mention is made of a sulfidising agent for the test work on the oxide ore, which may have yielded some improvement in the flotation performance.

Locked Cycle Tests

The circuit used for the locked-cycle tests is illustrated in Figure 9-4.

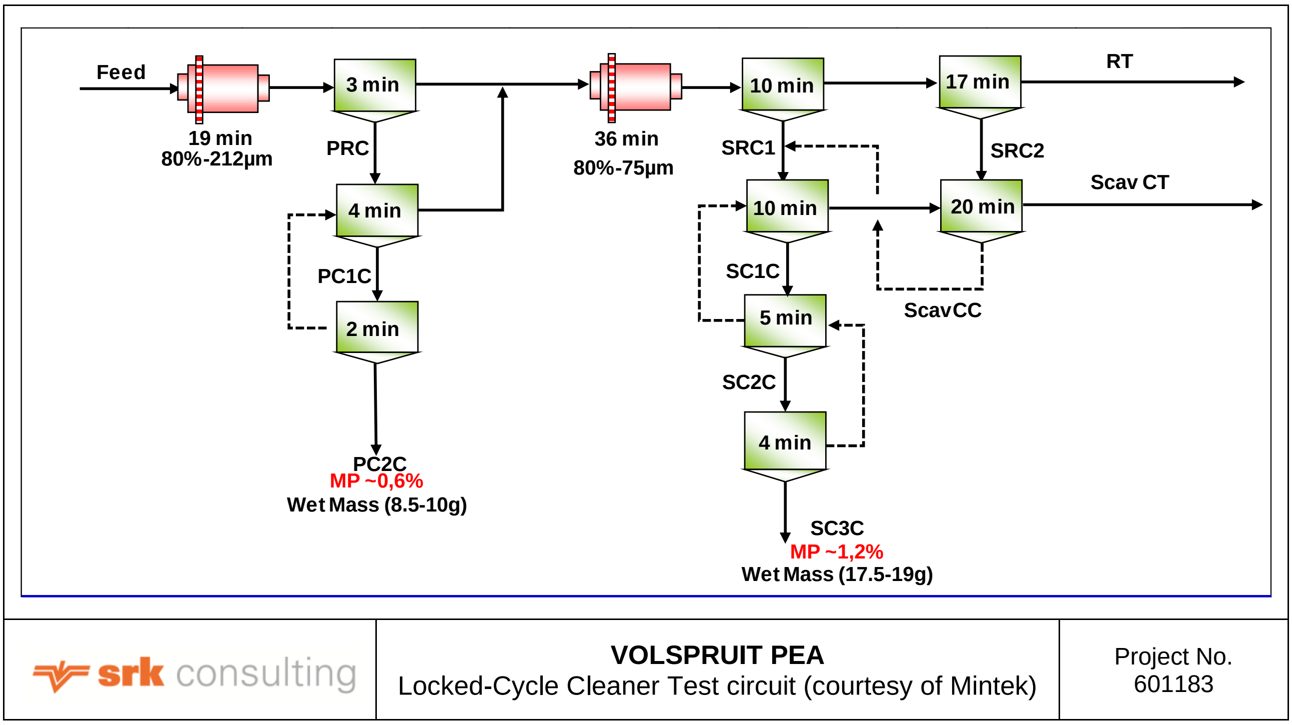


Figure 9-4: Locked-Cycle Test circuit (courtesy of Mintek)

Two locked cycle tests were conducted. The first was a locked cycle test on a 50:50 blend of the North and South Fresh ores and the second a test on the oxidised ore.

An identical reagent suite was used for the locked-cycle tests as was used for the open-circuit tests. Normally the depressant and frother addition would have to be adjusted for the effect of the recycle streams.

The feed for the "fresh" ore tests was made up of a 50:50 blend of the North and South Fresh ores. This is an interesting decision considering that the two ores displayed significantly different responses in the open-circuit cleaner tests.

Seven cycles of the locked-cycle tests were run to reach stability. The results of the fresh and oxidised runs are summarised in Table 9-6 below.

Table 9-6: Fresh and oxidised run results

Ore	Head Grade	Final Conc. Mass Pull	Final Concentrate Grade							
	3E+Au		Pt	Pd	Rh	Au	3E+Au	2E+Au	Cu	Ni
	[g/t]	[%]	[g/t]	[g/t]	[g/t]	[g/t]	[g/t]	[g/t]	[%]	[%]
Fresh Blend	2.04	1.96	27.4	42.0	4.1	1.2	74.5	70.5	2.2	5.6
Oxide/Trans.	2.01	1.52	18.6	22.0	2.2	1.3	44.1	41.9	1.2	2.7

Ore	Head Grade	Final Conc. Mass Pull	Final Concentrate Recovery							
	3E+Au		Pt	Pd	Rh	Au	3E+Au	2E+Au	Cu	Ni
	[g/t]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
Fresh Blend	2.04	1.96	64.9	78.5	64.6	53.6	71.6	72.1	48.6	61.7
Oxide/Trans.	2.01	1.52	30.3	36.7	26.6	44.7	33.3	33.7	27.3	24.1

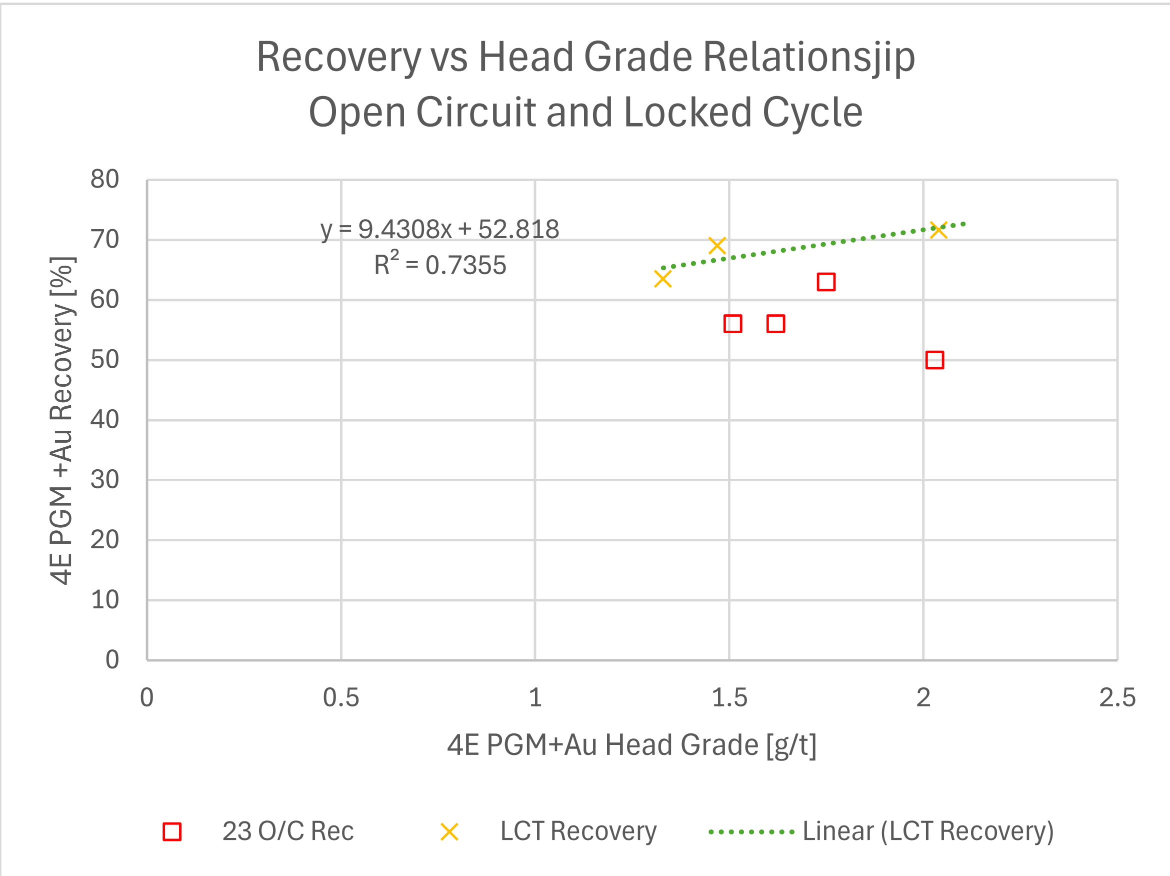
The results indicate that:

- The current locked-cycle circuit and reagent suite applied to the fresh ore was able to recover 71.6% of the 4E, 48.6% of the Cu and 61.7% of the nickel. The was achieved at a mass pull to final concentrate of 2% and a grade of 74.5 g/t 4E; and
- Results for the oxide tests were disappointing with a 4E recovery of only 33.7% at a concentrate grade of 44.1 g/t 4E. If processed separately, this would have to be stockpiled and blended with the fresh ore concentrate. An alternative would be to blend the oxidised ore and fresh ore fed to the plant in such a ratio as to achieve a saleable concentrate.

Discussion of the test results

The grades of the ores are very low when compared with other operations in the Bushveld Igneous Complex. As well, it has been observed in the other ores the feed grade has a significant impact on the recovery. This is illustrated in Figure 9-5.

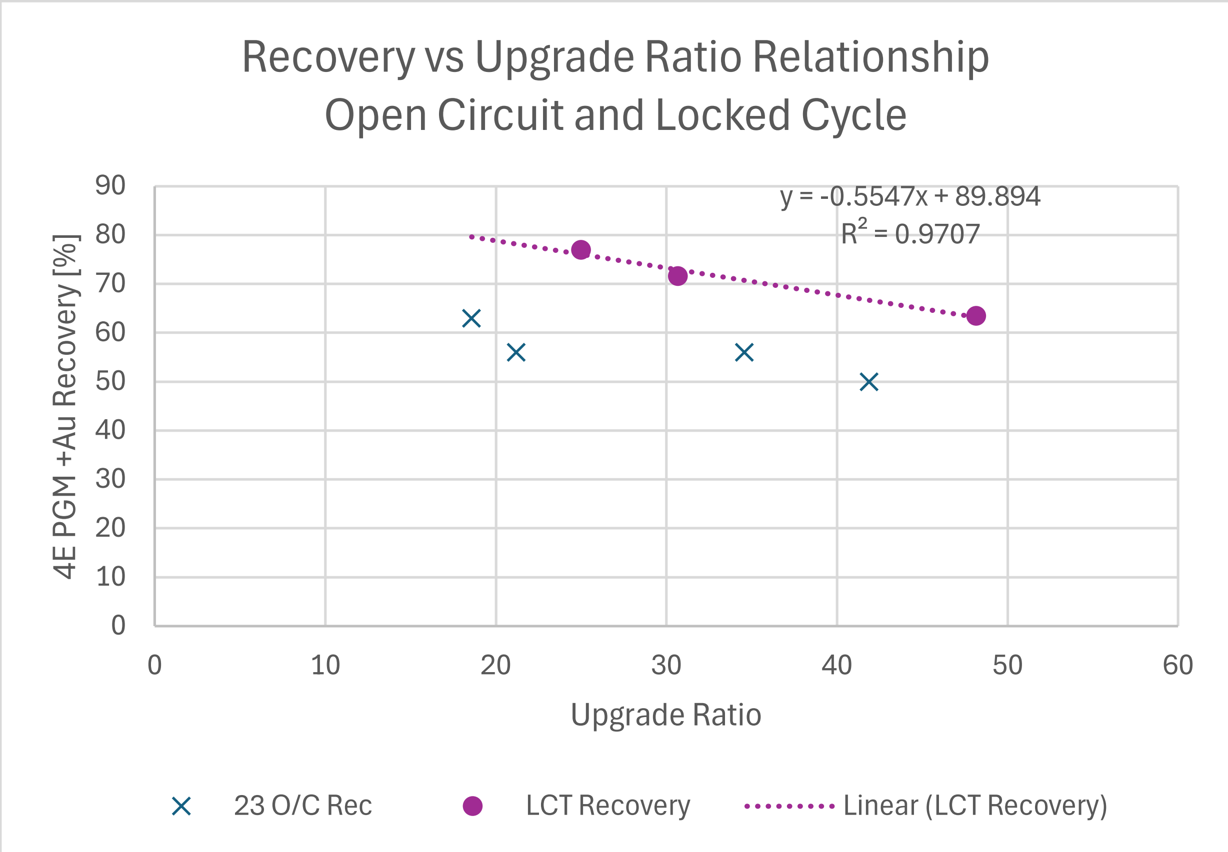
What is also important to note is that the open circuit tests are always a poor indicator of the potential recovery and should only be used as an indication of whether a proposed circuit and reagent suite will be able to achieve saleable concentrate grade. Rougher rate tests are a better tool to indicate potential recovery than batch cleaner tests.



srk consulting	**VOLSPRUIT PEA** 4E Recovery versus Feed Grade	Project No. 601183

Figure 9-5: 4E Recovery versus Feed Grade

The effect of the lower grade requires tighter control of the concentrate product grade, and this results in a decrease in the flotation recovery. The relationship between the concentrate grade and the feed grade is termed the “Upgrade Ratio”. The effect of the Upgrade Ratio on the flotation recovery of the fresh ore is illustrated in Figure 9-6.



srk consulting	**VOLSPRUIT PEA** 4E Recovery and Upgrade Ratio	Project No. 601183

Figure 9-6: 4E Recovery and Upgrade Ratio

There is opportunity to investigate the possibility of pre-upgrading the plant feed using technology such as X-ray sorting. This is possible in this ore as the geologists have found that the PGM+Au is concentrated in the Pyroxenite layer.

9.4.3 Concentrate Analysis

Detailed concentrate analysis was conducted on the fresh and oxidised concentrates. The fresh concentrate analysis is tabulated in Table 9-7. (Table courtesy of Mintek). The numbers in red are not confirmed due to either insufficient sample or the readings being below detectable limits.

Table 9-7: Comprehensive analysis of Fresh Ore concentrate

Element			Value			Method
Name	Formula	Units	PC2C	SC3C	PC2C+SC3C	
	Major					
4E	Pt,Pd,Rh&Au	ppm	111	52.5	74.5	FA
Copper	Cu	%	4.39	0.85	2.19	ICP
Nickel	Ni	%	8.5	3.85	5.61	ICP
	Gangue					
Aluminium	Al_2O_3	%	1.02	1.34	1.22	ICP
Calcium	CaO	%	0.97	1.15	1.08	ICP
Cobalt	CoO	%	0.46	0.22	0.31	ICP21
Chromium	Cr_2O_3	%	0.25	0.35	0.31	ICP21
Iron	Fe_2O_3	%	41.7	32.9	36.2	ICP
Potassium	K	%	0.09	0.09	0.09	AA
Magnesium	MgO	%	5.98	16.3	12.4	ICP
Sodium	Na	%	0.06	0.07	0.1	AA
Sulphur	S	%	23.6	13.5	17.3	Comb
Lead	PbO	%	0.01	0.01	0.01	ICP
Silica	SiO_2	%	20.2	34.0	28.8	ICP
Titanium	TiO_2	%	0.05	0.06	0.06	ICP
Zinc	ZnO	%	0.04	0.03	0.03	ICP
	Precious					
Silver	Ag	ppm	5.35	6.5	6.06	AA
	Deleterious					
Arsenic	As	ppm	16.4	11.6	13.4	MS
Bismuth	Bi	ppm	19.3	0.30	7.50	MS
Cadmium	Cd	ppm	3.05	2.10	2.46	MS
Chloride	Cl	ppm	<10	<10	<10	Wet Chem
Flouride	F	ppm	135	133	134	Wet Chem
Mercury	Hg	ppm	0.16	0.09	0.12	MS
Antimony	Sb	ppm	3.50	1.10	2.01	MS
Thorium	Th	ppm	0.74	0.60	0.65	MS
Uranium	U	ppm	0.61	0.30	0.41	MS
	Other/Minor				0.0	
Barium	Ba	ppm	41.1	30.9	34.8	MS
Gallium	Ga	ppm	25.7	0.80	10.2	MS
Germanium	Ge	ppm	3.20	1.90	2.39	MS
Lithium	Li	ppm	9.53	6.93	7.92	MS
Rubidium	Rb	ppm	7.80	9.70	8.98	MS
Manganese	Mn	ppm	738	789	769	XRF
Molybdenum	Mo	ppm	18.0	9.45	12.7	MS
Phosphorus	P	ppm	0.3	55.2	34.4	XRF
Selenium	Se	ppm	45.5	33.0	37.7	MS
Strontium	Sr	ppm	13.6	13.8	13.7	XRF
Tellurium	Te	ppm	20.6	10.7	14.5	MS
Thallium	Tl	ppm	3.50	1.50	2.26	MS
Vanadium	V	ppm	31.8	42.7	38.6	XRF

A comprehensive analysis of the oxidised concentrate is tabulated in Table 9-8.

Table 9-8: Comprehensive Analysis of the Oxidised Ore concentrate

Name	Element Formula	Units	Value PC2C	SC3C	PC2C+SC3C	Method
	Major					
4E	Pt,Pd,Rh&Au	ppm	57.4	33.1	44.1	FA
6E	Pt,Pd,Rh,Ru,Ir &Au	ppm		37.7		
Copper	Cu	%	2.14	0.45	1.22	ICP
Nickel	S	%	4.05	1.51	2.66	ICP
	Gangue				0.00	
Aluminium	Al_2O_3	%	1.08	1.23	1.16	ICP
Calcium	CaO	%	1.09	0.05	0.52	ICP
Cobalt	CoO	%	0.43	0.15	0.28	ICP
Chromium	Cr_2O_3	%	0.41	0.39	0.40	ICP
Iron	Fe_2O_3	%	34.9	25.3	29.7	ICP
Potassium	K	%	0.10	0.13	0.12	AA
Magnesium	MgO	%	15.9	18.9	17.5	ICP
Sodium	Na	%	0.11	0.13	0.12	AA
Sulphur	S	%	20.0	10.5	14.8	Comb
Lead	PbO	%	0.01	0.01	0.01	ICP
Silica	SiO_2	%	34.0	44.3	39.6	ICP
Titanium	TiO_2	%	0.04	0.05	0.05	ICP
Zinc	ZnO	%	0.03	0.09	0.06	ICP
	Precious					
Silver	Ag	ppm	5.28	3.34	4.22	AA
	Deleterious					
Arsenic	As	ppm	12.7	6.87	9.52	MS
Bismuth	Bi	ppm	8.97	8.41	8.66	MS
Cadmium	Cd	ppm	29.9	12.2	20.2	MS
Chloride	Cl	%	0.24	0.56	0.41	Wet Chem
Flouride	F	ppm	<0.5	<0.5	<0.5	Wet Chem
Mercury	Hg	ppm	0.04	0.14	0.10	Ms
Antimony	Sb	ppm	1.33	1.39	1.36	Ms
Thorium	Th	ppm	0.73	0.71	0.72	MS
Uranium	U	ppm	0.39	0.29	0.33	MS
	Other/Minor					
Barium	Ba	ppm	128	74.1	98.6	MS
Gallium	Ga	ppm	3.13	2.99	3.05	MS
Germanium	Ge	ppm	5.68	2.63	4.01	MS
Lithium	Li	ppm	4.94	7.93	6.57	MS
Rubidium	Rb	ppm	5.68	6.87	6.33	MS
Manganese	Mn	ppm	585	570	577	XRF
Molybdenum	Mo	ppm	103	15.6	55.3	MS
Phosphorus	P	ppm	29.0	35.9	32.8	XRF
Selenium	Se	ppm	31.9	15.1	22.7	MS
Strontium	Sr	ppm	16.0	13.8	14.8	XRF
Tellurium	Te	ppm	8.17	7.84	7.99	MS
Thallium	Tl	ppm	1.67	0.92	1.26	MS
Vanadium	V	ppm	37.4	43.8	40.9	XRF

9.5 Forecasted Metallurgical Performance

In summary it is forecasted for financial modelling purposes that the following mass pulls and recoveries to concentrate must be used (Table 9-9).

Table 9-9: Forecasted plant performance

Ore	Head Grade 3E+Au [g/t]	Final Conc. Mass Pull [%]	Final Concentrate Grade Pt [g/t]	Pd [g/t]	Rh [g/t]	Au [g/t]	3E+Au [g/t]	2E+Au [g/t]	Cu [%]	Ni [%]
Fresh Blend	2.04	1.96	27.4	42.0	4.1	1.2	74.5	70.5	2.2	5.6
Oxide/Trans.	2.01	1.52	18.6	22.0	2.2	1.3	44.1	41.9	1.2	2.7

Ore	Head Grade 3E+Au [g/t]	Final Conc. Mass Pull [%]	Final Concentrate Recovery Pt [%]	Pd [%]	Rh [%]	Au [%]	3E+Au [%]	2E+Au [%]	Cu [%]	Ni [%]
Fresh Blend	2.04	1.96	64.9	78.5	64.6	53.6	71.6	72.1	48.6	61.7
Oxide/Trans.	2.01	1.52	30.3	36.7	26.6	44.7	33.3	33.7	27.3	24.1

9.6 Risks and Opportunities

The following risks were identified:

- The difference in the host rock mineralogy between the North and South fresh ores may impact on the plant operation. A blending/stockpiling strategy must be considered;
- The samples used for the test work may not be representative of the orebody and further work needs to be done;
- The anomalies in the PGM splits between the three ore types may result in inaccurate forecasts of the overall opportunity; and
- Finding an off-take for the concentrates on good terms may be a challenge as significant penalties are imposed on low grade concentrate. Increasing the grade will result in a loss in recovery.

The following opportunities have been identified:

- The 4E recovery is very dependent on head grade. As the geologists have identified that the 4E is to be found in the Pyroxenite layer of the ore body, there may be an opportunity to upgrade the plant feed using technology such as X-ray sorting. In addition, pre-upgrading of the ore using X-ray sorting would reduce the capital cost of the plant.
- Further test work needs to be done to improve the reagent suite;
  - The amount of collector used appears to be inadequate, and may have resulted in poor recoveries;
  - No sulfidising agent was used in the oxide ore test work, and use of a sulfidising agent may have improved the recoveries;
  - Excessive frother addition in all the tests would have resulted in excessive entrainment, resulting in poorer grades than could have been achieved;
- The grind chosen for the test work cannot be substantiated and may have resulted in poor recoveries being reported. Mineralogy and assay-by-size analysis needs to be conducted;
- The flotation circuit design used in the tests needs to be reconsidered; and
- Rougher rate flotation tests need to be conducted to gain an understanding of the flotation kinetics of the ores.

10 Process Design

10.1 Introduction

This chapter considers the plant design and the philosophy used in obtaining the design parameters and capital cost.

The circuit used for the design is the locked-cycle circuit as used in the Mintek test work. Crusher and mill design was done using the fundamental design parameters from the test work. The flotation design was done using scale-up factors normally used in the design industry.

Quotations were obtained for the major equipment suppliers, and the capital cost was factorised using the consultant’s database. The design considers all process equipment and ancillaries within the fence of the plant. Infrastructure such a workshops, offices, stores, change-house and roads were included under the infrastructure estimate.

10.2 Plant Design

The plants design is summarised in Figure 10-1.

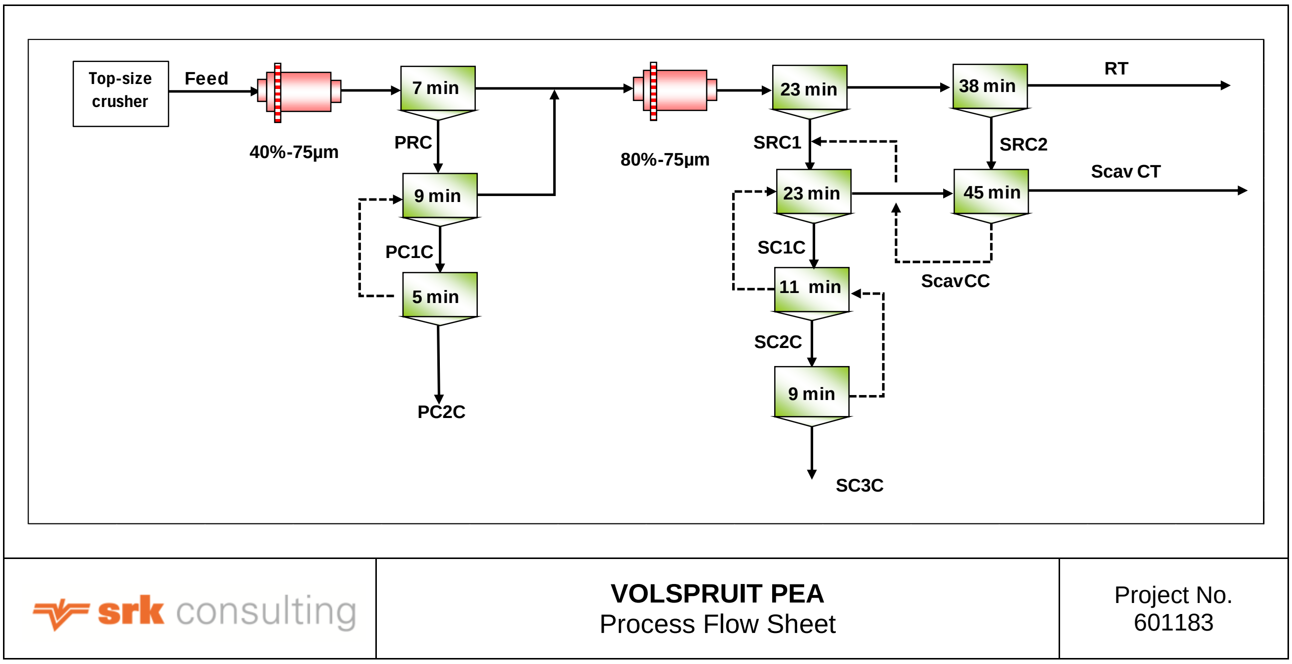


Figure 10-1: Process Flow Sheet

The circuit is what has been named a MF2 circuit and consists of a mill-float-mill-float in series. The selection of this circuit is to prevent the overgrinding of the valuable mineral.

The top size crusher has been sized to crush ROM rock of up to 1 m in diameter to approximately 300 mm. The crusher product is stockpiled and fed to a ROM ball mill that in in closed circuit with screens and produces a product of 40% passing 75 micron (approximately 80% passing 150 micron).

A three-stage primary flotation circuit consisting of a rougher and two stages of cleaning is used to recover the liberated coarse mineral. Tailing from this circuit is then fed to a secondary ball mill in closed circuit with cyclones to produce a product of 80% passing 75 micron.

The secondary mill product is pumped to the secondary flotation circuit that consists of a rougher and rougher-scavenger circuit that feed three stages of cleaning. The rougher-scavenger tailing is pumped to the tailing thickener A cleaner scavenger circuit processes the primary cleaner tailing before the cleaner scavenger tailing is pumped to the tailing thickener. Tailing thickener underflow is then pumped to the tailing storage facility.

Concentrate from primary and secondary cleaner circuits are thickened in a single concentrate thickener and then filtered.

10.3 Process Design Criteria

The mills and cyclones were designed using the following design criteria (Table 10-1).

Table 10-1: Mill Design Criteria

Unit	F80	P80	Bond Work Index
Primary Mill	300 mm	150 µm	17 kW/t
Secondary Mill	150 µm	75 µm	20 kW/t

The flotation cells were designed using an upgrade ratio of 2.5 in terms of the laboratory flotation residence times. These are tabulated in Table 10-4.

Typical thickener and filter design criteria from the consultant's and suppliers databases were used for the sizing of the thickeners and the concentrate filter.

10.4 Mass Balance

The mass balance is presented in Table 10-2.

Table 10-2: Mass Balance

Stream	Mass Flow [tph]	Mass Dist [%]	Pulp density [RD]	Mass % Solids [%]	Pulp Mass Flow [tph]	Pulp Volume Flow [m^3/hr]	PGE+Au Grade [g/t]	PGE+Au Distr [%]	Stage Efficiency [%]
New Feed	228.3	100.0					2.04	100.0	
Primary Rougher Feed	228.3	100.0	1.27	30.9	738.3	581.3	2.0	100.0	
Primary Rougher Conc	13.7	6.0					22.00	64.7	64.7
Primary Rougher Tail	214.6	94.0					0.77	35.3	
Secondary Mill Feed	226.6	99.3					1.23	59.7	
Primary Cleaner 1 Feed	15.4	6.8	1.17	21.1	73.0	62.4	22.91	75.9	
Primary Cleaner 1 Conc	3.4	1.5					70.00	51.5	79.5
Primary Cleaner 1 Tail	12.0	5.3					9.48	24.4	
Primary Cleaner 2 Feed	3.4	1.5	1.12	15.6	22.0	19.6	70.00	51.5	
Primary Cleaner 2 Conc	1.7	0.7					111.00	40.3	78.2
Primary Cleaner 2 Tail	1.7	0.8					30.08	11.2	
Secondary Rougher 1 Feed	226.6	99.3	1.27	30.9	732.8	577.0	1.2	59.7	
Secondary Rougher 1 Conc	13.7	6.0					14.00	41.2	68.9
Secondary Rougher 1 Tail	212.9	93.3	1.27	30.9	688.5	542.2	0.41	18.6	
Secondary Rougher 2 Conc	6.9	3.0					4.00	6.0	32.1
Secondary Rougher 2 Tail	167.7	73.4					0.35	12.6	
Secondary Cleaner 1 Feed	47.9	21.0	1.17	21.1	226.9	193.9	6.78	69.8	
Secondary Cleaner 1 Conc	16.0	7.0					18.00	61.8	88.5
Secondary Cleaner 1 Tail	32.0	14.0					1.17	8.0	
Secondary Cleaner Scavenger Feed	38.9	17.0	1.17	21.1	184.1	157.3	3.75	31.4	
Secondary Cleaner Scavenger Conc	34.2	15.0					3.89	28.6	91.2
Secondary Cleaner Scavenger Tail	56.2	24.6					1.30	15.7	
Secondary Cleaner 2 Feed	20.0	8.8	1.12	15.6	128.6	114.8	19.01	81.8	
Secondary Cleaner 2 Conc	6.8	3.0					35.00	51.5	62.9
Secondary Cleaner 2 Tail	13.2	5.8					10.72	30.4	
Secondary Cleaner 3 Feed	6.8	3.0	1.12	15.6	43.9	39.2	35.00	51.5	
Secondary Cleaner 3 Conc	2.8	1.2					52.50	31.4	61.0
Secondary Cleaner 3 Tail	4.1	1.8					23.01	20.1	

10.5 Equipment Sizing

The crushers and mills were sized according to the process design criteria and are tabulated in Table 10-3.

Table 10-3: Crusher and Mill Sizing

Unit	Unit Size
Crusher	C150
Primary Mill	16'x24' Grate Discharge
Secondary Mill	16'x16' Overflow

The flotation cell sizing is tabulated in Table 10-4.

Table 10-4 : Flotation Cell Sizing

Flotation Stage	Feed Flow Rate [m³/hr]	[m³/min]	Required Residence Time [min]	Effective Volume [%]	Required Volume [m³]	Minimum number of cells	Cell Volume [m³]	Recommendation No. of cells	cell volume
Primary Rougher	581.3	9.7	7	85	55.6	4	14	4	16
Primary Cleaner 1	62.4	1.0	9	85	8.0	4	2	4	2
Primary Cleaner 2	19.6	0.3	5	85	1.3	4	1	4	1
Secondary Rougher 1	577.0	9.6	23	85	183.9	6	31	6	32
Secondary Rougher 2	542.2	9.0	38	85	293.8	9	33	9	32
Secondary Cleaner 1	193.9	3.2	23	85	61.8	4	16	4	16
Secondary Cleaner Scavenger	157.3	2.6	45	85	100.3	7	15	7	16
Secondary Cleaner 2	114.8	1.9	11	85	18.3	6	4	6	4
Secondary Cleaner 3	39.2	0.7	9	85	5.0	4	2	4	2

The sizing of the thickeners and concentrate filter were provided by the FLSmidth. It was estimated that a 3m concentrate high-rate thickener would be required, and a 20m high-rate thickener would be required for the tailing. A Pneumopress was recommended for the concentrate filter.

Appropriately sized tanks were sized for the process and fresh water, as well as the thickener overflow water.

An allowance was made for the reagent make-up and storage using the high dosages used in the laboratory test work.

The ancillary buildings included:

- Offices;
- Security and access control;
- Control room;

- Workshops;
- Change-house;
- Stores;
- Reagent store;
- Ablutions;
- Canteen/Resting area;
- Flotation blower area;
- Motor control Centre MCC;
- Transformers; and
- Metallurgical laboratory.

11 Tailings Storage Facility

11.1 Initial Objectives

The general objectives of the Phase 1 design of the tailings disposal facility were to review the expected tailings properties and LoM tailings tonnages requiring disposal, identify and review potential storage sites, carry out conceptual design at potential sites, identify potential fatal flaws and make recommendations for further work.

The tasks required to attain the objectives are as follows:

- Obtain and review all available relevant information available from the client and readily available public sources;
- Carry out a site visit to meet with key client contacts and carry out a walk over survey of potential sites;
- Based on the available information and a site visit, potential sites will be identified (3 maximum);
- A review of available information and conceptual design will be carried out for each potential site, including;
- Topography;
- Geotechnical factors;
- Hydrology;
- Hydrogeological factors;
- Environmental and social constraints;
- Potential deposition methods;
- Potential ground and groundwater contamination mitigation requirements, based on the available geochemical information for the tailings and site geotechnical and hydrogeological conditions;
- Facility layouts and conceptual layout drawings;
- Potential closure options; and
- Estimated capital, operating and closure costs.

Conclusions and recommendations will be provided relating to potential fatal flaws, the preferred site and further work required at PFS level.

11.2 Relevant Information

SRK has been provided with the following information, against which to access the tailings storage facilities needed:

- Eco Elementum and Engineering (Pty) Ltd (Eco E) (2022). Volspruit Waste Classification (19-918-GEOH);
- Erudite Engineering (2022). Sylvania Platinum Ltd Volspruit PGM Project: Northern and Southern Pit. Mine Residue Design Report (10-918-SW) Water Use Licence Application, with design drawings; and
- Water Hunters (2024). Computerized Water Balance Simulation Model. Report to the Volspruit Mining Company (Pty) Ltd. by Water Hunters. January 2024. Technical Report 1023: Final.

11.3 Site Selection

A TSF site selection study was to be undertaken, based on the available information and a site visit, from which three potential sites could be identified. SRK previously undertook a scoping study in 2012 for tailings disposal aspects and waste rock dumps for the then proposed PGM mine on the farms Volspruit 326 KR and Zoetveld 294 KR.

The 2012 study included a site selection study of four sites. The selection study considered:

- Existing infrastructure;
- Location, accessibility and distance from the plant;
- Current land use;
- Geological features;
- Local topography;
- Geochemical characterisation;
- Hydrology; and
- Environmental criteria.

Three of the sites were within the footprint to the then current EIA, with the fourth site being the old Grasvally mine tailings dam site, which had not been included in the EIA. Thus, it was excluded. Of the other three sites, the first site, generally located where the current TSF is proposed, was ranked as most favourable. The summarised ranking matrix is shown in Table 11-1.

Table 11-1: Summarised TSF location ranking matrix from 2012 Scoping study

Site and Criteria as percentage	Environmental risk Criteria (45%)	Public Acceptance Criteria (20%)	Economic and engineering criteria (35%)	Overall Ranking
One	Least favoured	Most favoured (tie)	Most favoured	Most favoured
Two	Second least favoured	Most favoured (tie)	Second most favoured	Second least favoured
Three	Second most favoured	Second least favoured	Second least favoured	Least favoured
Four	Most favoured	Least favoured	Least favoured	Second most favoured

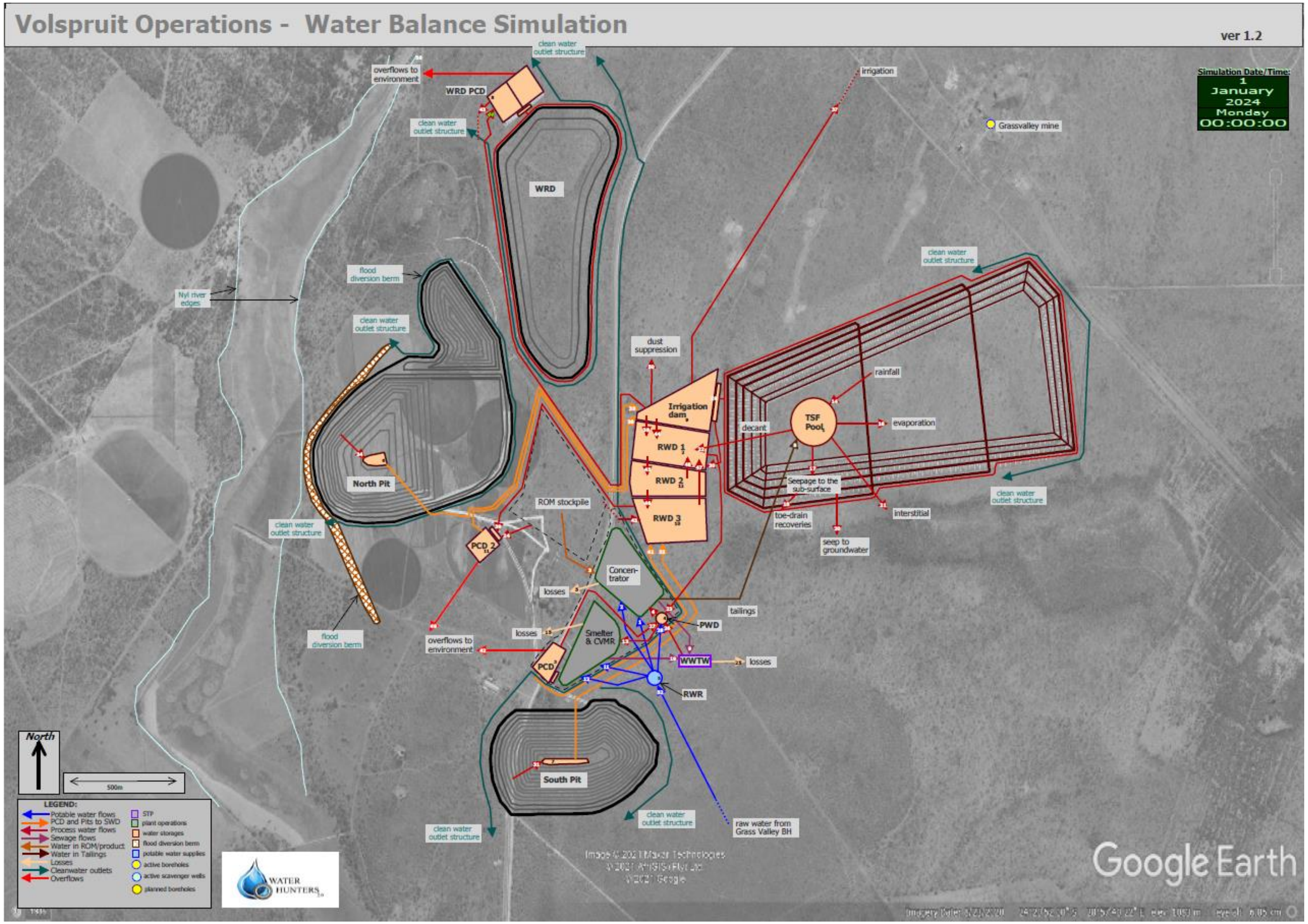
A review of the above information has made it plain that a site has already been identified and a significant amount of the design of the identified TSF site undertaken. The focus of the current PEA report has then shifted to the design as presented in the Erudite Engineering Mineral Residue Design report.

The latest available mine layout plan (Figure 11-1) was extracted from the water balance report (Water Hunters, 2024).

The design reviewed has taken into account the following:

- Government Notice 704 of 1999. Regulations on Use of Water for Mining and Related Activities aimed at the Protection of Water Resources;
- Government Notice 36784 No.R635 Waste Classification and Management Regulations;
- National Environmental Management Act, Act 59 of 2008. Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste;
- National Water Act, Act 36 of 1998;
- SANS 10286 (1998) Code of Practice for Mine Residue; and
- SANS 10286:202X SANS Code of Practice Mine Residue Draft.

Concerns have been raised that the zone of influence of a tailings dam failure is upslope of the plant, the return water dam and irrigation dam complex, and the waste rock stockpile. The flow failure may reach as far as the N1 National Road and will directly discharge into the Nyl River. Based on this, the TSF risk is classified, using the SANS 10286 (1998), as ‘High’. It is proposed that this be reviewed in terms of the GISTM Table 4.3.1 Consequence Classification Matrix.



srk consulting	**Volspruit PEA** Flow diagram and planned infrastructure associated with the Volspruit Mining Operations (Water Hunters, 2024)	Project No. 601183

Figure 11-1: Flow diagram and planned infrastructure associated with the Volspruit Mining Operations (Water Hunters, 2024)

11.4 Water Balance covering the proposed mine operations

The latest update of the CWBM (Water Hunters, 2024) estimates that the Volspruit Mining Company (based on the production curve supplied for the production period of January 2024 until December 2043) will use an average of 335 600 m³ per month, based on a steady state production rate of 150 000 m³/month. The water is to be sourced from the Grasvally borehole, the toe drains, ground water inflows into pit and rainfall runoff.

The water balance report (Water Hunters, 2024) states that only a negligible amount of raw water (50 m³ per month) would be used as make-up water to the system, and that optimising operational rules could reduce this requirement to zero. “Based on calculations using the current input data, and the set of assumptions made in the model, there is therefore practically no shortfall of water for normal operations as planned by the Volspruit Mining Company” (Water Hunters, 2024).

11.5 Stormwater Management

The requirements for stormwater management have been provided in section 7.1 of this report and summarised here as follows.

The Erudite Stormwater Management Plan drawing 19-918-SWM-004 shows a layout of the infrastructure needed to divert clean water and channel dirty water on the site.

Clean water, diverted around the TSF discharges downslope and captured by the clean water canal upslope of the plant, the RoM stockpile and the waste rock stockpile to discharge both upstream and downstream of the plant. A further clean water canal prevents runoff into the North Pit and discharges, via culvert outlet structures, the clean water into the Nyl River.

11.6 Dams with a Safety Risk

The unfortunate disaster at the Jagersfontein Mine resulted in the intervention of government with various departments to investigate the safety of residue deposit dams / facilities and intensify regulations around these structures. Resulting from this has been a change the tailings environment, that tailings dams with a safety risk will require to register with the Department of Water and Sanitation (DWS). DWS will enforce Section 120 in the National Water Act (NWA) which requires an owner of a dam with a safety risk to register the dam within 120 days after the date on which the dam meets the requirements to be classified as a dam with a safety risk as defined in Section 117 of NWA.

The DWS Directorate: Dam Safety Regulation (D: DSR), Nature of Tailings Storage Facilities / Mine Residue Deposit Dams is required by the National Water Act and by the Dam Safety Regulations published in Government Notice R. 139 of 24 February 2012, to maintain a register of dams and to monitor those with an identified safety risk. The DWS Directorate will execute random inspections to verify the correctness of the information and the existence of the dam(s) as well as collaborate with the Department of Mineral Resources and Energy (DMRE).

Section 117(c)(i) of the National Water Act defines as a safety risk “*any dam which can contain, store or dam more than 50 000 cubic metres of water, whether that water contains any substance or not, and which has a wall of a vertical height of more than five metres, measured as the vertical difference between the lowest downstream ground elevation on the outside of the dam wall and the non-overspill crest level or the general top level of the dam wall*”. Thus, the Volspruit TSF will be classified as a dam with a safety risk and require registration in the same way as a similar raw water storage dam.

11.7 Waste Classification

Eco Elementum (Pty) Ltd was contracted by Sylvania to conduct a Waste Classification for the Project, and it is this report that has been reviewed.

The proposed opencast mining activities will be undertaken exclusively on the farm Volspruit 326 KR, whilst the infrastructure needed will be constructed on both the farm Volspruit 326 KR, as well as on the farm Zoetveld 294 KR. Volspruit Mine is proposed to include two opencast pits, which are otherwise referred to as the ‘North pit’ and the ‘South pit’, due to their geographical location on the farm Volspruit 326 KR. Mining of these opencast pits will entail initial topsoil stripping and stockpiling thereof, with subsequent rock blasting and ore handling with large front-end loaders and trucks at the rock face thereafter.

Waste rock (i.e. all material with no resource value that needs to be removed in order to access the targeted ore bodies) from the North pit will be hauled to surface and disposed of above ground to a single, dedicated, waste rock dump on the farm Zoetveld 294 KR. Waste rock from the South pit will be used to partially back-fill the North pit.

The target ore will also be transferred to surface by haul trucks but will be stockpiled separately from any waste rock as a RoM stockpile. This stockpiled RoM will then be crushed at a primary crusher and transferred via conveyor to a concentrator plant (processing plant).

The findings were that oxide elements with concentrations (>1%) include:

- Silica (Si);
- Aluminium (Al);
- Iron (Fe);
- Magnesium (Mg);
- Chromium (Except for Norite); and
- Calcium in Tailings sample.

The XRD results show presence of:

- Talc: Rougher Tails, ROM1 and ROM2;
- Lizardite - Pyroxenite;
- Enstatite in Rougher Tails, ROM1, ROM2 and Pyroxenite; and
- Quartz, Norite, and Plagioclase Norite.

The following trace elements exceedances were observed:

- Rougher Tails: Cu, Mn, Ni >TCT0;
- ROM1: Co, Cu, Ni > TCT1, Hg > LCT1;
- ROM2: Co, Cu, Ni > TCT0;
- Pyroxenite: Co, Ni > TCT0;
- Norite: Ba, Pb > TCT0.

Table 11-2 captures, for each sample type, the waste classification, the Acid Forming potential and consequently the minimum containment barrier system type required.

Table 11-2: Waste Classification sample results

Volspruit Samples	GNR635	ARD Generation Potential	Barrier Type
Rougher Tails Composite	Type 3	Non-acid Forming potential	Class C
ROM1	Type 3	Intermediate Acid Forming potential	Class C
ROM2	Type 3	Intermediate Acid Forming potential	Class C
Pyroxenite	Type 3	Non-acid Forming potential	Class C
Norite	Type 3	Non-acid Forming potential	Class C

The implications of the above are that the TSF, and the Waste Rock stockpiles should both be designed with **Class C barriers.** Eco Elementum has proposed that the waste rock, which is considered to pose a low risk towards the environment should be re-classified as a Type 4 waste which will require a lower-level Class D barrier. They supported their argument as follows:

1. None of the LCT concentrations exceeded the LCT0 limits;
2. Only the norite and pyroxenite waste rock will be disposed of at the designated site;
3. Acid generation from the waste rock is not expected; thus no acidic leaching is expected;
4. A storm water management plan will be in place to collect all runoff from the waste rock dump (WRD). The runoff will be stored in a pollution control dam (PCD) which will be lined according to requirements;
5. The geology of the waste rock presents a very low risk to cause impact on the ground or surface water since it is inert; and
6. The WRD will be outside of the 1:100 years flood line and more than 32 m from any water sources.

Whilst this is a sound argument, and one that has been made for other mineral residue facilities in the Eastern Limb, based on the current sensitivity of Environmental Departments to ground water pollution, it is considered unlikely to be approved.

11.8 Design Criteria

The reported design criteria for the TSF, the RoM stockpile and Waste Rock stockpile, have been chosen to provide a permanent and secure containment of the solid waste materials generated by the mine.

11.8.1 TSF

As required, clean water runoff is diverted around the site and discharged into environment, while dirty water is captured and stored for re-use. The design allows for both drainage water, and runoff from the TSF to be accumulated in RWDs for re-use in the mining production processes.

Drainage has been included to draw down the phreatic water surface within the TSF basin and a piped drainage network conveys the drainage water, via a silt trap into the RWD complex. A further dam, used to store water suitable for irrigation, has been provided.

As noted above, the tailings have been classified as a Type 3 Waste and will require containment above a Class C Barrier system, typically a 1.5 mm thick HDPE geomembrane. The barrier system designed for the TSF is intended as an equivalent performing barrier to the specified Class C barrier required by NEMWA GN R636. The barrier system is later reported as a 2 mm mono-textured HDPE liner on a 300 mm bedding layer. Confirmation of this design difference is required prior to finalisation of the design.

Penstocks and associated penstock pipelines have been provided to drain supernatant water and to decant stormwater from the TSF surface. The design capacity of the TSF is 243 000 t dry tailings per month, based on a dry density of 1.6 t/m³. Below liner drainage has been designed to collect sub-surface drainage water and flow under gravity, via a solution trench and sump system to the RWD complex.

The starter wall is to be constructed from waste rock and material sourced from the site. A geotechnical investigation has shown that competent rock, suitable for the founding of a tailings dam, is encountered at up to 3 m below the surface. Much of the weathered material is suitable for inclusion in the starter and embankment walls.

No ground water had been encountered in any of the test pits leading the designer to assume only nominal sub-surface drainage will be required.

The seismic assessment was based on the Seismic Hazard Map of South Africa (Kijko, et al, 2003). SRK has undertaken more recent reviews of potential seismicity in the region, and it is recommended this study be extended to include the Volspruit area.

The rainfall and evaporation values, provided in the report, have been reviewed in section 7.1 of this report.

The design report indicated the tailings characteristics used in the design are not based on the fresh RoM material, as this of course is not yet available. Typical platinum tailings characteristics, which have a slurry density of between 1.45 t/m³ and 1.55 t/m³, have been used. It is considered that the typical tailings characteristics used are sensible, but once a pilot plant is operational, the tailings produced should be tested, and the tested values used for the final design.

The embankment design assumes 1V:3H for inner and outer slopes, with a minimum crest width of 9m. Again, these are typical design parameters which will be re-assessed once the actual tailings characteristics are known.

Tailings will be placed using hydro-cyclonic deposition method that will be supplied via a slurry delivery pipeline.

The TSF has been designed as three cells, which eventually will link to form one tailings surface. The logic of such an approach is not clearly spelt out, but it is inferred that the logic for this approach is:

- A smoothed cashflow of capital expenditure, to reduce initial capital expenditure;
- Weather exposure of the liner, potential damage to liner, theft of liner; and
- A very low Rate of Rise over the life of the project.

The indicative surface area and volume storage for the three phases are as follows:

- Cell No.1 - 49 ha @ 12 000 000 m³, with a crest elevation of 1 090 m MSL;
- Cell No.2 - 49 ha @ 8 900 000 m³, with a crest elevation of 1 095 m MSL; and
- Cell No.3 – 42 ha @ 6 500 000 m³, with a crest elevation of 1 100 m MSL.

A total footprint for the discard facility of 140 ha.

11.8.2 The Waste Rock Dump (WRD)

Two WRDs, being the 60 ha WRD South and the 38.5 ha WRD North have been designed similarly as dry stack facilities. The barrier system proposed is as follows:

- The in-situ material ripped to 150 mm depth, then compacted;

- A subsurface drainage network of plastic drainpipes, wrapped in geotextile, will be placed to intercept ground water and to function as a leak detection layer;
- A Compacted Clay Liner constructed from local clayey sandy material placed above the compacted in situ material; and
- The site to be surrounded by a dirty water channel, which in turn will be surrounded by a containment bund.

Twin pollution control dams are provided to settle the dirty water, prior to discharge to the environment.

Both the North WRD and the South WRD will be built concurrent with TSF Cell One project. The design as proposed is a very standard design, but confirmation of the waste rock characteristics, particularly its pollution potential, will be required prior to submission of approval during final design phase.

11.8.3 The Run of Mine Stockpile

The RoM Stockpile has been designed as a dry stack facility, but the barrier system design provided is deemed to be equivalent, Class C barrier. The proposed barrier comprises the following:

- The in-situ material ripped to 150 mm depth, then compacted;
- A subsurface drainage network of 75 mm diameter plastic pipes, surrounded by aggregate material, and wrapped in geotextile, will be placed to intercept ground water and to function as a leak detection layer;
- A 150 mm thick selected G7 type material layer compacted to 95% Mod AASHTO;
- A 150 mm C4 type stabilised layer compacted to 98% Mod AASHTO;
- A 200 mm thick concrete slab, to allow trafficking on the stockpile area; and
- The site to be surrounded by a concrete dirty water collection Vee drain, which in turn will be surrounded by a containment bund.

A silt trap and product stockpile pollution control dam with silt trap, and a plant pollution control dam with silt trap are also provided.

The design as proposed is considered an appropriate design.

11.9 Cost estimate

A cost estimate has been developed, based on quantities inferred from the design drawings as based on unit rates obtained from current lined TSF facilities being built in the Steelpoort area.

The costs are presented net of Preliminary and General costs, escalation and contingencies.

11.9.1 TSF Costs

The TSF cost have been broken down as:

- Basin forming and embankment;
- Penstock system;
- Drains;
- Dirty water collection systems and silt traps;
- Return Water and Irrigation Dam complex; and
- Slurry pipeline system, including pipeline corridor and pipeline plinths, but excluding pumping systems.

To allow for a capital cashflow the costs per cell will be apportioned pro rata to the cell footprint area, thus Cell One will be (49/140) or 35% of full TSF cost, Cell Two will similarly be (49/140) or 35% and Cell Three (42/140) or 30% of costs.

11.9.2 Waste Rock Dump Costs

The WRD costs include:

- Basin shaping;
- Barrier system for compacted clay layer;
- Sub surface drainage; and
- Dirty water channel and containment bund.

11.9.3 RoM Stockpile Costs

The RoM stockpiles costs include:

- Basin shaping;
- Sub surface pipe drainage;
- Barrier system comprising base course, sub-base, concrete slab; and
- Dirty water channel and containment bund.

11.10 Other Infrastructure

Other infrastructure, required as part of the initial development cost includes the:

- Clear water diversion channels around:
  - TSF with dissipation structures;
  - Plant area;
  - North pit and South pit;
  - WRD;
  - Six culverts over the clean water channels;
  - Nine(9) clean water discharge structures with erosion controls;
  - Flood Diversion Bund; and
  - Allowance for access roads to the various TSF and stockpiles areas.

No costs have been provided for:

- Internal plant roads, civil, mechanical or electrical infrastructure;
- The slurry pumping system and pipeline;
- Fencing or security infrastructure; and
- Re-alignment of existing roads through site.

12 Infrastructure and Engineering

12.1 Mechanical Infrastructure

12.1.1 Access to site

Access to the project site will be via a 7 m wide paved road, which joins the existing public road coming from Mokopane destined for the Volspruit Mine. Approximately a total of 2 km of gravel internal service roads will be required. There will be dedicated haul roads from the North and South pits to the process plant. The width of the haul roads will take into consideration allowance for two haul trucks to easily drive past each other when travelling in opposite directions. The North pit haul road will also be used as a service road for the movement of light vehicles and service vehicles between the mining site and the process plant.

The North pit will be accessed via the haul road leading to the security access point at the open pit.

The internal plant roads will be gravel and kerbed and will have a typical width of approximately 6 m. There is an existing gravel road outside the plant area which is reported to be in good condition and will only require minor upgrades or repairs.

The roads maintenance, which will be carried out by the mining contractor, will include amongst others:

- Monthly levelling of the wear surface by grader, or as and when required;
- Annual re-spreading of wear surface aggregate by grader and compaction of the wear surface; and
- Dust suppression by water bowsers. To reduce the frequency at which the dust suppression will be required and in turn reducing the water consumption and running costs of the bowsers, a chemical concentrate can be utilised during weekly dust suppression passes.

A layout of access routes is shown Figure 12-1.

12.1.2 Access Control

A perimeter fence, with a minimum height of 2.5 m, will be established around all areas of the mine to restrict access by unauthorised personnel that might be near the site. The areas to be fenced off include the open pits, mining contractor’s yard, the process plant, and the TSF. A central access point will be established at each of these areas, fully equipped with manned security personnel and manually controlled boom gates.

Increased security protocol will be achieved by introducing security patrols around the mining site concession, including patrolling of remote infrastructure such as pipe routes and TSF infrastructure. A prefabricated security office unit will be installed at each access control point. A card or biometric system which can also include a time and attendance system has not been considered at this stage, however this can be looked at into more detail in the next phase of the study, should it be required.

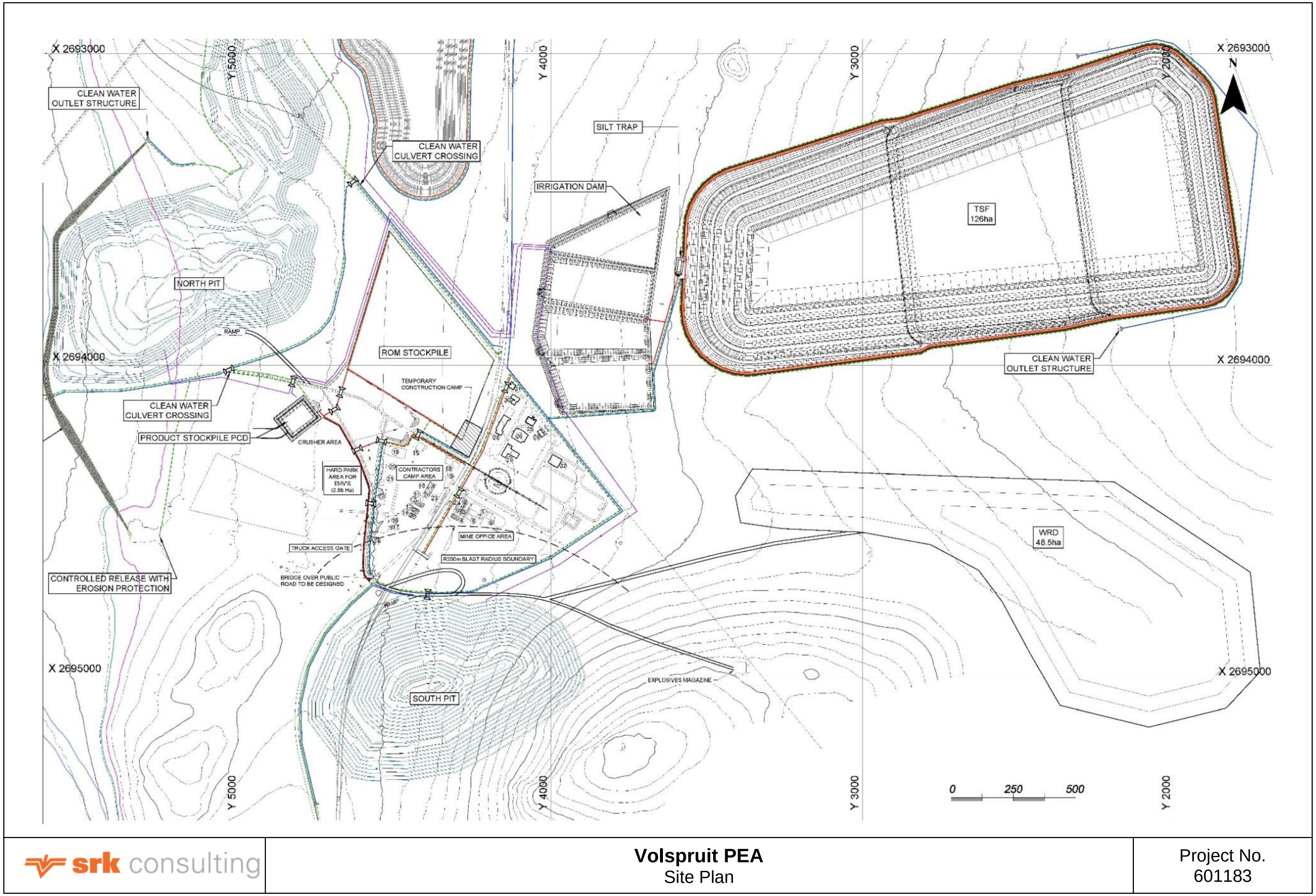


Figure 12-1: Site Plan

12.1.3 Mining Contractor's Yard

The appointed mining contractor will be responsible for supplying his own infrastructure. The infrastructure will mainly be made of prefabricated buildings which will include offices, change houses, workshops, control room, stores etc. The wash bay and fuelling bay civils will be provided by the mine. The prefabricated buildings will come fully equipped with amenities such as:

- Showers, toilets, and lockers for the change houses. This will include all the necessary internal piping and connections to the water reservoir which will be provided by the mine; and
- Lighting and small power including a distribution board for each building. Power supply to these buildings is discussed in detail in the electrical infrastructure section of this report.

The mining contractor will be responsible for establishing his own workshop, including tools and equipment needed to carry out repairs and maintenance work at this workshop. The workshop will be constructed by stacking containers on top of each other to achieve the side walls or any other approved construction that the mining contractor prefers. A gantry for installation of the overhead crane will be incorporated with a roof covering the whole workshop infrastructure. Oil trap/s will also be established by the contractor at the workshop to control any oil exposures to the environment. All offices will be equipped with the necessary furniture and air conditioning supplied and installed by the mining contractor.

A compressor and tyre bay will be supplied and installed by the mining contractor. A laydown area has been allowed for at the contractor's yard. The mining contractor will also be responsible for constructing a brake test ramp close to the open pit area, ensuring that equipment brakes are tested before going into the pit.

A fuel storage and refuelling bay at the mining contractor's yard will be equipped by the contract fuel supplier, and the civils will be provided by the mine. The facility will be inside a bunded area or be self-bunded, and will be equipped with diesel tanks, pumps, filters. and a filler system. The facility will be monitored and managed by the mining contractor. Depending on the terms of the contract, the mining contractor would report consumption to the Sylvania mine manager. The constructions included in the mining contract must be approved by Sylvania. Contractor diesel consumption costs will be the subject of contract negotiation.

The earth moving vehicle (EMV) parking area, which will be established by the mining contractor, will be used to park mining trucks, service vehicles, graders, and water trucks when not in use or change of shift. The EMV hard parking area will be adjacent to the fenced-off contractor's yard to ensure safeguarding of machines against vandalism. The area will be a simple levelled area with barriers installed between parking bays.

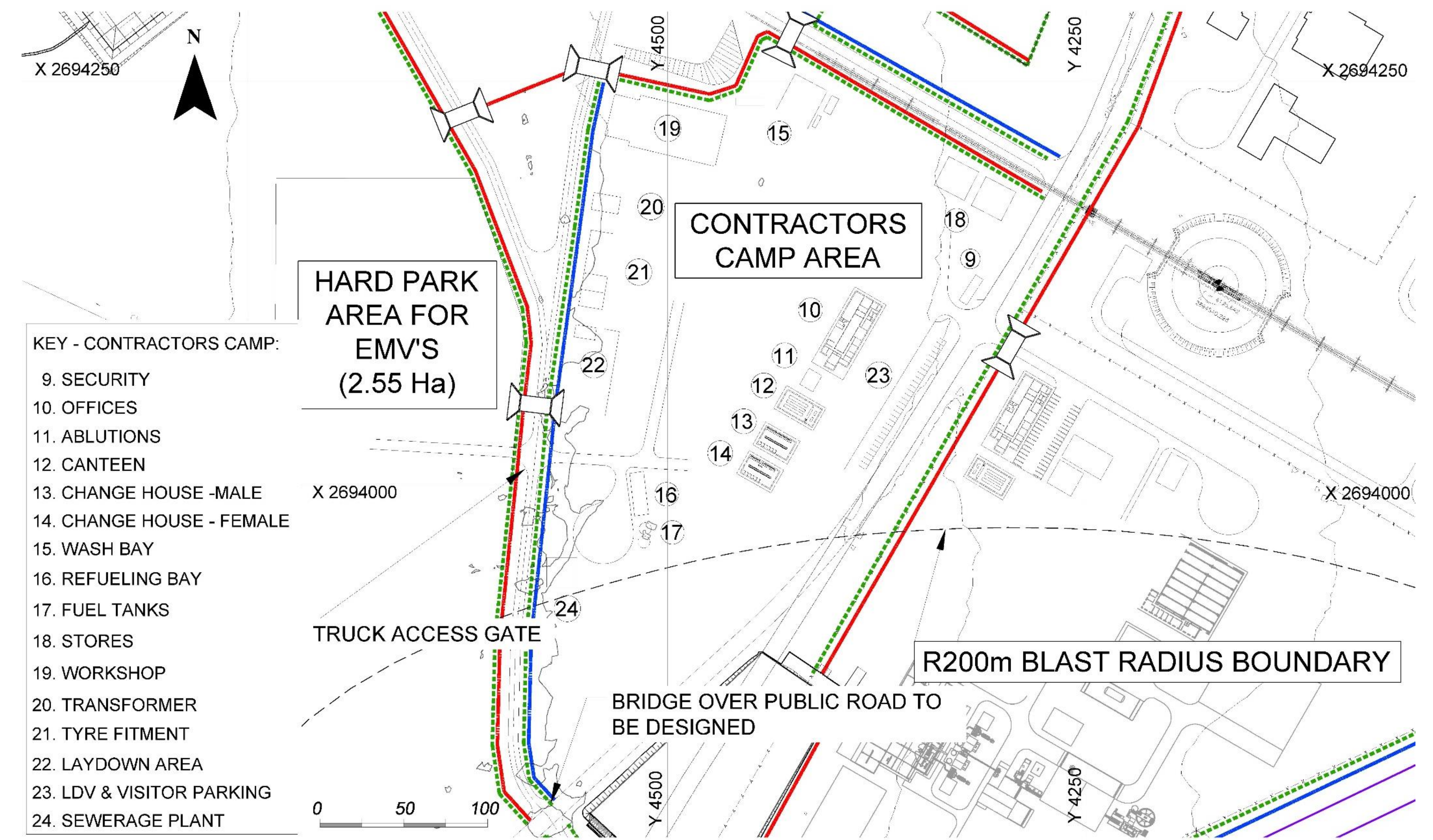
A layout of mining contractor's yard is shown in Figure 12-2.

12.1.4 Explosive Magazine

The explosive magazine will be fenced off with strict access control so only authorised personnel is allowed to access this area. The magazine will be constructed according to South African mining regulations.

12.1.5 Stockpiles and Rock Dumps

The WRDs for the North and South open pit operations will be constructed in the area shown in Figure 12-3. The main RoM pad and the stockpile will be located next to the process plant. Preparation for the rock dump and stockpile will include grubbing, topsoil removal and levelling of the area, which will be in the mining contractor's scope of work.



srk consulting

Volspruit PEA
Contractor's Mining Site Camp

Project No.
601183

Figure 12-2: Contractor's Mining Site Camp

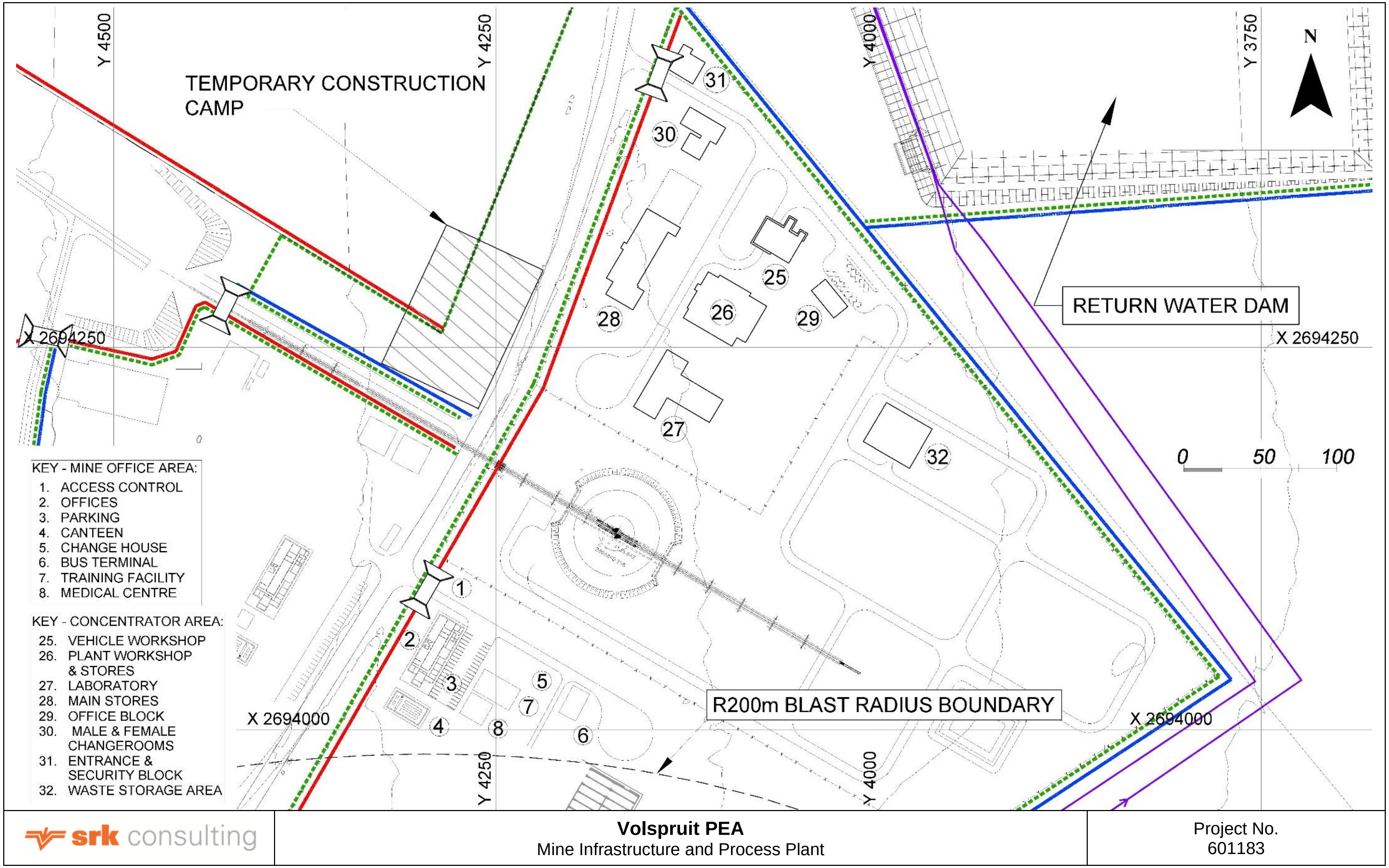


Figure 12-3: Mine Infrastructure and Process Plant

12.1.6 Plant Support Infrastructure

The plant support infrastructure will be made of the following:

- The Plant Workshop will be a steel and brick building including mechanical and platework workshop, electrical, instrumentation and machining workshops. The vehicle workshop and the mechanical and platework workshop will each be equipped with an overhead crane. Provision has been made for equipping the workshops with tools and equipment;
- Change-house Facilities and Laundry – prefabricated male and female change houses will be provided at the plant area. These units will be equipped with showers, basins, toilets, and lockers;
- Medical Stabilisation Facility – provision has been made for the medical stabilisation facility so treatment of injuries and first aid can be done on site where possible;
- Waste Handling and Salvage Yard – this will be used to store waste and worn-out equipment prior to collection by an outside contractor. Skips will be placed in this demarcated area for separation of waste type;
- Store Yard - two concrete slabs will be constructed on a levelled surface. Two steel sheds will be placed on these slabs, for storage of large spares. A small mobile unit will be placed between the sheds, to be used as a stores clerk office. A roof covering the two sheds and the mobile office will then be established to protect the sheds and office against natural elements. One or two containers forming part of the workshop building will be used as storage for fast moving spares;
- Offices – a prefabricated administration office block will be constructed to house administration personnel, senior management, plant management, and plant engineer. Allowance has been made for individual offices which can be used for senior management personnel and open plan area for general administration personnel. The administration block will also be equipped with a conference room, which will mainly be used for meetings. A prefabricated building which will be in close proximity to the offices will be used as the plant control room; and
- Canteen – a fully equipped centralised canteen will be established at the plant area where all the cooking will be done.

The plant support infrastructure is shown in Figure 12-3:

12.1.7 Bulk Water Supply

Raw water will be pumped from the boreholes around the North and South pits via the surface overland pipes to the raw water storage tank at the mining contractors' yard. The raw water will be used for wash water and for the fire suppression systems. Piping will be of the galvanised type as per the normal acceptable standards.

Potable water will also be from the boreholes to the potable water storage tank at the mining contractor’s yard and this will be used at the change houses, workshops and all other applicable areas such as offices.

Detailed plant water supply requirements are described in the hydrology chapter.

12.1.8 Tailings Storage Facility Return Water Pumping

The Volspruit TSF is an upstream embankment facility with a LoM of 15 years. The RWD associated with the Volspruit TSF has both operating and standby compartments where return water to the concentrator plant is pumped from.

Excess water from the RWDs is pumped back to the concentrator plant operations to optimise recovery and maintain the water balance.

The mechanical infrastructure at the TSF consists of the following: -

- 250 mm NB steel delivery pipelines, High-density polyethylene (HDPE) internally lined, installed from the process plant to and around the TSF;

- 250 mm NB steel distribution and deposition pipelines, HDPE internally lined, installed between the delivery pipelines and the discharge points into the individual TSF paddocks;
- 250 mm NB closed body pinch valves and piping items (fittings and brackets); and
- Return water pumps and piping to the raw water tank in the process plant.

12.2 Sewage Handling and Management

Sewage effluent from the plant will be treated by a trickling filter sewerage plant. This plant will be located on the west side of the mining contractor’s yard. Sewage from the entire mine area will be directed to this sewerage plant. Effluent from the sewerage plant will be treated to conform to general standards and will be discharged in accordance with local environmental regulations, bearing in mind the ecological sensitivity of the area.

12.3 Electrical Infrastructure

12.3.1 Project Power Requirements

Project power requirements have been estimated as indicated in Table 12-1. High level load lists were compiled for the mine offices support infrastructure, the mining contractor’s yard support infrastructure, the RWD pumps, lighting and small power and the concentrator area support infrastructure. A high-level installed power capacity estimate of 15 MW was assumed for the process plant, as a detailed load list for the process plant was still not yet available. This will be addressed in the next phase of study.

Table 12-1: Volspruit Mine Project Power Requirements

Description	Installed Power (MW)	Absorbed Power (MW)	Maximum Demand (MW)
Mine Office Block Area Support Infrastructure	0.21	0.14	0.17
Mining Contractor’s Yard Support Infrastructure	0.28	0.21	0.24
Return Water Dam	0.40	0.16	0.19
Concentrator Area Support Infrastructure	0.36	0.28	0.33
Concentrator/Process Plant	15	12	14.1
North Pit Dewatering Boreholes	0.45	0.36	0.42
South Pit Dewatering Boreholes	0.27	0.22	0.25
Total	**16.97**	**13.37**	**15.70**
Maximum Demand on system @0.8 diversity		**10.70**	**12.56**

At a power factor of 0.8 and a system spare capacity factor of 20% allowed for any unforeseen future power requirements that might occur, this will result in absorbed power requirements of about 16.05 MVA at maximum demand of about of 18.84 MVA.

From the above, it can be concluded that the mine should apply for an agreed Notified Maximum Demand (NMD) of 20 MVA from Eskom. However, it is recommended that a process plant consultant be approached in the next phase of the study to compile a more detailed load list to ensure that power requirements for the plant are properly defined.

12.3.2 Bulk Power Supply

A previous pre-feasibility study (PFS), which was compiled almost 20 years ago, shows that the source for bulk power supply can either be at Eskom's Cromore Substation and/or Witkop Substation, located 2.5 km and 80 km respectively from the mine. Although high level capital cost estimates for the two options have been compiled for this PEA, it is recommended that a bulk power supply specialist consultant, who is familiar with Eskom requirements, be appointed in the next phase of the project to handle the bulk power supply aspects for the project. These bulk power supply aspects, will include, amongst others:

- All necessary engagements and negotiations with Eskom;
- Requests for all necessary quotations from Eskom such as the cost estimate letter and budget quotation;
- Bulk power supply designs and capital costs estimates;
- Together with Eskom, identify the most reliable and practical source for bulk power supply; and
- Helping the mine with other applications such as application for agreed NMD.

However, SRK understands that a concept study has since been completed by Eskom and paid for by Sylvania. Sylvania also indicated that an Environmental Impact Assessment (EIA) for the new overhead power line and a new independent power supply substation has been completed by Eskom. It is recommended that this latest information be made available in the next phase of the project.

For this PEA, high level capital cost estimates, based on first principle, have been compiled based on two options, namely:

- Sourcing power from the Cromore Substation; and
- Sourcing power from the Witkop Substation.

Although it might be feasible to source power from any of the two substations, the option of sourcing power from the Cromore Substation appears to be more cost effective than the option of sourcing power from the Witkop Substation. This is due to the difference in distance of about 77 km between the two substations in relation to the mine site. It is therefore recommended that the specialist consultant should explore more in detail opportunities of sourcing power from Cromore Substation (2.5 km away) in the next phase of the project, as this option appears to be the most cost effective.

However, due to the age of both substations, which are expected to be more than 20 years old, there might be additional work required on the Eskom side as it is not clear whether any upgrades have been done on both substations since the time the PFS was compiled. It must also be noted that the previous PFS indicated that Cromore Substation had only 20 MVA spare capacity available at the time, and it is not clear at this stage whether this capacity is still available. For the purpose of the capital expenditure estimate, it has been assumed that the bulk power will be provided by the more distant Witkop substation.

12.3.3 Mine Office Block Area Infrastructure Electrical Reticulation

A 4-Way ring main unit (RMU) will be established in the mine office area support infrastructure. This RMU, which will be fed from the closest 11 kV concentrator plant switchgear, will in turn supply power to the mine office area 250 kVA 11kV/400V minisub and the mining contractor's yard 500 kVA 11kV/400V minisub.

The mine office area support infrastructure will be made of prefab buildings which will come fully equipped with lighting and small power, hot water geysers and/or heat pumps where required, all pre-wired to each building's lighting distribution board (LDB). Radial feeders will be established in the 250 kVA minisub to supply power to each individual LDB, using cables buried in ground in pre-prepared cable trenches. A 75 kVA 400V emergency generator has been allowed for to supply power to critical mine office area support infrastructure equipment such as the network server/s (via UPS) and emergency lighting. Solar powered lighting, complete with battery backup, has been allowed for in the explosive magazine yard. This is to try and eliminate the costs required in establishing a 2.5 km long overhead line just to supply power for lighting requirements around the explosive magazine area.

12.3.4 Mining Contractor's Yard Area Infrastructure Electrical Reticulation

A 500 kVA 11kV/400V minisub, fed from the mining office area RMU, will be established in the mining contractor's yard to supply power to the mining contractor's support infrastructure. Radial feeders will be established in this minisub to supply power to each building individual DB, using cables buried in ground in pre-prepared trenches. A 100 kVA 400V emergency generator has been allowed for to supply power to critical equipment such as servers and emergency lighting in the event of normal power failures.

12.3.5 Concentrator Area Support Infrastructure Electrical Reticulation

A 500 kVA 11kV/400V minisub, fed from the closest concentrator plant 11 kV switchgear, will be established in the concentrator support infrastructure area. Each building, equipped with its own LDB, will be fed from this minisub using radial feeders via cables buried in trenches. A 100 kVA 400V emergency generator has been allowed for to supply power to critical equipment such as servers and emergency lighting in the event of normal power failures.

12.3.6 Return Water Dam Electrical Reticulation

Power supply to the 400V return water dam containerised motor control centre (MCC) will be from the concentrator plant 11 kV switchgear which also supplies power to the concentrator area support infrastructure minisub. A 250 kVA 11kV/400V transformer will be established close to the RWD MCC to step the voltage down. The containerised MCC will in turn supply power to the RWD pumps via variable speed drives (VSDs). The MCC will also supply power to the LDB which will in turn supply power to the container's lighting and small power requirements, which will come pre-wired to this LDB. In order to try to reduce the capital cost associated with cabling, the security/area lighting in the RWD areas has been based on solar powered pole mounted lighting complete with battery backup. A 250 kVA 400V emergency generator has been allowed for to supply power to the pump and emergency lighting in the event of normal power failures.

12.3.7 Well Field (Boreholes) Electrical Reticulation

It is estimated that ten boreholes, each equipped with a 45 kW pump will be established at the North Pit while six boreholes, each also equipped with a 45 kW pump, will be established at the South Pit. An 11 kV overhead line will be routed around each pit to supply power to the pole mounted transformers. The pole mounted transformers will then supply power to the distribution boards which will in turn supply power to the borehole pumps using cables buried in trenches. The overhead line infrastructure, pole mounted transformers and distribution boards will all be outside the blast radius of 200 m around each pit, to prevent possible damage to infrastructure by flying rocks during blasting.

12.4 Conclusions and Recommendations

- The relatively short LoM allows that the mine site infrastructure will mainly be made of modular/prefabricated buildings thereby reducing capital costs and the closure costs;
- Consideration has been made in positioning all the support infrastructure and the process plant out of the pits' blast radius to avoid any damage to infrastructure during blasting;
- It is recommended that the mine should appoint a bulk power supply specialist consultant in the next phase of the study. This will ensure that all the necessary requirements for the bulk power supply, including the costs, are defined more accurately and in detail as required. The specialist consultant to be appointed must be familiar with Eskom requirements and must have done this type of work before. SRK understands that a concept study has since been completed by Eskom and paid for by Sylvania. Sylvania also indicated that an Environmental Impact Assessment (EIA) for the new overhead power line and a new independent power supply substation has been completed by Eskom. It is recommended that this latest information be made available in the next phase of the project, which will also help in defining the scope of work for the specialist consultant going forward; and
- It is recommended that the concentrator load list should be compiled in the next phase of the project, to ensure that the concentrator electrical loads are more defined. This will ensure that the overall site load estimate is more accurate.

13 Capital and Operating Costs

13.1 Capital Costs

The production case that was considered was for mining 1.8 Mtpa ore over a mine life of 15 years. The capital cost was estimated to a conceptual level of detail.

13.1.1 Capital Estimate Summary

The capital estimate summary is shown in Table 13-1:

Table 13-1: Capital Estimate Summary

ITEM	UNITS	TOTAL
Land acquisition	(ZARm)	100
Mining Mobilisation and Establishment	(ZARm)	50
Processing	(ZARm)	1 392
TSF	(ZARm)	918
Return water & irrigation dams construction	(ZARm)	111
Waste Rock Dumps Construction	(ZARm)	54
ROM Pad	(ZARm)	49
Flood Diversion Bund and other civils	(ZARm)	181
Roads and Haul Road Bridge	(ZARm)	34
Water supply from dewatering boreholes	(ZARm)	21
Bulk Power Supply	(ZARm)	244
On-mine Electrical Infrastructure	(ZARm)	19
General Infrastructure	(ZARm)	61
Preproduction expenses, owner’s costs	(ZARm)	185
EPCM at 18% of processing and infrastructure	(ZARm)	555
Owner’s cost at 5% of base capex	(ZARm)	171
Contingency at 25%	(ZARm)	1 036
Total Project Capital	(ZARm)	**5 181**
Stay-in-Business Capital	(ZARm)	**355**

13.1.2 Basis of estimate

The following parameters have been applied to the capital estimate:

- The effective date of this report and the capital estimate is 30 April 2024;
- For the purposes of evaluation, all expenditure likely to be spent before project start in Year 0 is reflected in Year 0;
- It has been assumed that mining will be undertaken by an experienced mining contractor who will provide all labour and equipment, mobile or otherwise, to excavate the ore and waste, and transport such material to the process plant and the waste dump, as appropriate. It is assumed that the mining contractor will make provision for mobile equipment rebuilds and replacements as scheduled over the LoM. The contract cost will be apportioned to operating costs;
- Bulk water supply is from sixteen borehole pumps situated around the perimeters of the North and South Pits, estimated to produce 420 Mℓ/month (13.8 Mℓ/day), more than sufficient for process plant make-up and other uses;
- The bulk power supply is via the Witkop Substation, about 80 km away from the mine. As the availability of sufficient power from the closer Cromore Substation is not certain, the capital requirements for using the Witkop Substation have been used in the capital estimate;
- It is assumed that construction of the processing plant will take 18 months, that is, Year 0 plus six months of Year 1;
- The processing plant capital cost has been estimated by determining the selling cost of all major equipment and major spares, considering that the sum of these costs will make up 30% of the total plant capital cost, and the remaining 70% will be for all other capital costs required to construct and commission except for EPCM and contingency costs;

- Tailings Storage Facilities (TSF) capital costs are phased in three cells to ensure the storage capacity is available according to the cumulative tonnage profile;
- It has been assumed that implementation of the project will be based on an Engineering, Procurement and Construction Management (EPCM) strategy and it has been assumed that the estimated cost of the EPCM contract is 18% of the processing and infrastructure material and equipment cost;
- It is assumed that all study costs to advance the concept study to feasibility study are included under owners costs in Year 0. This covers further exploration, Prefeasibility (PFS) and Feasibility (FS) studies, metallurgical test work, ESIA, environmental permitting, etc.;
- Closure costs: Progressive reclamation activities should be conducted during the project life and therefore the associated costs are considered to be operational costs;
- Stay-in-business (SIB) capital – is calculated as 5% of the stockpile rehandling, processing, and tailings disposal operating costs; and
- Contingency is 25% which is appropriate for a PEA study.

13.1.3 Capital Cash Flow

The capital cash flow is shown in Table 13-2 below:

Table 13-2: Capital Cash Flow

ITEM	UNITS	Total	Y0	Y1	Y2	Y3	Y4	Y5	Y6
Land acquisition	(ZARm)	100	100						
Mining Mobilisation and establishment	(ZARm)								
Processing	(ZARm)	1 392	928	464					
TSF	(ZARm)	918	282	141	94	188		106	106
Return water & irrigation dams construction	(ZARm)	111	44			25		41	
Waste Rock Dumps Construction	(ZARm)	54	54						
ROM Pad	(ZARm)	49	49						
Flood Diversion Bund and other civils	(ZARm)	181	120	60					
Roads and Haul Road Bridge	(ZARm)	34	23	11					
Water supply from boreholes	(ZARm)	21	14	7					
Bulk Power Supply	(ZARm)	244	163	81					
On-mine Electrical Infrastructure	(ZARm)	19	12	6					
General Infrastructure	(ZARm)	61	41	20					
Preproduction expenses	(ZARm)	185	185						
EPCM at 18% of processing and infrastructure	(ZARm)	555	312	143	17	38		27	19
Owner's cost at 5% of base capex	(ZARm)	171	103	40	5	11		7	5
Contingency at 25%	(ZARm)	1 036	620	243	29	66		45	33
Project Capital Total	(ZARm)	**5 181**	**3 101**	**1 217**	**145**	**329**		**226**	**163**
Stay-in Business Capital (Y1 to Y14)	(ZARm)	**355**		**10**	**25**	**25**	**25**	**25**	**25**

The project capital cash flow in real terms is shown in Figure 13-1.

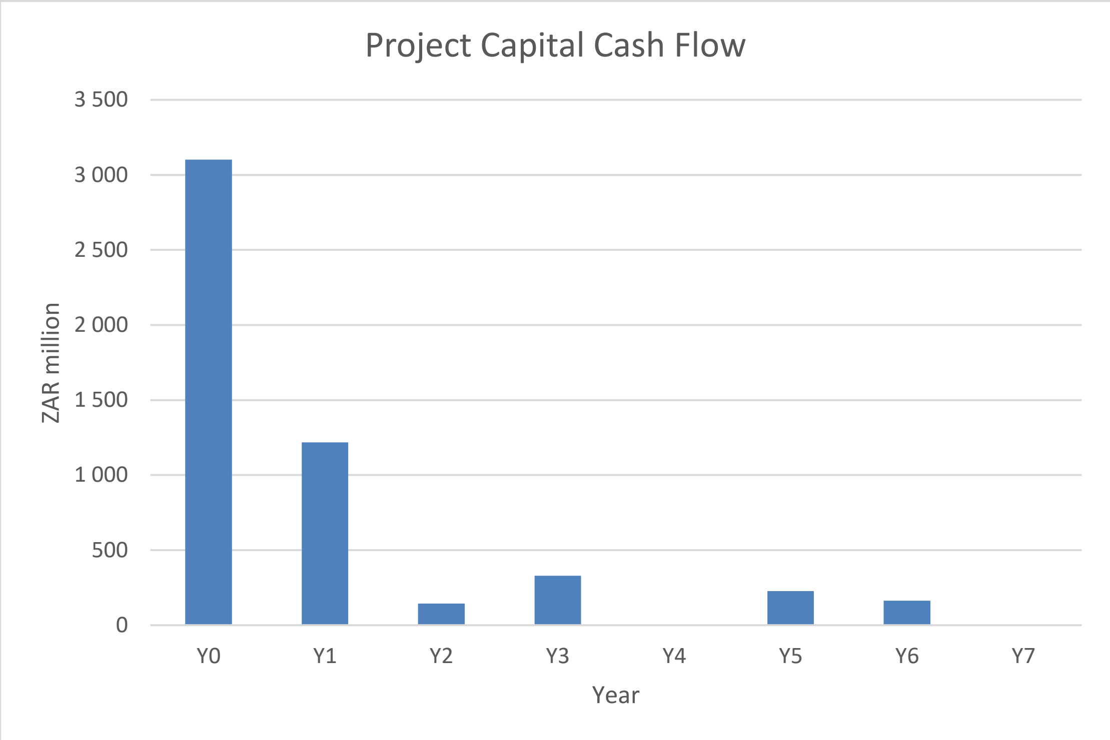


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Figure 13-1: Project capital cash flow

13.2 Operating Costs

The total operating costs for LoM are set out in Table 13-3.

Table 13-3: LoM Operating Cost Summary

Item	Units	Total LoM
Mining Cost - waste	(ZARm)	6 326
Mining cost - ore (incl. marginal cost + grade control)	(ZARm)	1 514
Stockpile rehandle cost	(ZARm)	34
Processing	(ZARm)	6 983
Tailings disposal	(ZARm)	84
Administration	(ZARm)	1 388
Closure provision	(ZARm)	150
SLP/CSI	(ZARm)	189
Royalties	(ZARm)	856
Contingency (25%)	(ZARm)	4 167
Total Operating Cost	**(ZARm)**	**21 691**
Unit Cost	(ZAR/t RoM ore)	860

Contractor mining is assumed for the project. The assumed contract mining costs are set out in Table 18-8.

The processing cost for the concentrator has been set at ZAR276.70/t of plant feed. Administration costs are applied as ZAR55/t of plant feed. Tailings disposal is estimated to cost ZAR6m per year, which is applied as a unit cost of ZAR3.34/t of plant feed.

The SLP/CSI cost is provided at 1% of operating profit per year.

The assumed cost for closure is ZAR150m, which is accrued as equal annual amounts over the LoM of the project.

Royalties are calculated using the refined formula per the Royalty Act.

A blanket contingency of 25% is applied to all operating costs in Table 13-3, excluding the royalties. This is appropriate for a PEA-level study.

14 Human Resources

14.1 Staff complement

SRK envisages a staff complement of 388 people (at steady state) made up as follows, see Table 14-1.

Table 14-1: Proposed staff complement

Department / category	Number
Mining (Owner team)	29
Mining (Contractor team)	186
Process plant operations	76
Process plant maintenance	28
General site maintenance	10
Management	59
Total	**388**

14.2 Operating philosophy

Sylvania is opting for a contractor operated mine and plant with an owner's team to handle technical services such as geology and mine planning and to supervise the operation. This is reflected in the detailed structure shown in Table 14-2.

Table 14-2: Detailed staff structure

		Management		Operators		Technical Support		General Support	
Section	**Title**	**Qty.**	**Skill**	**Qty.**	**Skill**	**Qty.**	**Skill**	**Qty.**	**Skill**
	Mining manager	1	Senior Mining Engineer					1	Admin
	Tech. Services manager	1	Senior Mining Engineer						
	Head of Mine supervisors					1	Mining Engineer		
	Mine shift supervisors					4	Mining Engineer/Foreman		
	Senior Mine Planner					2	Senior Mining Engineer/ Geotechnician		
Mining (owner team)	Junior Mine planner					2	Mining Engineer		
	Chief Geologist					1	Senior Geologist		
	Mine/Grade control Geologist					3	Geologist		
	Chief Surveyor					1	Senior Surveyor		
	Mine surveyor					2	Surveyor	2	Semi-skilled
	Pit Dewatering					2	Senior hydrologist / hydrogeologist	2	Semi-skilled
	LDV drivers							4	General drivers
Subtotal		**2**				**18**		**9**	
	Contractor Manager	1	Mining or mechanical engineer					3	Admin
	Operating manager	2	Mining Engineer			6	Technical supporter/Engineer/IT		
	Shifts supervisors			4	Foreman			4	LDVs drivers
	Trucks operators			48	Operator			3	Bus Drivers
	Shovel Operator			19	Operator				
	Drill operator			5	Operator				
	Dozer operator			12	Operator				
	Grader operator			5	Operator				
	Loader operator			4	Operator				
Mining Contractor team	Blasting Crew			6	Skilled labour	2	Blasting planner	2	Semi-skilled
	Workshop manager	1	skilled foreman			2	Maintenance planner	4	Cleaning
	Service crew			12	Skilled labour			4	Semi-skilled
	Motor and hydrolics			3	Mechanic			3	Semi-skilled
	Welder/Body repare			3	Skilled labour			2	Semi-skilled
	Electrician/Technician			4	Electrician/mechanic			2	Semi-skilled
	Pit dewatering/pumps			4	Artisans			4	Labours
	Security Guards							6	Trained security
	Health and safety			1	Training officer	1	H&S officer	4	H&S Clerks
Subtotal		**4**		**130**		**11**		**41**	

Section	Title	Management Qty.	Management Skill	Operators Qty.	Operators Skill	Technical Support Qty.	Technical Support Skill	General Support Qty.	General Support Skill
Processing	Metallurgical Manager	1	Metallurgist					1	Admin
	Production Superintendent	1	Metallurgist					1	Driver
	Technical Superintendent					1	Metallurgist		
	Senior Plant Metallurgist					1	Metallurgist		
	Plant Metallurgist					3	Metallurgist		
	General Plant Foreman	1							
	Plant Foreman			4	Manager				
	Crusher operator			4	Operators				
	Mill operator			8	Operators				
	Flotation operator			8	Operators				
	Thickener operator			4	Operators				
	General Labourer			30	Operators				
	Samplers			8	Operators				
Subtotal		**3**		**66**		**5**		**2**	
Maintenance Process Plant	Maintenance Superintendent					1	Superintendent		
	Electrical Superintendent					1	Superintendent		
	Maintenance Planner					1	Planner		
	Mechanical Supervisor					1	Foreman		
	Electrical Supervisor					1	Foreman		
	Fitter					5	Artisan		
	Welder/boilermaker					4	Artisan		
	Electrician/Instrument Technician					5	Artisan		
	Labourers					8	Semi-skilled		
	Training officer					1	Training Officer		
Subtotal						**28**			
General site maintenance	General supervisor					1	Foreman		
	Fitter			2	Artisan				
	Welder/Boilermaker			1	Artisan				
	Electrician/Technician			2	Artisan				

		Management		Operators		Technical Support		General Support	
Section	**Title**	**Qty.**	**Skill**	**Qty.**	**Skill**	**Qty.**	**Skill**	**Qty.**	**Skill**
	Labourers			4	Semi-skilled				
Subtotal				**9**		**1**			
Management	Site manager	1	Mining or mechanical Engineer					2	Secretary
	Management Accountant	1	Accountant						
	Bookkeepers							2	Accountants
	Environmental Affairs					1	Senior ESG expert	2	Junior ESG
	HR officer					1	HR Planner	1	HR
	Admin					1	Admin officer	2	Admin Clerk
	Health & Safety head					2	H&S experts	1	Training officer
	Health & Safety Crew							16	First Aid, Etc.
	Purchasing officer					1	Market expert	2	Admin
	IT consultant					2	IT		
	Warehouse supervisor					1	Senior Clerk	2	Stores Clerk
	Security head							2	Trained security
	Security Guards							10	Trained security
	General assistants							6	Cleaning
Subtotal		**2**		**0**		**9**		**48**	
Total		**11**	**0**	**205**	**0**	**72**	**0**	**100**	

15 Environmental and Social Compliance

15.1 Introduction

The Volspruit Project needs to adhere to several laws and regulations, including Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) governing the exploration and exploitation of Mineral Resources. They are also required to fulfil environmental management provisions in legislation, for example:

- National Environment Management Act (NEMA) and associated Environmental Impact Assessment (EIA) Regulations;
- National Environment Management: Waste Act;
- National Environment Management: Biodiversity Act;
- National Environment Management: Air Quality Act;
- National Heritage Act, and
- National Water Act).

In fulfilment of MPRDA and other relevant legislation, the Volspruit Project has obtained a mining right (MR) over the farm Volspruit 326 KR and Portion 2 of the farm Zoetveld 294 KR situated in the Mogalakwena Magistral District, Limpopo Province, South Africa. The MR area covers approximately 1 335 ha and came into effect on 4 October 2017 following the approval of the EIA and Environmental Management Programme (EMPr) in terms of Section 39(4) of the MPRDA. The MR has been awarded for a period of 30 years and is valid until 3 October 2047. Mining activities have not yet commenced.

15.2 Current permit situation

The approved EIA/EMPr for the Volspruit Project permits mining of two separate ore bodies through open pit mining (i.e. north pit and south pit) on the farm Volspruit 326 KP, which have a LoM of approximately 18-20 years; the LoM envisaged in this study is 15 years. In addition, areas of the remaining extent of the Farm Zoetveld 294 KR were permitted for the establishment of supporting aboveground infrastructure (e.g. the residue stockpiles, namely the tailings and waste rock residue stockpiles). An ore recovery plant (frother flotation) will be established on the farm Volspruit 326 KP.

After the issuing of the MR and environmental authorisation, various optimisation and environmental studies were undertaken for the Volspruit Project. These resulted in changes to the proposed layouts of the north pit (i.e. the pit moved further away from the adjacent wetland and resulted in the eastern boundary of the pit falling outside the current MR area), the residue deposit (tailings) and the layout and location of the residue stockpile (waste rock). The original environmental and social baseline and impact assessment studies (e.g. air quality and greenhouse gas, surface water, groundwater, agriculture and irrigation, biodiversity (flora, fauna, aquatic and wetlands), heritage, noise, visual and socio-economics) were updated between 2021 and 2023 to inform the MR amendment process.

In addition to amending the environmental authorisation and obtaining a waste management licence, the Volspruit Project will need to obtain other relevant permits (e.g., Water Use Licence and Air Emission Licence) from competent authorities prior to commencing operations.

15.3 Scoping and environmental impact assessment process

The Volspruit Project has applied for an amendment of the MR in terms of Section 102 of the MPRDA to address changes to mine infrastructure and apply for an Integrated Waste Management

Licence required in terms of new legislation. This application necessitates that a scoping and EIA process be undertaken.

The Draft Scoping Report for an integrated application for waste management licence and environmental authorisation associated with the proposed Section 102 amendment (dated 22 January 2024) was provided for review. This report presents information about the project to stakeholders (e.g. project description, policy and legislative context, need and desirability, alternatives, public participation process, environmental and social baseline descriptions, impact identification and plan of study for the EIA as well as information required by other authorities). The information is required by the competent authority (i.e. Department of Mineral Resources and Energy (DMRE), Limpopo Region) to make an informed decision about the proposed EIA plan of study based on listed activities and the identified impacts that are likely to arise during construction, operation and closure phases.

In fulfilment of the EIA regulations, a public participation process is being undertaken to inform and involve interested and affected parties in the scoping process. The process includes the publication of an environmental notice, the holding of a public open day and providing opportunities for written comments. The comments received from interested and affected parties will be considered in the preparation of the final Scoping Report, which was scheduled for submission to the DMRE in March 2024.

Upon DMRE approval of the scoping report, the Volspruit Project will proceed to the EIA phase. This will include a comprehensive assessment of potential mine-induced environmental and social impacts and the preparation of an EMPr.

15.4 Key environmental and social sensitivities

There are several environmental and social features that are deemed sensitive and would require careful assessment and management by the Volspruit Project, including:

- Agricultural activities such as irrigated and dryland cultivated crops, livestock grazing and game-farming that are located within the MR boundary and the surrounding area;
- There are sensitive social receptors within and surrounding the mine area (e.g. a farmhouse is located on the Farm Zoetveld 294 KR approximately 2.5 km south of the proposed south pit and multiple farmhouses are within a 2 km radius of the proposed south pit);
- Declared private nature reserves lie partially within (i.e. Doelen Private Nature Reserve) or surrounding the Volspruit MR area (i.e. Naboom Private Nature Reserve, Palmer Private Nature Reserve and the Somerset Private Nature Reserve);
- The aquifer system in the MR area is classified as a major aquifer due to reliance of surrounding water users on groundwater resources. It is also reasonably sensitive to long-term contamination from land surface activities;
- The project site falls within an area that is deemed to have high terrestrial biodiversity sensitivity in terms of the National Web-based Environmental Screening Tool. Key sensitivities include:
    - The Nyl River wetland and riparian habitats are of significant national and international importance and are classification as a critically endangered floodplain wetland. The Nylsvley Ramsar wetland is located 35km upstream, although it is unlikely to be impacted by the Volspruit Project;
    - A small portion of the MR area falls into the Springbokvlakte Thornveld Ecosystem that is considered Vulnerable in terms of the revised National List of Ecosystems that are Threatened and in Need of Protection (GN 2747 of 2022) and according to the Terrestrial Ecosystem Threat Status and Protection Level;
    - Dense woodland habitats forming part of broader savanna vegetation occurs extensively across the MR area;

  - There are a number of avifauna species of conservation concern (e.g. Secretary Bird) that potentially could occur within the MR area;
- Several archaeological sites were identified within the MR area, including Stone and Iron Age sites as well as the remains of old homesteads and farm structures. Although not identified, there is a possibility of graves and graveyards occurring in the area; and
- The surrounding area is predominately rural, with high unemployment levels. There are no settlements in the immediate vicinity of the mine. Within a 60km radius there are several towns, including Mokopane, Sterkrivier, Polokwane and Moletlane.

16 Project Implementation

16.1 Introduction

This chapter describes at a high level, the suggested methodology and conceptual timeline for implementing the Volspruit PGM project, situated near Mokopane in the Limpopo province of South Africa.

16.2 Basis of implementation

For this PEA, SRK recommends that the Engineering, Procurement, and Construction Management (EPCM) method of implementation be utilised, where a contractor is selected to perform detail design on the project based on the Owner's requirements, and procure, and manage the construction and commissioning, under the control of a Sylvania owner's team. This contrasts with the Engineering, Procurement and Construction (EPC) model. In an EPC contract, the EPC contractor develops the project from commencement to final completion. The owner of the EPC project provides the EPC contractor with a detailed design including technical and functional specifications, for the EPC contractor to build and deliver the project to the "turn of the key" within a specified time period. This is why EPC contracts are often referred to as "turnkey" projects. An EPC contract required a high degree of preliminary owner detailed design to issue to the contractor, who will normally tender a fixed price.

In contrast to the EPC model, the EPCM contractor is not directly involved in the building and construction of the project but is rather responsible for the detailed design, procurement, and overall construction management of the project, on behalf of the owner or principal. While an EPC contract takes the form of a design and construction contract, the EPCM model can be regarded as a professional services contract. EPCM suits most mines where the owner is not able to provide a sufficiently detailed specification for EPC and where the owner can form a sufficiently experienced Owner's Team.

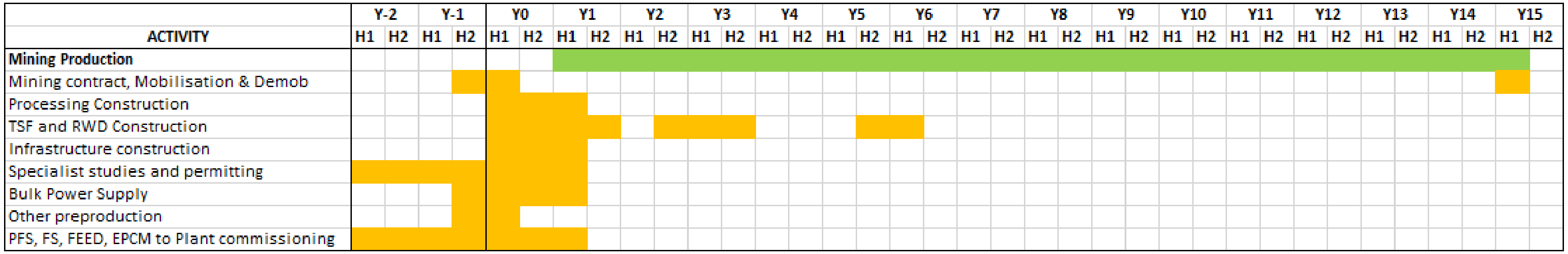
It is assumed for the purposes of this report that, if this project is found to be robust at PEA through to Feasibility Study, it will then proceed through Front End Engineering Design (FEED) to procurement and construction under the management of the EPCM contractor under the control and direction of the Sylvania Owner's Team.

16.3 Preliminary implementation schedules

The implementation schedule is shown in Figure 16-1.

The mining and waste schedule is shown in Figure 16-2.

In the techno-economic model, it is assumed that all expenditure in Year -1 and Year -2 is reflected in Year 0.



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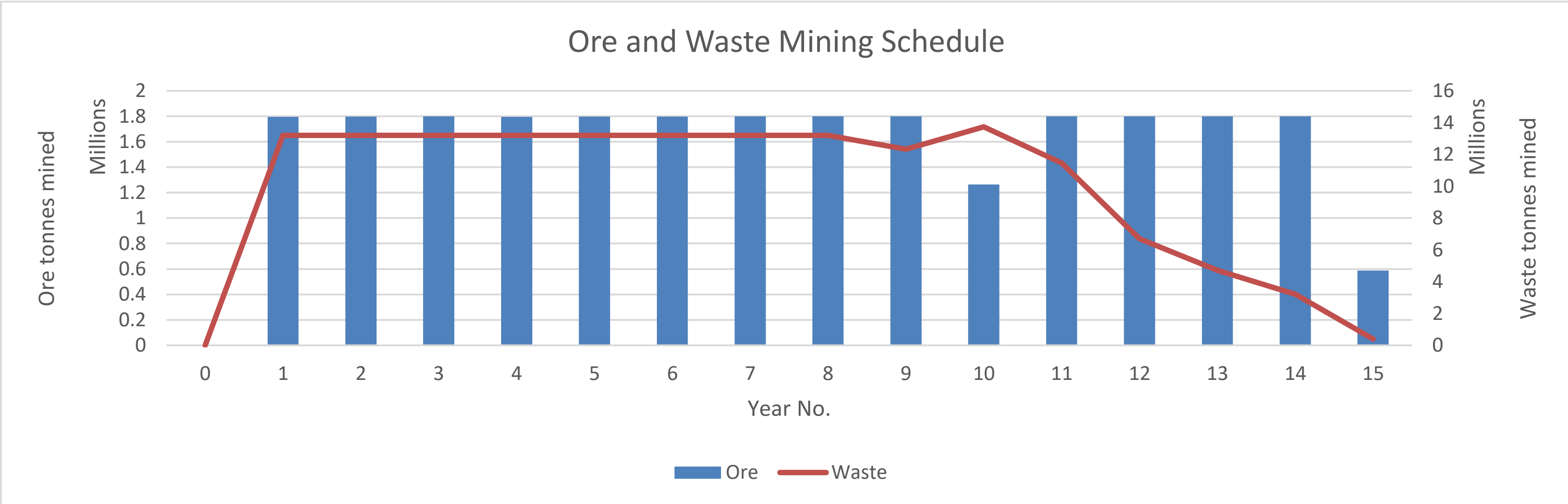
VOLSPRUIT PEA STUDY
PRELIMINARY IMPLEMENTATION SCHEDULE

Project No.
601183

Figure 16-1: Implementation schedule



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VOLSPRUIT PEA STUDY
PRELIMINARY ORE AND WASTE MINING SCHEDULE

Project No.
601183

Figure 16-2: Ore and waste mining schedule

17 Risk Assessment

17.1 Overview

A qualitative exercise was undertaken toward the risk assessment for the current PEA. The exercise considered potential risk as well as potential opportunity, at the thematic level.

The assessment comprised the following tasks:

- Review the project information provided in the dataroom;
- Identify risk-related elements in the various project reports, completed to date by the respective Consulting firms etc.;
- Engage with SRK discipline leads and their respective team members regarding the findings from their work toward the current PEA;
- Review any relevant project information available in the public domain (media releases, sector publications etc.); and
- Collate the information and interpretations.

The objectives of the exercise included:

To understand the extent of the risk-related annotation from the various studies completed to date;

- To confirm the risk-related observations made by the various SRK disciplines in their respective study components for the current PEA;
- Where relevant, to modify and/or extend the description of existing risk themes; and
- To provide a description of the potential risks and potential opportunities to be considered as the project progresses from the PEA to future studies.

The findings from the exercise are described in the sub-sections below.

17.2 Findings

The detailed discussions of the risk items appear in the respective sub-sections above. The risk themes and items identified from the PEA are summarised in Table 17-1.

Table 17-1: Summary of hazards and/or risk related aspects, recommendations and potential opportunities for further consideration

Hazards and/or risk-related aspects by discipline	Summary of recommended considerations	Potential opportunities
Mineral Resource Estimation		
Regarding model variability Mineralization is more variable than modelled.	Conduct detailed, infill drilling program in a shallow portion of the orebody to both assess and improve the understanding of the mineralization.	
Regarding RPEEE The RPEEE testing undertaken does not strictly conform to what SRK considers to be industry norms – therefore, using the current technoeconomic assumptions, the Mineral Resource may be smaller than that declared previously.		
Hydrology		
Regarding surface water and wetland The floodplain wetland system is already under stress Surface water flows within the Nyl River system are highly variable and under pressure from abstraction. **Regarding groundwater abstraction** Potentially insufficient groundwater volumes and/or recharge. **Regarding mine water balance** Potential that water used by mine disrupts water balance of the Nyl River system. Consequently, potential knock-on effects realised (because the Nyl River system sustains the Nylsvlei wetlands and provides flows to maintain riparian, wetland and aquatic habitat downstream, as well as downstream users).	**Regarding surface water, wetland, groundwater abstraction, and mine water balance** • Carry out a detailed study on the environmental flows requirement and reserve (including seasonal flow requirements needed to maintain downstream riparian, wetland and aquatic habitat as well as existing, licensed water users). The study must also account for: ○ Seasonal low flows that need to be maintained, and ○ Any need for high flow or flood events that may naturally be required to maintain downstream habitat. • Develop strategy to integrate mine planning and operations with surface and groundwater management systems.	**Regarding surface water, wetland, groundwater abstraction, and mine water balance** The storage of high flows (such that low flows can be maintained) could potentially mitigate the impacts of mine water use on the downstream habitat to some extent. The extent of such mitigation should be explored.
Regarding slurry density Slurry densities used in calculation estimations lower than expected.	Conduct appropriate study toward representative and reliable determination of slurry density, as outlined recommended in Chapter 11.	A decrease in the slurry SG value from 1.24 (2.55 m^3/t) to 1.55 (0.94 m^3/t) reduces water in tailings deposited on the TSF. Consequently, the average monthly value of water in the tailings deposited on the TSF is reduced from 308 196 m^3 to 115 338 m^3. Furthermore, a knock-on effect is noted viz. that less water is required by the concentrator and therefore less water is pumped: From the PWD to the Concentrator, and

Hazards and/or risk-related aspects by discipline	Summary of recommended considerations	Potential opportunities
		From RWD1 to the PWD.
Regarding floodline Flood events exceed the 1:100-year return period: Flow over the N1 bridge and road embankment downstream of the Volspruit mine site. Flow toward the North pit.	Where flood events exceed the 1:100-year return period: The construction of a berm is critical to divert, manage, and/or contain potential floodwaters that exceed the 1:100-year return period. The planned height of the proposed flood barrier appears sufficient toward protecting the North pit.	
Hydrogeology		
Regarding supply of drinking water to Volspruit operations • During the 2010-2011 hydrocensus, 72 boreholes with an average yield of 6.5 L/s were identified within a 2 km radius of the site and may potentially be impacted by mining activities. • There is only one operational borehole (i.e. the Grasvally Borehole) available to supply raw water for drinking and service water at the plants. Only 30% of the maximum potential yield of the Grasvally borehole was utilised and therefore can meet the water supply requirement for Volspruit operations. • The Grasvally borehole is also being targeted to supplement the municipal water supply scheme which is currently part of Sylvania's revised Social and Labour Plan pending approval from the authorities. • Pit dewatering boreholes will be required to manage the high groundwater inflows. The current numerical groundwater model does not provide guidance on the number of boreholes required nor their effectiveness.	• Given that the aquifer at the mine is a sole source aquifer and heavily utilised, dewatering activities whilst necessary will further constrain the aquifer. • Given the multiple demands on the Grasvally borehole, this borehole and the mine water balance requires close monitoring. • The water requirements and quantity of boreholes for the water supply scheme requires quantification. Groundwater use in the A61E catchment is at its threshold of the estimated sustainable yield which limits the volume of allocatable groundwater. A reserve determination, (responsibility of the DWS) is urgently required as this will influence the issuance of the mine's water use license. Engagement with the authorities needs to be prioritised. • The groundwater model will need to be refined and confidence improved as the project progresses as the dewatering volumes are critical to managing excess water. Based on the borehole yields of 5 to 10 L/s, multiple dewatering boreholes are likely to be required. .	
Regarding groundwater quality • Results from laboratory testing carried out in previous studies shows that most groundwater samples tested exceed the maximum nitrate and chloride values allowable standard for domestic use. • Boreholes on Volspruit could be adversely impacted in terms of both quality and quantity due to the North Pit operations.	• Baseline water quality shows existing impact arising from commercial scale farming. Water stewardship and environmental monitoring plan to be implemented to ensure effective mine water management. • Prioritise engagement with authorities pertaining to water use licenses.	

Hazards and/or risk-related aspects by discipline	Summary of recommended considerations	Potential opportunities
	• Characterisation of the South ore body is limited and should be undertaken to provide a holistic overview of potential impacts arising from mining operations.	
Regarding South ore body Characterisation of the South ore body is limited. Subsequently, nature and extent of potential impacts from mining operations also uncertain.	Undertake relevant investigations to improve understanding and characterisation of South ore body as well as likely impacts and extent thereof.	
Regarding public perception related to groundwater facets Public perception may potentially, prematurely, and/or incorrectly be formed that the mine is solely responsible for having caused degradation to water resources (e.g. previous reports reviewed during the PEA state that groundwater quality has already been adversely impacted by commercial-scale farming).	Proactively and credibly establish groundwater facets (e.q. quantity, quality, contaminants, contaminants levels etc.).	
Mining and Mineral Reserves		
Regarding slope design The pit slope angles derived from studies conducted in 2012 are not regarded as *detailed* designs.	Undertake relevant investigations to advance collection and modelling of geotechnical components to confirm slope angles and detailed designs.	
Regarding ore handling and production schedule Ore volumes, concentrations, mixtures and production schedule have been estimated and assumed.	Conduct appropriate investigations, testing, and/or studies to confirm the processing facility capability and mixtures (i.e. fresh ore and oxide). The exercise should incorporate the production schedule.	
Regarding material and movement on dumps • The North waste dump does not have capacity to accommodate all waste extracted from the North and South pits, and • The intended location of low-grade mineralized waste is unclear in existing report descriptions.	• Conduct appropriate investigations to evaluate potential for separate disposal of mineralized ore, including: ○ Waste to be separately dumped in the north waste dump; and ○ Other wastes to be moved to the south waste dump until the northern portion of the North Pit is fully depleted and suitable for waste backfilling. ○	
Tailings Storage Facility		
Regarding regulatory registration and classification • Due to the regulatory descriptions (i.e. s120 of the National Water Act) and planned volume of the TSF, the TSF will automatically be classified as a dam with *'a safety risk'*.	• Dams classified as having 'a safety risk' automatically triggers requirement for registration with the government. Sylvania is to register the	

Hazards and/or risk-related aspects by discipline	Summary of recommended considerations	Potential opportunities
• Flow failure from the TSF may reach as far as the N1 National Road and will directly discharge into the Nyl River (because the zone of influence of a tailings dam failure is upslope of the plant, the return water dam and irrigation dam complex, and the waste rock stockpile). • Exact classification of waste rock not approved by government yet, therefore class of barrier not yet confirmed (report shows arguments for Type 4 waste to be accompanied by Class D barrier, whereas Type 3 waste with Class C barrier may be more likely). •	TSF accordingly. • Classification of the TSF using the GISTM should be carried out. • Sylvania to confirm their internal opinion and selection, thereafter, make formal application to government regarding type of waste and associated class of barrier.	
Regarding integrity and/or longevity of liner Hazards and/or unfavourable events reduce integrity and/or longevity of liner, for example: • Exposure of liner to weather elements; • Damage to liner during operations; • Theft of liner. •		
Electrical infrastructure		
Support infrastructure and/or process plant becomes damaged from blasting activities	Available project information shows that all support infrastructure and the process plant have been positioned beyond the pits' blast radius in order to avoid and/or limit any damage thereto.	
Some extent of uncertainty exists regarding the requirements for bulk power supply and associated costs.	It is recommended that an appropriate bulk power supply specialist consultant be appointed for- and in-the next phase of the study. The objective of the appointment is to ensure that *all* the necessary requirements for the bulk power supply (including the costs) are defined: • More accurately and • To the extent of detail required. It is intended that the specialist consultant must: • Be familiar with Eskom requirements and • Have experience in carrying out this particular type of work. •	
Some extent of uncertainty exists regarding the concentrator load list and concentrator load.	Appropriate investigations should be carried in the next phase of the project to: • Compile the concentrator load; and • Improve or ensure the definition of the concentrator	

Hazards and/or risk-related aspects by discipline	Summary of recommended considerations	Potential opportunities
	electrical loads. This will, in turn, facilitate improved accuracy of the overall site load estimate.	
Capital costs and/or closure costs toward infrastructure sub-optimal and/or wasteful.	Source, contrast and compare the cost pertaining to modular/ prefabricated buildings over traditional brick-and-mortar buildings.	Reduction of capital costs and closure costs may potentially be achieved by using infrastructure will mainly be made of modular/ prefabricated buildings (enabled due to the relatively short life of mine).
Environmental and/or Social Compliance		
Previous studies have highlighted several potentially sensitive receptors in close proximity to- and surrounding- the Volspruit Project. These include biodiversity (fauna, flora and wetlands), heritage resources and agricultural activities.	It is noted that the mine has initiated a Section 102 process to amend its MR and associated environmental authorisation. Additional recommendations include: • To develop a permit register; • Specialist impact assessments must be completed during the EIA phase to revise the EMPr; • All wetland areas must be buffered to avoid negative impacts from mining activities; • The Volspruit Project must honour its commitment not to disturb the portion of the MR area that lies within the Springbokvlakte Thornveld Ecosystem; • Where possible, the agricultural activities located in the MR area should not be disturbed and identified impacts should be mitigated and/or compensated; and • Stakeholders (e.g. individual farmers, farmers associations, government authorities) must be consulted as part of the socioeconomic impact assessment to groundtruth data collection and inform social management measures and potential compensation requirements.	Proactively prepared, well-structured and appropriately documented consultation with stakeholders may potentially create value, foster positive relationships, improve credibility, and/or reduce uncertainty – ultimately contributing favourably to the viability of the project.
Related to environmental and hydrological components of the Wetland and Riparian habitat • Mining disrupts conservation initiatives, damages, and/or destroys the Nyl River wetland and riparian habitat. ○ Significant national and international importance is attributed to the Nyl River wetland and riparian habitat, encompassing portion of the proposed Volspruit mine area. This stems, in part, from its designation as a Groundwater Strategic Water Source Area, inclusion in the National Wetland Inventory, and RAMSAR site status). • The planned development disrupts groundwater recharge, alters hydrological patterns and/or introduces a reliance on	Careful assessment as well as sustainable management practices must be developed, implemented and maintained to preserve the integrity of the Nyl River wetland, riparian habitat, and flows volume and seasonality for downstream habitat and users.	

Hazards and/or risk-related aspects by discipline	Summary of recommended considerations	Potential opportunities
groundwater abstractions for new water.		
Market-related		
Regarding ZAR:USD exchange rate Unfavourable changes in the exchange rate adversely affect the project.		
Regarding commodity and exchange rate projections Project is very sensitive to the price deck selected. Extent of uncertainty and/or potential variability in commodity and exchange rate projections unsure, The Sylvania Consensus forecast is used for reporting of NPV sensitivities in current PEA).		The minor PGEs (Ru and Ir) are not included in the Mineral Resource estimate or in the economic analysis. • Ru could be recovered into concentrate. This could assist to improve project economics, as Ru is experiencing increasing demand in solar and other green technologies as well as in next-generation electronics, such as quantum computing and advanced memory storage. • Ir is below detection limits and should be excluded from any economic analysis.

17.3 Integration of related activities

In addition to the consideration of the specific technical and financial project risks, it is recommended that related activities be carried out to support a reliable assessment of risk as the project progresses. The recommended integration of related activities include:

(a). The compilation of a data register / index, and

(b). Confirmation of the risk assessment framework.

These are described further below.

17.3.1 Compilation of a data register / index

Various benefits to commercial undertakings in the mining industry have been demonstrated through advances in information management.

Whereas Mineral Resource and Mineral Reserve statements are recorded and updated often, the same extent of technical data or information management is not commonly carried out for related aspects. As such, it is recommended that Sylvania compile a data register / index and maintain [update] the entries as various studies, tests, etc. are completed.

The register should record aspects such as:

- **Projects, Reviews, Studies**: The type of item, the organisation / company completing the work, the study dates, the report reference number, etc.;
- **Laboratory tests**: The laboratory details [name, certification etc.], the type of tests, the number of samples, the report reference number etc.; and
- **Site visits and field trips**: The date of the events, the purpose, the names of the organisations, and if possible, the names participants.

Several benefits of maintaining a data register include:

- The data register often improves the holistic insight needed for inter-disciplinary studies (e.g. environmental and social governance studies, risk assessments, opportunity assessments, etc.).
- Typically, more appropriate and/or closely fitted responses can be prepared by Consultants to requests from Sylvania for work proposals or cost estimates.
    - When Consultants are able to recognise the nature and type of work has been carried out, the scope and context of new work can be refined when preparing the response (i.e. at this stage, only the data register will be accessible – the reports themselves are not made available yet).
    - Similarly, the nature and extent of assumptions can also be refined when preparing the response.
- Typically, a more impactful project-start is facilitated i.e. Consultants will have been able to review the register, identify the specific items that they need for their particular study and request those items. Therefore, as soon as the appointment administration is completed (e.g. purchase order and non-disclosure agreement) – the data can be made available immediately. Subsequently, there is less time spent on exploratory discussion (e.g. first-instance requests for information and the subsequent engagements between Sylvania and Consultant trying to narrow-down the selection and understanding of what is sought versus what is available).
- The ease of drawing information from the register is often helpful during engagement with other organisations (including government agencies).
- In some instance, when business requirements (e.g. board decisions) result in a change in project decisions etc., the identification of completed work that is still relevant to the new circumstances is more reliability identified from the register, than from memory. Subsequently, the register may assist in preventing and/or limiting the duplication of project work (in terms of time, costs, etc.) in the setting of the new circumstances.

17.3.2 Confirmation of the risk assessment framework for Volspruit

Confirmation of the risk assessment framework - *for the Volspruit project specifically* - should be carried out in the near future, to be able to:

- *Contextualise* risk-related considerations;
- Evaluate risk items *quantitatively*; and
- *Compare* the items objectively.

Sylvania is likely to have an existing risk framework relevant to the Company as a whole.

The risk framework typically incorporates items such as the risk policy, risk assessment categories (e.g. financial, social, environmental, etc.), risk values (e.g. R1 to R1million, 1 injury, etc.), risk ratings (e.g. low, medium, high), risk matrix (relating likelihood and consequence), and tolerance level.

Risk frameworks at the company-level are often geared toward long-term, strategic, and holistic functioning drawing from a wide base of resource – that differ from the shorter-term, tactical considerations typical of a project asset positioned subordinately in the organisation.

The confirmation may be, for example, as simple as deciding that the existing risk framework relevant to the Company as a whole will also apply to the evaluation of the Volspruit project.

Alternatively, a project-specific framework should be developed and documented by the Company.

17.4 Conclusions and Recommendations

A qualitative risk assessment exercise undertaken for the current PEA. The exercise found that:

- The range- and type- of risk-related considerations for Volspruit are not atypical for such a venture at this point of the project life cycle;
- No fatal flaws were identified in the engineering approaches used to date, for the respective disciplines;
- The quantitative evaluation of potential risks will be facilitated following completion of discipline-specific investigations in due course, as recommended in the respective chapters above;
- The results from the completion of discipline-specific investigations / studies recommended in the respective chapters above, will facilitate further and refined assessment of the ultimate project viability; and
- Several potential opportunities, ranging in extent, were identified for consideration in future studies.

Integration of related activities may potentially offer benefits to the Company as the project advances. These activities include:

- Establishing an index and/or register that records the data available for the project; and
- Confirming the risk framework for the project.

It is recommended that:

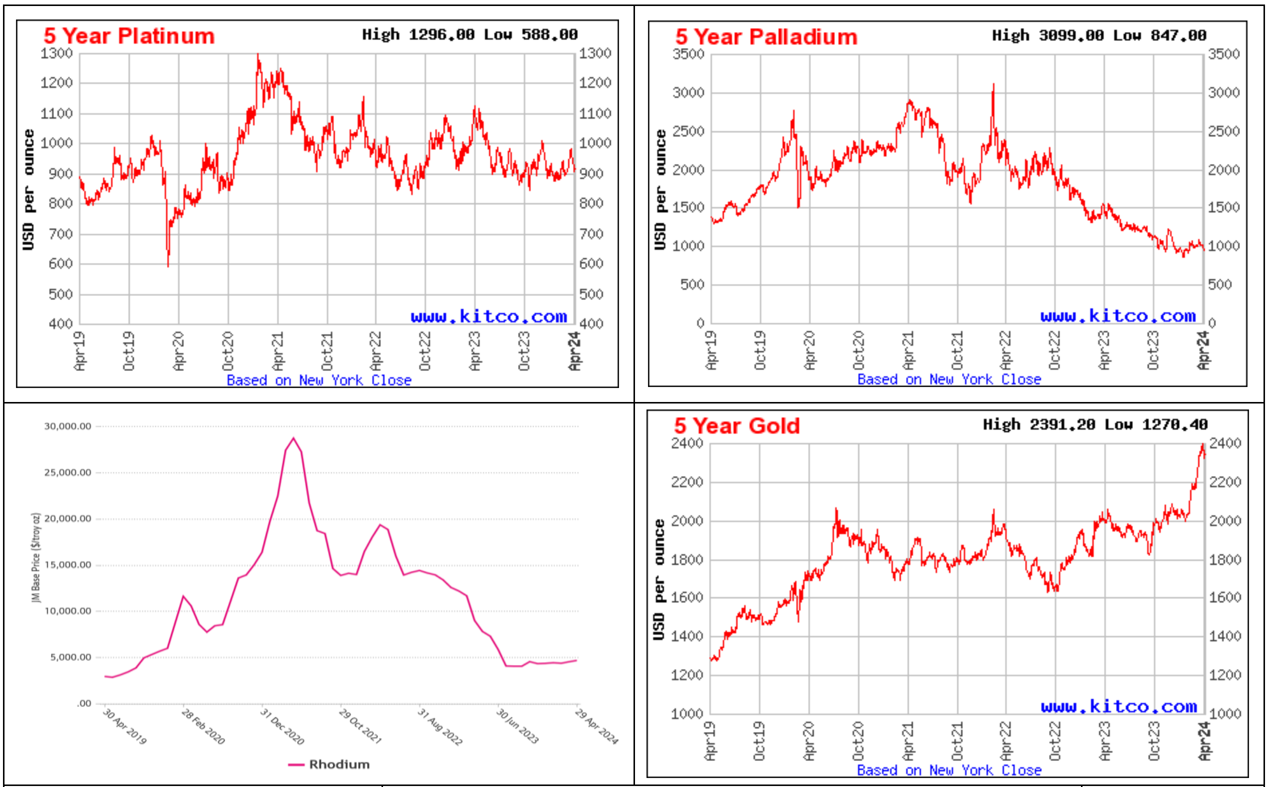
- Model variability relating to the **Mineral Resource Estimate** be addressed through a detailed, infill drilling program in a shallow portion of the orebody to both assess and improve the understanding of the mineralization;
- Various **surface water, wetland, groundwater (including abstraction), and mine water balance** studies be carried out;

- Undertake relevant investigations to advance collection and modelling of **geotechnical** components;
- The design, assuming the TSF and Waste Rock Stockpiles require Class C lining, with the WRD barrier system being a compacted clay liner type should be retained;
- The process to re-classify with DWS the waste rock as construction material which could be placed on a Class D liner should be undertaken. Note that for the purpose of the costing, the design as presented has been costed;
- Elements of **electrical infrastructure**, including requirements for bulk power supply, concentrator load, and costs be refined during the next phases of project; and
- **Environmental and Social** impacts be assessed in detail, and that Volspruit Project honours their related commitment not to disturb the portion of the MR area that lies within the Springbokvlakte Thornveld Ecosystem.

18 Market Overview

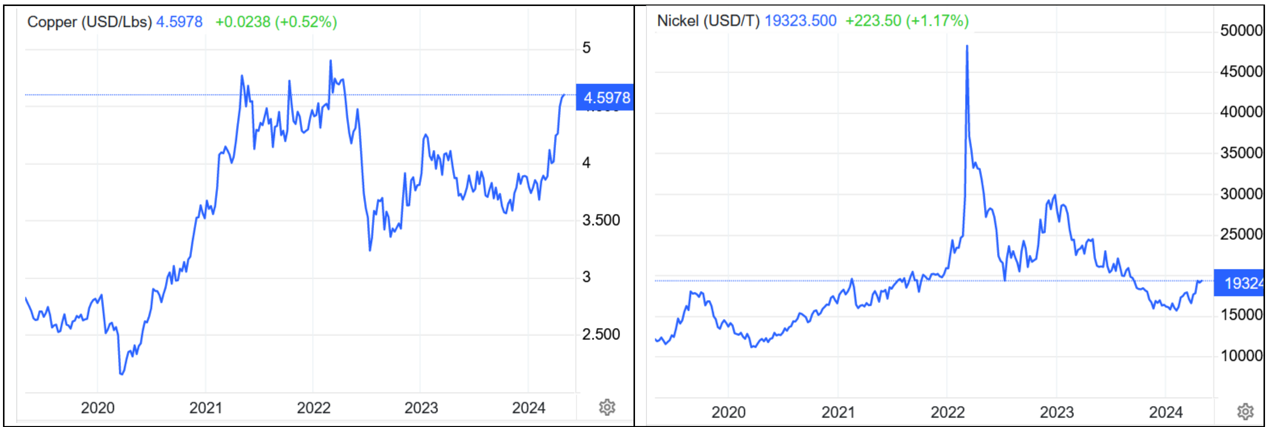
18.1 Historical Prices

Five-year historical prices for the 4E PGMs and base metals (Cu and Ni) are set out in Figure 18-1 and Figure 18-2 respectively.



srk consulting	**Volspruit PEA** Five-year Historical Price Graphs for 4E PGMs [Source:www.kitco.com; www.matthey.com]	Project No. 601183

Figure 18-1: Five-year Historical Price Graphs for 4E PGMs



srk consulting	**Volspruit PEA** Five-year Historical Prices for Cu (left) and Ni (right) [Source: www.tradingeconomics.com]	Project No. 601183

Figure 18-2: Five-year Historical Prices for Cu and Ni

For the South African context, the exchange rate between the USD and South African Rand (ZAR) is important as all USD-based metal prices are converted to SA Rands at the ruling ZAR:USD exchange rate. The historical ZAR:USD exchange rate for the past five years is shown in Figure 18-3.

srk consulting	**Volspruit PEA** Five-year Historical ZAR:USD Exchange Rate [Source: www.xe.com]	Project No. 601183

Figure 18-3: Five-year Historical ZAR:USD Exchange Rate

18.2 Uses for Metals Produced

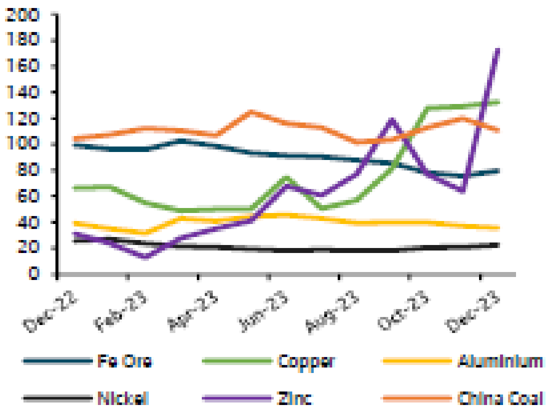
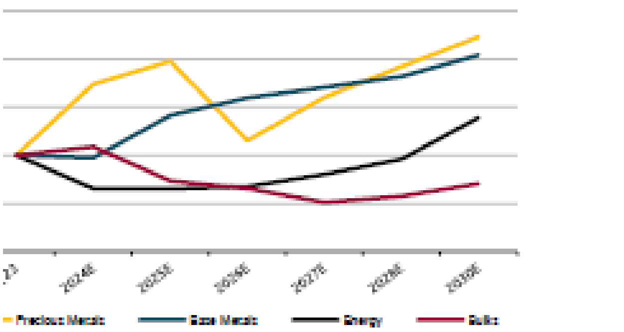
The primary uses for the PGMs and base metals that would be produced from the Project are listed below:

- Pt – catalytic converters, laboratory equipment, electrical contacts and electrodes, platinum resistance thermometers, dentistry equipment, and jewellery;
- Pd – primarily in catalytic converters, also used in jewellery, dentistry, watch making, blood sugar test strips, aircraft spark plugs, surgical instruments, and electrical contacts;
- Rh – primarily in catalytic converters for cars (80%), also used as catalysts in the chemical industry, for making nitric acid, acetic acid and hydrogenation reactions;
- Au – jewellery (78%), finances, electronics and computers, dentistry and medicine, aerospace and medals/awards;
- Ni – mainly for production of ferronickel for stainless steel, rechargeable nickel-cadmium batteries and nickel metal hydride batteries, and some other uses, such as kitchen wares, mobile phones, medical equipment, transport and power generation; and
- Cu - primary applications are in electrical wiring, construction (roofing and plumbing), and industrial machinery (e.g., heat exchangers).

While not included in the Mineral Resource estimate nor the economic analysis, the two minor PGM metals, Ir and Ru, would also be recovered. Ir is increasingly being used in sustainable energy solutions like green hydrogen production. The Company reported that the Ir was below detection limits in recent analysis and should be excluded from any economic analysis. Ru is experiencing increasing demand in solar and other green technologies as well as in next-generation electronics, such as quantum computing and advanced memory storage.

18.3 Commodity Outlook

The Company provided a commodity outlook for 2024 by SBG Securities, a member of the Standard Bank Group. Extracts from the Executive Summary are presented in Figure 18-4.

Commodity Outlook 2024	
Global – a year of two halves. Recession in the US and Euro area in 2023 was delayed but not entirely avoided. Global growth is expected to slow in 2024E, and the global economic cycle is expected to bottom out in the first half of the year before interest rate cuts lead to a recovery. SBG believe commodity markets have already priced in the current macro conditions. From a China perspective SBG expect GDP to fall softly this year and believe that policymakers will continue to be further tested to maintain historical economic levels. SBG expect Chinese housing starts to continue to decline and completions to remain stable - SBG do not expect to see Chinese energy transition related demand growth to be at the levels they were at last year. SBG's commodity price suite is -0.5% (CY24E-26E), precious metals +1.9%, base metals -4.4%, bulks +0.4% and energy +0.3%. China: SBG expect the NPC to target GDP growth of 4.5%, implying continued stimulus, SBG have a more conservative view and believe GDP growth of 4% is more likely. SBG's outlook on China is quite underwhelming barring unexpected stimulus. In 2023 investment in construction was the major offset for declining investment in Chinese real estate. SBG think the Chinese real estate sector will continue contracting with market fundamentals looking increasingly soft. SBG expect Chinese steel production to decline due to weaker domestic demand and lower steel exports. In 2023 SBG saw a large surge in Chinese investment in renewable energy, SBG expect a pull-back in investment in 2024E – SBG think this will impact copper demand as China's renewable spend was ca. 2% of the world's yoy copper growth in 2023. Chinese copper demand growth is expected to be 3.5% in 2024E down from 6% in 2023.	Figure 2: Commodity inventory levels rebased to 100 in Jan19  Source: CRU, SBG Securities analysis
Key commodity themes: 1. Inventory levels: SBG highlight the inventory levels of commodities relative to their 3yr and 5yr highs, lows, and averages. Aluminium, nickel and Iron ore all have low inventory levels compared to their respective 3 years averages. Copper (+45% vs 3 year average) and zinc (+55% vs 3 year average) inventory levels have recently increased and are now at elevated levels. 2. Supply disruptions: SBG highlight the supply disruptions in 2023 which caused price support. SBG think that met coal, iron ore and copper are all at elevated risk of supply disruptions ranging from maintenance issues, political instability, port logistic issues and weather-related issues. 3. Shipping and freight rates: SBG highlight that with current Red Sea conflict freight rates may continue to increase as vessels are forced to re-route, so far SBG have only seen the increased European silicomanganese prices which are up c.17% 4. El Nino and weather disruptions: El Nino should benefit iron ore production in Brazil and Australia. SBG also highlight the risk to Australian supply during cyclone season which is around February/March.	Figure 3: SBGS commodity price indices, rebased to 4Q23  Datastream, Bloomberg, CRU, SBG Securities analysis and estimates

srk consulting	**Volspruit PEA** Commodity Outlook 2024 [Source: SBG, 2023]	Project No. 601183

Figure 18-4: Commodity Outlook 2024

18.4 Commodity Price Projections

18.4.1 Three-Year Trailing Average and Spot Prices

The three-year trailing average and spot values at 22 April 2024 and 15 April 2024 respectively for the 4E PGMs, Cu, Ni and ZAR:USD exchange rate are given in Table 18-1.

SRK has used the three-trailing average and spot values as comparative price decks in the economic analysis discussed in Chapter 19.

Table 18-1: Three-year Trailing Average and Spot Values

Item	Units	Three-Year Trailing Average (at 22/04/2024)	Spot (at 15/04/2024)
Pt	(USD/oz)	1 045	973
Pd	(USD/oz)	2 272	1 026
Rh	(USD/oz)	17 053	4 725
Au	(USD/oz)	1 804	2 344
Ni	(USD/t)	9 469	9 385
Cu	(USD/t)	19 453	17 850
ZAR:USD	(ZAR)	15.16	18.98

18.4.2 Consensus Projection

The price projections from Consensus Economics at 15 April 2024 are set out in Table 18-2.

Table 18-2: Consensus Economics at 15/04/24

Metal	Source	Units	2024	2025	2026	2027	2028	2029/LT
Pt	Consensus	(USD/oz)	1 060	1 140	1 120	1 120	1 140	1 200
Pd	Consensus	(USD/oz)	1 080	1 055	990	1 035	1 015	1 045
Rh	Spot (15/04/24)	(USD/oz)	4725	4 725	4 725	4 725	4 725	4 725
Au	Consensus	(USD/oz)	2 160	2 080	1 910	1 850	1 750	1 680
Cu	Consensus	(USD/t)	8 850	8 850	8 750	8 850	8 850	8 500
Ni	Consensus	(USD/t)	16 700	16 600	16 700	17 200	17 500	18 700
ZAR:USD	Spot (15/04/24)	(ZAR)	18.98	18.98	18.98	18.98	18.98	18.98

It should be noted that Consensus Economics does not include forecasts for the Rh price nor the ZAR:USD exchange rate. The spot values at 15 April 2024 are used for evaluation purposes.

18.4.3 SBG Price Projections

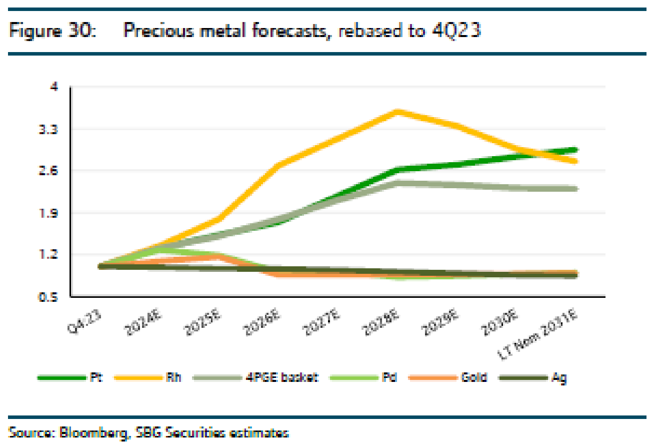
SBG's price projections for the 4E PGMs, Cu and Ni are shown graphically in Figure 18-5. The graphs of the price projections are rebased to equivalent prices in Quarter 4 of 2023 (Q4'23).

The projected prices set out in Table 18-3 are derived from the average metal prices for Q4 of 2023 multiplied by the factors estimated from the graphs in Figure 18-5. The spot ZAR:USD exchange rate at 15 April 2024 is used on a constant basis for evaluation purposes.

Relative to 4Q23, SBG continue to prefer precious metals and base metals over the bulks and energy complex. SBG see LT upside across the PGMs, copper and aluminium.

Platinum is expected to be the biggest driver of the LT upside in precious metals.

HCC and thermal coal should remain the biggest drivers of the LT downside in bulk and energy commodities

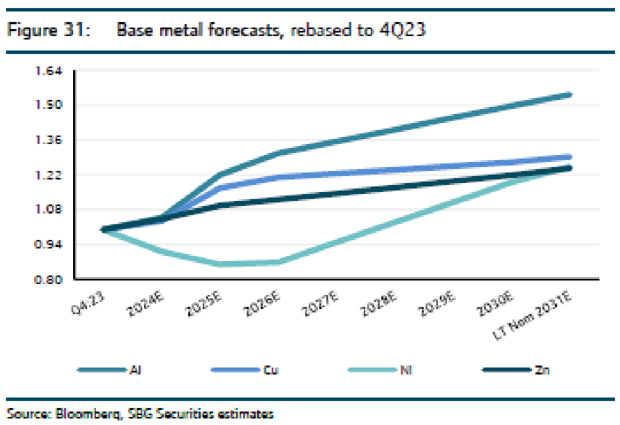


Base metals:

SBG have seen relatively muted performance from the base metals index, amid global fears of a recession. Copper hovered between 8-9k US$/t while nickel, aluminium and zinc prices declined yoy.

SBG are most bullish on copper out of the base metals given the tight supply fundamentals and expected growth in the second half of the year as the global economic cycle begins to turn.

SBG prefer nickel the least of the base metals largely due to the oversupply of NPI and nickel matte from Indonesia.



srk consulting	**Volspruit PEA** Precious and base metal forecasts [Source: SBG, 2023]	Project No. 601183

Figure 18-5: SBG Precious and base metal forecasts

Table 18-3: SBG price projections (rebased Q4'23)

Metal	Base	Units	2024	2025	2026	2027	2028	2029/LT
Pt	Av. Q4'23	(USD/oz)	1 060	1 140	1 120	1 120	1 140	1 200
Pd	Av. Q4'23	(USD/oz)	1 080	1 055	990	1 035	1 015	1 045
Rh	Av. Q4'23	(USD/oz)	4725	4 725	4 725	4 725	4 725	4 725
Au	Av. Q4'23	(USD/oz)	2 160	2 080	1 910	1 850	1 750	1 680
Cu	Av. Q4'23	(USD/t)	8 850	8 850	8 750	8 850	8 850	8 500
Ni	Av. Q4'23	(USD/t)	16 700	16 600	16 700	17 200	17 500	18 700
ZAR:USD	Spot (15/04/24)	(ZAR)	18.98	18.98	18.98	18.98	18.98	18.98

18.4.4 Nedbank Forecast

The company provided a set of price and exchange rate forecasts at May 2024 that it had received from Nedbank CIB, as set out in Table 18-4.

Price forecasts for Au, Cu and Ni were not included in the Nedbank May'24 document. The spot values at 15 April 2024 have been used for evaluation purposes.

Table 18-4: Nedbank price projections (May'24)

Metal	Source	Units	2024	2025	2026	2027/LT
Pt	Nedbank	(USD/oz)	1 150	1 250	1 250	1 250
Pd	Nedbank	(USD/oz)	1 350	1 300	1 300	1 300
Rh	Nedbank	(USD/oz)	7 500	8 000	9 000	9 000
Au	Spot (15/04/24)	(USD/oz)	2 344	2 344	2 344	2 344
Cu	Spot (15/04/24)	(USD/t)	9 385	9 385	9 385	9 385
Ni	Spot (15/04/24)	(USD/t)	17 850	17 850	17 850	17 850
ZAR:USD	Nedbank	(ZAR)	18.00	18.00	18.00	18.00

18.4.1 SRK Comment

SRK notes that the project is very sensitive to revenue and hence the price deck selected. The summary financial results from all five price decks are presented to illustrate this assertion.

The twin-sensitivity tables are based on use of the Nedbank May'24 price deck.

18.5 Contracts

This section considers some of the material contracts that would be required for the Volspruit project when in production.

18.5.1 Concentrate Treatment and Refining

The concentrate produced by the project would be sent to a third-party PGM refinery where the PGMs and base metals would be processed to refined metal status.

The testwork suggests that the project is likely to produce a low-grade concentrate, ranging between 60 g/t 4E and 104 g/t 4E. As such, the payabilities that could be expected from a third-party refinery are likely to be lower than normal, as set out in Table 18-5 for evaluation purposes. It is likely that the contract would specify a minimum 4E concentrate grade for each consignment, with penalties applicable where the concentrate grade is less than that specified (see Table 18-6).

Table 18-5: Assumed Treatment & Refining Payabilities

Item	Payability
Pt	77.0%
Pd	77.0%
Rh	77.0%
Au	77.0%
Cu	67.5%
Ni	72.5%

Table 18-6: Assumed Penalties for off-spec concentrate

Item	Units	Penalty (%)
Penalty (0g/t < 4e in Conc < 70g/t)	% of metal in concentrate	2.0%
Penalty (70g/t < 4e in Conc < 75g/t)	% of metal in concentrate	1.5%
Penalty (75g/t < 4e in Conc < 80g/t)	% of metal in concentrate	1.0%
Penalty (80g/t < 4e in Conc < 1000g/t)	% of metal in concentrate	0.0%

The cost to transport the concentrate to a refinery has been set at ZAR30/t concentrate for evaluation purposes.

The assumed treatment and refining costs for the various metals in the concentrate are shown in Table 18-7.

Table 18-7: Assumed Treatment & Refining Costs

Item	Units	Cost
Pt	(USD/oz)	10
Pd	(USD/oz)	10
Rh	(USD/oz)	10
Au	(USD/oz)	10
Cu	(USD/t)	200
Ni	(USD/t)	100

18.5.2 Mining

For evaluation purposes, the following assumptions regarding a mining contract were applied:

- All mining will be done by an experienced mining contractor, who will provide all labour and equipment to excavate ore and waste and transport such material to the plant, RoM stockpile and waste dump;
- The mining contractor will provide his own offices, change house and canteen facilities, and workshop, which are covered by the establishment Capex;
- The mining contractor will provide mobile equipment rebuilds and replacement as required over the LoM;
- The mining contractor would be responsible for construction and maintenance of haul roads and other access roads within the project area; and
- The contract cost will be amortised into the unit mining rates as operating costs.

For evaluation purposes, the assumed mining costs are set out in Table 18-8.

Table 18-8: Assumed Mining Costs

Item	Units	Cost
Mining cost – ore and waste	(ZAR/t moved)	40
Marginal ore transport cost (ZAR3/t-km, for 2 km)	(ZAR/t ore)	6
Grade control	(ZAR/t ore)	14
Stockpile rehandle cost	(ZAR/t ore ex stockpile)	10

18.5.3 Other Contracts

Other key contracts that would be required for the operation of the Volspruit project could include:

- Bulk Power – supply agreement with Eskom;
- TSF – management and operation of the TSF; and
- Transport – transport of the concentrate to the refinery.

19 Economic Analysis

The economic analysis is inherently a forward-looking exercise. These estimates rely upon a range of assumptions and forecasts that are subject to change depending upon macro-economic conditions, operating strategy and new data collected through future operations.

The economic assessment described here is preliminary in nature as it relies on a LoM production schedule which includes Inferred Mineral Resources and project engineering components that have been compiled at a concept level of confidence.

Inferred Mineral Resources are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that this economic assessment will be realized.

19.1 Key Assumptions and factors

19.1.1 Project Timing

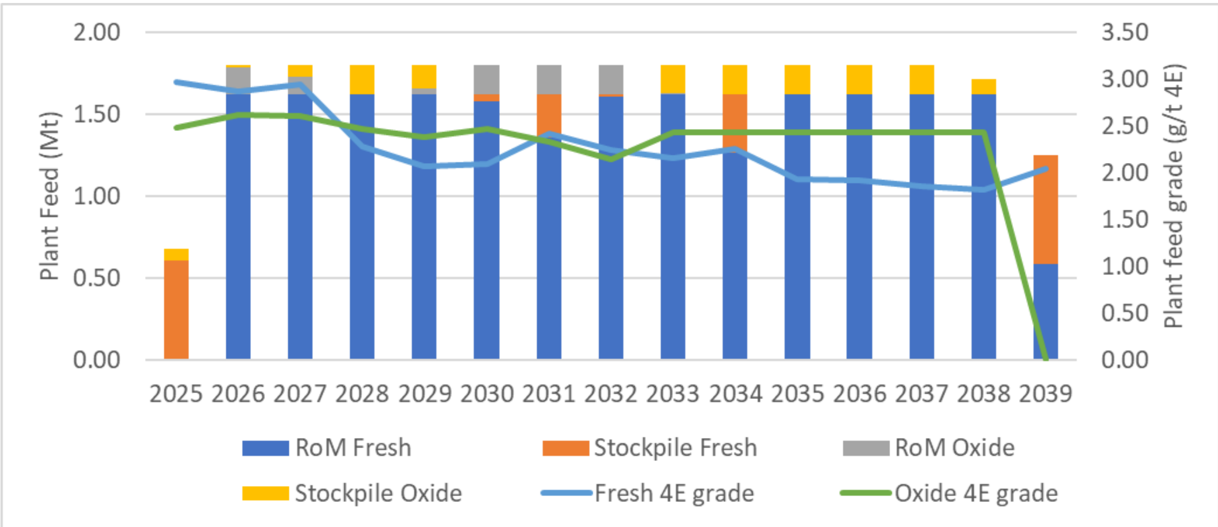
The evaluation assumes that the plant construction including commissioning takes 18 months to complete, taken to occur in Year 0 (Y0) and first half of Y1.

All Capex to be spent on the project, including engineering studies, pre-implementation Capex and Project Capex occurs in Y0 and Y1. Parts of the TSF construction Capex occur in later years.

Mining commences at the beginning of Y1, so that stockpiled ore is available to feed the plant from July of Y1.

19.1.2 Concentrator Feed

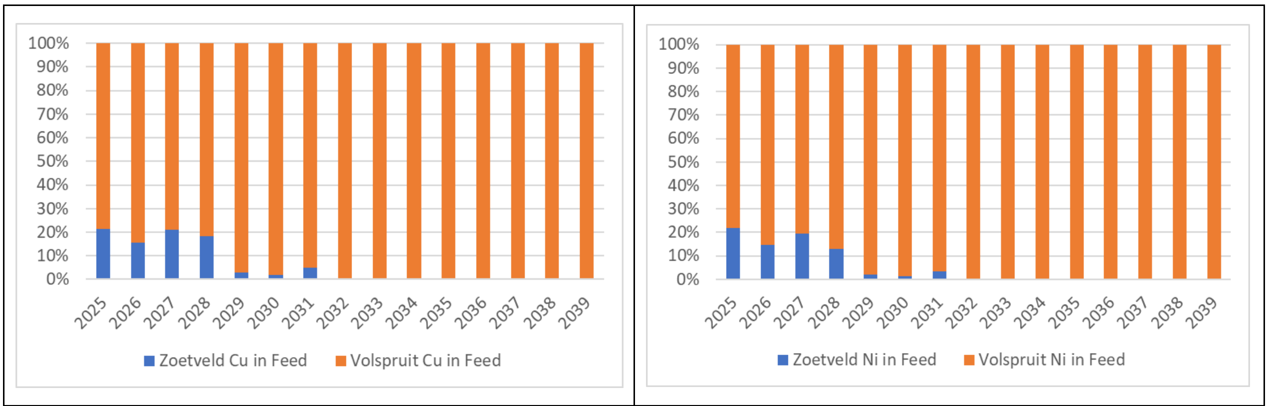
The annual concentrator feed, with ore from both RoM and stockpile to maintain a 90% fresh – 10% oxide blend, is shown in Figure 19-1.



srk consulting	**Volspruit PEA** Concentrator Feed	Project No. 601183

Figure 19-1: Concentrator Feed

Sylvania cannot confirm if the “associated minerals” on Zoetveld transferred from Grasvally Chrome to Volspruit Mining Company include the base minerals of Cu and Ni. The contribution of the Cu and Ni from Zoetveld in the plant feed is shown in Figure 19-2 and has been excluded for evaluation purposes. This has been modelled by reducing the base metal revenue by the percentages of Cu and Ni in the plant feed.



srk consulting	**Volspruit PEA** Zoetveld Cu and Ni in Concentrator Feed	Project No. 601183

Figure 19-2: Zoetveld Cu and Ni in Concentrator Feed

The economic evaluation assumes that the 4E prill splits measured during the locked cycle tests on the fresh and oxide ore samples remain consistent (Table 19-1), irrespective how plant feed grade varies.

Table 19-1: Prill Splits of Fresh and Oxide metallurgical samples

Element	Fresh Ore	Oxide Ore
Pt	39.6%	48.9%
Pd	52.8%	42.9%
Rh	5.7%	6.0%
Au	1.9%	2.2%

19.1.3 Process Recoveries

The economic evaluation assumes that the individual 4E and Cu/Ni recoveries (Table 19-2) as determined in the locked cycle tests for fresh and oxide ore can be applied, irrespective whether the ore is fed as a blend or batch processed. The analysis further assumes that the individual 4E and Cu/Ni recoveries do not vary with plant feed grade.

Individual mass pulls as indicated by the lock cycle tests (Table 19-2) are applied to the individual fresh and oxide ore streams into the plant, to determine total concentrate produced per year.

Table 19-2: Process Recoveries and Mass Pulls for Fresh and Oxide ores

Item	Fresh Ore	Oxidised Ore
Pt	64.9%	30.3%
Pd	78.5%	36.7%
Rh	64.6%	26.6%
Au	53.6%	44.7%
Cu	48.6%	27.3%
Ni	61.7%	24.1%
Mass Pulls	1.96%	1.52%

The total recovered 4E in concentrate divided by total concentrate produced gives the final concentrate 4E grade, which is used to determine what penalties would apply for concentrates with lower grades than specified.

19.1.4 Price Forecasts

The evaluation assumes that metal prices and ZAR:USD exchange rates for 2024 apply to Y0, values for 2025 apply to Y1, etc.

19.1.5 MPRDA Royalty

The Royalty payable to government in terms of the Royalty Act is calculated according to the refined formula. The maximum royalty is 5% of gross revenue.

19.1.6 Taxation and Government Levies

Company tax is applied at 27% of operating profit after capital allowances. Capex in any year is deductible in full against operating profit in that given year. Operating losses or Capex not redeemed in full in any year can be carried forward into subsequent years.

To cater for the potential commitments that would appear in the Company's SLP and to satisfy the requirements of the Mining Charter III (viz. housing, human resource development, supplier development and local development projects), a provision of 1% of operating profit is included in the analysis.

19.2 Summary Cash Flow

The summary cash flow for the project is set out in Table 19-3. The revenues shown are based on the price and exchange forecasts of the Nedbank May'24 price deck.

Table 19-3: Summary Cash Flow (Nedbank May'24 Prices)

Item	Units	Total/ Average	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
Revenue																		
PGM Revenue	(ZARm)	29 058		989	2 635	2 695	2 114	1 926	1 944	2 230	2 068	1 999	2 090	1 807	1 788	1 736	1 655	1 383
BM Revenue	(ZARm)	7 1212		207	549	571	498	468	455	520	485	505	506	490	501	514	534	410
less:																		
Zoetveld non-attributable BM	(ZARm)	340		45	81	113	67	9	6	18	-	-	-	-	-	-	-	-
PGM refining cost	(ZARm)	223		8	20	21	16	15	15	17	16	15	16	14	14	13	13	11
BM refining cost	(ZARm)	76		2	6	6	5	5	5	5	5	5	5	5	5	5	6	4
Penalties - low grade concentrate	(ZARm)	259		0	0	0	0	29	29	0	21	20	0	36	36	35	33	21
Concentrate Transport	(ZARm)	15		0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Net revenue	**(ZARm)**	**35 697**	**0**	**1 140**	**3 076**	**3 124**	**2 523**	**2 335**	**2 342**	**2 708**	**2 510**	**2 462**	**2 573**	**2 241**	**2 233**	**2 196**	**2 137**	**1 757**
Operating Cost	**(ZARm)**	**21 695**	**0**	**1 102**	**1 585**	**1 587**	**1 580**	**1 577**	**1 631**	**1 686**	**1 663**	**1 620**	**1 662**	**1 559**	**1 342**	**1 248**	**1 139**	**713**
Mining Cost - waste	(ZARm)	6 326		528	528	528	528	528	528	528	528	493	549	458	268	189	128	16
Mining cost - ore (incl. marginal cost + grade control)	(ZARm)	1 514		108	108	108	108	108	108	108	108	108	76	108	108	108	108	35
Stockpile rehandle cost	(ZARm)	34		7	0	1	2	1	0	3	0	2	5	2	2	2	1	7
Processing	(ZARm)	6 983		187	498	498	498	498	498	498	498	498	498	498	498	498	474	346
Tailings disposal	(ZARm)	84		2	6	6	6	6	6	6	6	6	6	6	6	6	6	4
Administration	(ZARm)	1 388		37	99	99	99	99	99	99	99	99	99	99	99	99	94	69
Closure provision	(ZARm)	150		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SLP/CSI	(ZARm)	192		3	19	20	13	11	11	15	13	12	13	11	12	13	13	13
Royalties	(ZARm)	855		0	0	0	0	0	55	103	85	85	91	70	88	92	97	90
Contingency	(ZARm)	4 168		220	317	317	316	315	315	317	315	307	314	298	251	231	209	125
Capital Cost	**(ZARm)**	**5 536**	**3 101**	**1 227**	**170**	**354**	**25**	**252**	**188**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**	**18**
Project Cost	(ZARm)	5 181	3 101	1 217	145	329	0	226	163	0	0	0	0	0	0	0	0	0
SIB	(ZARm)	355		10	25	25	25	25	25	25	25	25	25	25	25	25	24	18
Cash Flow																		
Operating Profit	(ZARm)	14 002	0	39	1 492	1 539	944	758	711	1 022	847	842	911	681	891	947	997	1 044
Capital Expenditure	(ZARm)	-5 536	-3 101	-1 227	-170	-354	-25	-252	-188	-25	-25	-25	-25	-25	-25	-25	-24	-18
Taxable Income	(ZARm)	8 466	-3 101	-1 188	1 322	1 185	918	507	523	997	822	817	885	656	866	922	973	1 026
Company Tax	(ZARm)	-2 286	0	0	0	0	0	0	-45	-269	-222	-221	-239	-177	-234	-249	-263	-277
Cash Flow	**(ZARm)**	**6 180**	**-3 101**	**-1 188**	**1 322**	**1 185**	**918**	**507**	**479**	**728**	**600**	**596**	**646**	**479**	**632**	**673**	**711**	**749**

Note: metal prices and exchange rates of 2024 are applied to Y0, those of 2025 to Y1, those of 2026 to Y2, etc.

19.3 Financial Results

The summary financial results from the economic analysis for the Volspruit Project are compared in Table 19-4.

The Net Present Values (NPV) at a discount rate of 12% for the post-tax cash flows using different price decks vary considerably, from (ZAR1 485m) to ZAR3 664m. The internal rate of return (IRR) for the post-tax cash flows with different price decks vary considerably, from 5% to 28%. This is reflected in the pay-back period which varies from 3 to 11 years.

Table 19-4: Comparative Summary Financial Results

Item	Units / Discount Rate	SBG (base Q4'23)	3-Yr Trail (22/04/24)	Spot (15/04/24)	Consensus (15/04/24)	Nedbank May'24
NPV	0%	12 459	10 947	1 611	2 521	5 935
	6%	6 673	5 856	-569	28	2 476
	8%	5 408	4 741	-1 030	-504	1 722
	10%	4 360	3 816	-1 406	-939	1 099
	12%	3 485	3 043	-1 715	-1 298	580
	14%	2 748	2 391	-1 970	-1 596	143
	16%	2 123	1 837	-2 182	-1 845	-228
IRR	(%)	27%	26%	4%	6%	15%
Peak Funding	(ZARm)	4 212	3 986	4 494	4 460	4 289
Payback period	(years)	4	4	12	10	6
Unit Cost	(ZAR/t RoM)	897	889	833	839	859
	(ZAR/oz 4E payable)	23 686	23 488	21 999	22 156	22 696

It is clear that the economic viability of the project is heavily dependent on the price forecast selected.

19.4 Sensitivity Analysis

The sensitivity of the Volspruit project to changes in revenue, Opex and Capex is assessed here. The two twin sensitivity tables and spider diagram are derived from the cash flows where revenue is determined using the Nedbank May'24 price deck, for illustrative purposes. The sensitivities are reported as:

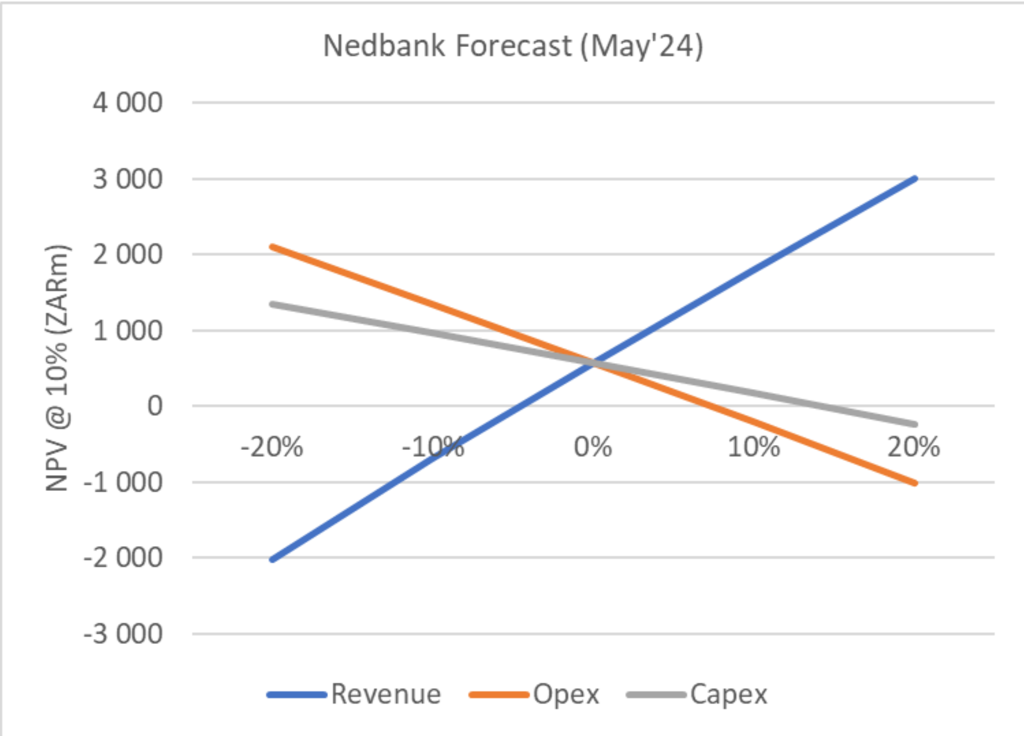
- Twin sensitivity of the NPV at 12% to changes in revenue and Opex Table 19-5;
- Twin sensitivity of the NPV at 12% to changes in Capex and Opex Table 19-6; and
- Spider graph of sensitivity to revenue, Capex and Opex Figure 19-3.

Table 19-5: Twin sensitivity of NPV at 12% discount to changes in Revenue and Opex (Nedbank May'24 price deck)

		Revenue Sensitivity				
LT 4E basket price (USD/oz)		1 353	1 522	1 691	1 860	2 029
		-20%	-10%	0%	10%	20%
Operating Cost Sensitivity	-20%	-359	895	2 111	3 313	4 505
	-10%	-1 171	114	1 351	2 557	3 756
	0%	-2 027	-683	580	1 801	3 000
	10%	-2 974	-1 512	-209	1 036	2 243
	20%	-3 979	-2 393	-1 019	255	1 483

Table 19-6: Twin sensitivity of NPV at 12% discount to changes in Capex and Opex (Nedbank May'24 price deck)

		Capital Cost Sensitivity				
		-20%	-10%	0%	10%	20%
Operating Cost Sensitivity	-20%	2 869	2 492	2 111	1 722	1 330
	-10%	2 110	1 734	1 351	956	557
	0%	1 350	970	580	175	-229
	10%	578	188	-209	-619	-1 031
	20%	-216	-612	-1 019	-1 439	-1 861



srk consulting	**Volspruit PEA** Spider graph of sensitivity of NPV at 12% discount to changes in Revenue, Capex and Opex	Project No. 601183

Figure 19-3: Spider graph of sensitivity of NPV at 12% discount to changes in Revenue, Capex and Opex (Nedbank May'24 price deck)

19.5 SRK Comments

The plant feed grades are low by Bushveld standards, which give rise to lower concentrator recoveries, lower concentrate grades and lower payabilities from the treatment and refining process.

Examination of the twin sensitivity in Table 19-5 shows that a 20% increase in the revenue yields a ca. 500% increase in NPV at 12% discount, from ZAR580m to ZAR3 000m. Such an increase in revenue could be generated by increases in one or more of: the feed grade, plant recoveries, concentrate payabilities, alternatively improved metal prices and/or exchange rates.

Should it be confirmed that the "associated minerals" transferred by Grasvally Chrome to Volspruit Mining Company include Cu and Ni, the NPV at 12% discount using the Nedbank May'24 price deck would increase to ZAR776m.

Improving the feed grade could be achieved by some form of pre-concentration of ore before it is fed to the concentrator, e.g. X-ray sorting using Rados. A higher head grade generally improves plant recoveries and yields higher concentrate grades.

20 Conclusions and Recommendations

20.1 Mineral Resources and Estimation

Earthlab has conducted extensive validation of the historical information, including re-logging the available core, reinterpreting the controls on the mineralization and the stratigraphy, and assessment of the historical QAQC results. Earthlab reports that it considers the data to be sufficiently verified for use in Mineral Resource estimation. The Earthlab geological modelling has produced a credible geological model which honours the available data, and which highlights the complexity and potential for short scale variability in the mineralization.

SRK considers that there is risk for the projects if the mineralization is more variable than modelled and recommends that a program of detailed infill drilling be conducted in a shallow portion of the orebody to assess and improve the understanding of the mineralization. The orebody was modelled at a cut off of 1.2 g/t 3E, and the orebodies are not sensitive to cut off below this value based on the Earthlab model. However SRK is of the opinion that the estimates produced by Earthlab are smoothed, and the true variability of the mineralization may not be adequately understood or represented in the models.

The RPEEE testing undertaken does not strictly confirm with what SRK considers to be industry norms, and SRK’s testing has identified there is risk that under the current technoeconomic assumptions that the Mineral Resource may be smaller than declared by Earthlab by approximately 5 to 10%.

20.2 Mining Geotechnics

There exists a high level of complexity in the geotechnical model, which will have to be considered in further slope design recommendations. To account for this, the following is recommended for further work:

- Mining geotechnical site characterisation is required to develop the geotechnical model and investigate the anticipated geotechnical complexities, this should include:
    - A geophysical survey including electrical resistivity imaging (ERI) and Time Domain Electromagnetic Methods (TDEM). The ERI surveys will be used to map faults, fractures zones and lithological boundaries to a depth of ~80 m where possible. The TDEM surveys will be used to map electrical conductivity changes to a depth of ~200 m;
    - A dedicated geotechnical drilling campaign designed to intersect the planned pit slopes and account for drilling orientation bias;
    - Geotechnical testing programme to assess the intact strength of the rock as well as the shear strength of discontinuities;
    - Groundwater monitoring and testing should be increased in the pit areas;
- The site characterisation work should lead to the updating of the three-dimensional litho-structural model with improved definition of the location and orientation of large-scale brittle faults;
- Updating of the groundwater models in order to ultimately develop a three-dimensional pore pressure model;
- Development of a geotechnical model which will inform slope stability analyses; and
- Slope design recommendations based on the geotechnical model and stability analyses.

20.3 Hydrology and Hydrogeology

20.3.1 Hydrology

Wetland and Riparian habitat – risks & mitigation

The Nyl River wetland and riparian habitat, encompassing a portion of the proposed Volspruit mine area, hold significant national and international importance due to their designation as a Groundwater Strategic Water Source Area, inclusion in the National Wetland Inventory, and RAMSAR site status, significantly upstream of the project site. However, this ecosystem faces multiple conservation challenges, including its classification as a critically endangered floodplain wetland, seasonal flow dynamics, and high demand for water resources within the upstream catchments. The planned development introduces considerable risks, including potential disruption of groundwater recharge, alteration of hydrological patterns and a reliance on groundwater abstractions for new water. These impacts highlight the need for careful assessment and sustainable management practices to mitigate risks and preserve the integrity of the Nyl River wetland, riparian habitat and flows volume and seasonality for downstream habitat and users.

Catchment hydrology and mine water balance – risks and mitigation

With no external water added to the water balance, all water used by the mine (surface and subsurface) will subtract from the overall balance of the Nyl River system which sustains the Nylsvlei wetlands and provides flows to maintain riparian, wetland and aquatic habitat downstream, and for existing downstream users. The storage of high flows such that low flows can be maintained, could mitigate the impact of the mine water use on the downstream habitat, but a detailed environmental flows requirement and reserve study would need to be undertaken looking at the seasonal flow requirements needed to maintain downstream riparian, wetland and aquatic habitat and existing, licensed water users. The study would need to account for seasonal low flows that need to be maintained but including any need for high flow or flood events that may naturally be required to maintain downstream habitat.

Headline findings illustrating the above include:

- The A61E catchment generates an average of 10 million m^3/annum of runoff, however, only 2 million m^3/annum contributes to the downstream catchment due to large scale abstractions;
- However, the median flows are only 0.1 million m^3/annum, showing the high variability of surface water flow, and the importance of groundwater resources and the recharge thereof to maintain the Nylsvlei wetlands and to sustain flows to downstream habitats and users;
- Groundwater use in the catchment is at the limit of the estimated sustainable yield and 80-100% of the recharge is already used, therefore the volume of allocatable groundwater for use in this catchment is limited;
- Groundwater recharge was estimated as 3.2% of rainfall; and
- The total mine water use of new water at 3.1 million m^3/annum is concerning given the average catchment flows of 10 million m^3/annum but with a median flow of only 0.1 million m^3/annum given the high flow variability. These factors collectively highlight the risk and potential impact of the planned new water abstractions from surface and groundwater.

Hydraulics and floodline – risks and mitigation

The assessment of the Nyl River's hydraulic dynamics and flood risk identified the downstream N1 bridge as a key factor in determining the flood risk to the North Pit.

- Once flood events exceed the 1:100-year return period event floodwaters flow over the N1 bridge and road embankment, spreading over the catchment such that when doubling the flow in HEC-RAS simulations, the observed change in flood height was less than 1m; and
- The analysis shows that the planned height of the proposed flood barrier (Box 7-1) is sufficient to mitigate flood risk of the North pit.

20.3.2 Hydrogeology

Based on SRK's review of the desktop information, the following are summarised with regards to the Hydrogeology of the proposed Volspruit Mine:

- Groundwater is intensively used for pivot irrigation, potable water and livestock watering especially farms Volspruit and Bokpoort where large volumes of groundwater are abstracted for irrigation purposes;
  - The Grasvally Farm is being targeted to supplement municipal water supply due to groundwater abundance. A water supply scheme currently part of Sylvania's revised SLP is pending DMRE approval;
- Groundwater quality has been impacted by commercial scale farming evident in the elevated concentrations of EC, TDS, nitrate, and chloride that exceeds the SANS 241:2015 drinking water guideline;
- Both the ore and bedrock are relatively inert and is thus not expected to contaminate the aquifer to the extent that it will render the groundwater unusable for domestic and agricultural purposes;
- The 2023 numerical model simulations indicate that:
  - At year 9, when mining at the North Pit has reached final depth, the cone of depression could extend to c. 1 km in all directions;
  - The cone of depression will spread slowly from east to west with mining progression and will most likely extend to the aquifer below the Nyl River;
  - Due to the thick clay layer separating the river surface water from the aquifer below during periods of normal flow, the normal flow of the Nyl River will not be affected; and
  - Boreholes on Volspruit could be impacted both in terms of quality and quantity due to the North Pit operations;
- Impact on the underlying aquifer and groundwater receptors water quality will be insignificant due to the low acid generation capacity of the ore and bedrock. There is low potential for neutral mine drainage due to low concentrations reported from leachate testing;
- According to the Water Hunters (2024) computerised water balance simulation model, it appears that the mine's water supply can be addressed via the onsite Grasvally borehole and from dewatering activities. Groundwater from dewatering will make up the largest portion of the total water supply for the Volspruit Operations at 61%;
  - The Water Hunters' report is based on an average dewatering rate of c. 8000 m^3/d which is lower than GPT (2023) estimates of a maximum of 14 000 m^3/d (combined North and South pits) and an average of 5 000 m^3/d. Pit dewatering boreholes will be required, but the current models do not provide guidance on the number of boreholes required nor their effectiveness. The groundwater model will need to be refined and confidence improved as the project progresses as the dewatering volumes are critical to managing excess water. Based on boreholes yields of 5 to 10 L/s, multiple dewatering boreholes maybe required for dewatering;
  - External make-up water is not required. Surplus water could then be provided to either the farmers for irrigation and or augment municipal water supply subject to water quality criteria being met. This results in increase in irrigation supply to the farmers and or municipality from at least 29 000 to 103 000 m^3/month; and
- Groundwater use in the A61E catchment is at its threshold of the estimated sustainable yield and infers aquifer distress particularly if abstraction exceeds recharge where 80-100% of recharge is already in use. This limits the volume of allocatable groundwater and may potentially impact on mining operations if authorisation and water security is not actively pursued.

The following is recommended:

- Engagement with authorities pertaining to water use licenses needs to be prioritised. Given that the aquifer at the mine is a sole source aquifer and heavily utilised, dewatering activities whilst necessary will further constrain the aquifer. The groundwater reserve is in a delicate balance and mediation with the regulators will serve to promulgate good environmental stewardship and mine water management;
- Simulation of dewatering boreholes network to confirm number of boreholes, abstraction rates, and impacts on aquifer should be undertaken; and
- Characterisation of the South ore body is limited and should be undertaken to provide a holistic overview of potential impacts arising from mining operations.

20.4 Mining

SRK recommends the following be addressed in future studies.

- The pits comprise approximately 25 Mt of ore, of which nearly 8.5 Mt have been classified as Inferred Resources, comprising about 34% of the total minable ore. For the next study phase, the Inferred Resource should be upgraded to the minimum required Indicated Resource class;
- The pit slope angles are derived from studies conducted in 2012, which are not regarded as detailed designs and should therefore be revised to incorporate more recent data;
- An estimated 9% of the total minable ore, or 2.3 Mt, is categorized as oxide ore. It is assumed that the processing facility should handle ore by combining 90% fresh ore with 10% oxide ore throughout the mine's life and commissioning phase. Further investigation and confirmation of this should be done for the mining production schedule; and
- Approximately 33 percent of the 158 Mt waste produced during the mining operation consisted of mineralized low-grade material. Separate disposal of mineralized waste is recommended by SRK and should be considered further.

20.5 Metallurgy and Mineral Processing

The following risks were identified:

- The difference in the host rock mineralogy between the North and South fresh ores may impact on the plant operation. A blending/stockpiling strategy must be considered;
- The samples used for the test work may not be representative of the orebody and further work needs to be done;
- The anomalies in the PGE splits between the three ore types may result in inaccurate forecasts of the overall opportunity; and
- Finding an off-take for the concentrates on good terms may be a challenge as significant penalties are imposed on low grade concentrate. Increasing the grade will result in a loss in recovery.

The following opportunities have been identified:

- The PGE+Au recovery is very dependent on head grade. As the geologists have identified that the PGE+Au is to be found in the Pyroxenite layer of the ore body, there may be an opportunity to upgrade the plant feed using technology such as X-ray sorting. In addition, pre-upgrading of the ore using X-ray sorting would reduce the capital cost of the plant.
- Further test work needs to be done to improve the reagent suite;
  - The amount of collector used appears to be inadequate, and may have resulted in poor recoveries;
  - No sulfidising agent was used in the oxide ore test work, and use of a sulfidising agent may have improved the recoveries;
  - Excessive frother addition in all the tests would have resulted in excessive entrainment, resulting in poorer grades than could have been achieved;
- The grind chosen for the test work cannot be substantiated and may have resulted in poor recoveries being reported. Mineralogy and assay-by-size analysis needs to be conducted;
- The flotation circuit design used in the tests needs to be reconsidered; and
- Rougher rate flotation tests need to be conducted to gain an understanding of the flotation kinetics of the ores.

20.6 Tailings Storage Facilities

SRK undertook a scoping study in 2012 for tailings disposal aspects and WRDs for the then proposed PGM mine on the farms Volspruit 326 KR and Zoetveld 294 KR.

Three of the sites were within the footprint to the then current EIA, with the fourth site, being the old Grasvally mine tailings dam site, which had not been included in the EIA. Thus, it was excluded. Of the other three sites, the first site, located where the current TSF is proposed, was ranked as most favourable.

The Volspruit TSF will be classified as a dam with a safety risk and require registration in the same way as a similar raw water storage dam.

The TSF and the Waste Rock stockpiles should both be designed with Class C barriers and the waste rock, which is considered to pose a low hazard towards the environment should be re-classified as a Type 4 waste which will require a lower-level Class D barrier.

For the TSF, penstocks and associated penstock pipelines have been provided to drain supernatant water and to decant stormwater from the TSF surface. The design capacity of the TSF is 243 000 t dry tailings per month, based on a dry density of 1.6 t/m³.

The Starter Wall is to be constructed from waste rock and material sourced from the site. Much of the weathered material is suitable for inclusion in the starter and embankment walls.

No ground water had been encountered in any of the test pits leading the designer to assume only nominal sub-surface drainage will be required.

Typical platinum tailings characteristics, which have a slurry density of between 1.45 t/m³ and 1.55 t/m³, have been used. It is considered that the typical tailings characteristics used are sensible, but once a pilot plant is operational, the tailings produced should be tested, and the tested values used for the final design.

The embankment design assumes 1V:3H for inner and outer slopes, with a minimum crest width of 9m. Again, these are typical design parameters which will be re-assessed once the actual tailings characteristics are known.

The footprint of the WRD is 48.5 ha., and the design as proposed is a very standard design, but confirmation of the waste rock characteristics, particularly its pollution potential, will be required prior to submission of approval.

The RoM Stockpile has been designed as a dry stack facility, but the barrier system design provided is deemed to be equivalent to a Class C barrier. A silt trap and product stockpile pollution control dam with silt trap, and a plant pollution control dam with silt trap are also provided.

The design as proposed is considered an appropriate design.

20.7 Infrastructure and Engineering

The relatively short LoM allows that the mine site infrastructure will mainly be made of modular/prefabricated buildings thereby reducing capital costs and the closure costs.

Consideration has been made in positioning all the support infrastructure and the process plant out of the pits' blast radius to avoid any damage to infrastructure during blasting.

It is recommended that the mine should appoint a bulk power supply specialist consultant in the next phase of the study. This will ensure that all the necessary requirements for the bulk power supply, including the costs, are defined more accurately and in detail as required. The specialist consultant to be appointed must be familiar with Eskom requirements and must have done this type of work before.

SRK understands that a concept study has since been completed by Eskom and paid for by Sylvania. Sylvania also indicated that an Environmental Impact Assessment (EIA) for the new overhead power line and a new independent power supply substation has been completed by Eskom. It is recommended that this latest information be made available in the next phase of the project, which will also help in defining the scope of work for the specialist consultant going forward

It is recommended that the concentrator load list should be compiled in the next phase of the project, to ensure that the concentrator electrical loads are more defined. This will ensure that the overall site load estimate is more accurate.

20.8 Capital and Operating Costs

Capital costs have been determined on a conceptual basis and therefore include a 25% contingency. It should be noted that estimation of capital and operating costs is inherently a forward-looking exercise. The estimates reported in this report rely upon a range of assumptions and forecasts that are subject to change depending upon macro-economic conditions, operating strategy and new data collected through future studies and operations. For this report, capital costs are considered to be at a PEA level, with an expected accuracy of ±25 to 50%. However, this accuracy level is only applicable to this base case operating scenario and forward-looking assumptions outlined in this report. Therefore, changes in these forward-looking assumptions can result in capital and operating costs that deviate more than 50% from the costs forecast herein. In the opinion of SRK, considering the above, the contingencies applied are adequate for a PEA.

Operating costs assume a combination of contractor (mining) and owner-operated activities for the project. Typical costs from similar projects have been used and benchmarked to the effective date of this PEA report. Given the concept level of work supporting the study, a contingency of 25% is appropriate to be added to the operating costs.

20.9 Human Resources

SRK envisages a staff complement of 388 people at steady state and the breakdown is given in Table 20-1.

Table 20-1: Proposed staff complement

Department / category	Number
Mining (Owner team)	29
Mining (Contractor team)	186
Process plant operations	76
Process plant maintenance	28
General site maintenance	10
Management	59
Total	**388**

Sylvania is opting for a contractor operated mine and plant with an owner’s team to handle technical services such as geology and mine planning and to supervise the operation.

20.10 Environmental and Social Compliance

The Volspruit Project has conducted a suite of baseline and impact assessment studies to inform the EIA/EMPr that has been approved. These studies highlight several potentially sensitive receptors in close proximity to and surrounding the Volspruit Project, including biodiversity (fauna, flora and wetlands), heritage resources and agricultural activities. It is also noted that the mine has initiated a Section 102 process to amend its MR and associated environmental authorisation.

The following is recommended:

- Develop a permit register that sets out a comprehensive overview of legal requirements and actions to obtain full legal licence to operate;
- The Volspruit Project must honour its commitment not to disturb the portion of the MR area that lies within the Springbokvlakte Thornveld Ecosystem;
- Where possible, the agricultural activities located in the MR area should not be disturbed and identified impacts should be mitigated and/or compensated; and
- Stakeholders (e.g. individual farmers, farmers associations, government authorities) must be consulted as part of the socioeconomic impact assessment to groundtruth data collection and inform social management measures and potential compensation requirements.

20.11 Project Implementation

SRK recommends that the Engineering, Procurement, and Construction Management (EPCM) method of implementation be utilised, where a contractor is selected to perform detail design on the project based on the Owner's requirements, and procure, and manage the construction and commissioning, under the control of a Sylvania owner's team.

It is assumed for the purposes of this report that, if this project is found to be robust at PEA through to Feasibility Study, it will then proceed through Front End Engineering Design (FEED) to procurement and construction under the management of the EPCM contractor under the control and direction of the Sylvania Owner's Team.

20.12 Risk Assessment

A qualitative risk assessment exercise was undertaken for the current PEA. The exercise found that:

- The range- and type- of risk-related considerations for Volspruit are not atypical for such a venture at this point of the project lifecycle;
- No 'fatal-flaws' were identified in the engineering approaches used to date, for the respective disciplines;
- The quantitative evaluation of potential risks will be facilitated following completion of discipline-specific investigations in due course, as recommended in the respective chapters above;
- The results from the completion of discipline-specific investigations / studies recommended in the respective chapters above, will facilitate further and refined assessment of the ultimate project viability;
- Several potential opportunities, ranging in extent, were identified for consideration in future studies; and
- Integration of related activities may potentially offer benefits to the Company as the project advances and are therefore also suggested.

It is recommended that:

- Model variability relating to the Mineral Resource Estimate be addressed;

- Undertake relevant investigations to advance collection and modelling of geotechnical components;
- The design, assuming the TSF and Waste Rock Stockpiles require Class C lining, with the WRD barrier system being a compacted clay liner type should be retained;
- The process to re-classify with DWS the waste rock as construction material which could be placed on a Class D liner should be undertaken. Note that for the purpose of the costing, the design as presented has been costed;
- Elements of electrical infrastructure be refined during the next phases of project; and
- Environmental and Social impacts should be fully assessed and managed in accordance with the approved EMPr.

20.13 Economic Analysis

The economic viability of the project is heavily dependent on the price forecast used.

Based on the Nedbank May'24 price deck, a 20% increase in the revenue yields a ca. 500% increase in NPV at 12% discount, from ZAR580m to ZAR3 000m. Such an increase in revenue could be generated by increases in one or more of, the feed grade, plant recoveries, concentrate payabilities, alternatively improved metal prices and/or exchange rates.

Should it be confirmed that the "associated minerals" on Zoetveld transferred by Grasvally Chrome to Volspruit Mining Company include Cu and Ni, the NPV at 12% discount using the Nedbank May'24 price deck would increase to ZAR776m.

Improving the feed grade could be achieved by some form of pre-concentration of ore before it is fed to the concentrator, e.g. X-ray sorting using Rados. A higher head grade generally improves plant recoveries and yields higher concentrate grades.

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22 Signature Page and Statements

This CPR documents the Mineral Resource estimate and the results of the Scoping Study for the Volspruit PGM Project located in South Africa in accordance with the requirements of the JORC Code (2012) and the AIM Mining Guidance (2009).

Mr Deon du Plessis from Earthlab is the CP for the Mineral Resource estimate reproduced in this CPR. His JORC statement is included in the Earthlab Mineral Resource estimate report in Appendix B.

The opinions expressed in this CPR are deemed to be correct at 30 April 2024.

SRK Consulting (South Africa) (Pty) Ltd

Prepared by

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AJ McDonald CEng MIMMM FSAIMM
Principal Engineer
CP – Economic Analysis, Tenure

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J Mainama PrEng MSAIMM
Partner & Principal Mining Engineer

Report Date: 16 August 2024
Effective Date: 30 April 2024

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

STATEMENT OF COMPETENT PERSON

To accompany the Competent Persons Report dated 25 July 2024 and entitled "A Competent Persons Report on the Volspruit PGM Project, Limpopo Province, South Africa"

I, Marcin L Wertz,
Confirm that I am a Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code 2012 Edition, having more than five years of experience that is relevant to the style of mineralisation and the type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a graduate of the University of Witwatersrand with a BSc(Eng) degree in Mining. I am registered as a Professional Engineer with the Engineering Council of South Africa (Registration No 20010025) and am a Fellow of the Southern African Institute for Mining and Metallurgy, both being Recognised Professional Organisations (RPO) included in the list promulgated by JORC.
- I have partially compiled and fully reviewed the Report to which this Consent Statement applies.

I am a Partner and Principal Mining Engineer and full-time employee of

SRK Consulting (South Africa) (Pty) Limited, registered in South Africa (Reg No. 1995/012890/07), with an office at SRK House, 265 Oxford Road, Illovo, Johannesburg 2196, South Africa

and have been engaged by

Sylvania Platinum Limited (the Company), listed on the London Stock Exchange's Alternative Investment Market (AIM), with its main country of operation being South Africa

to prepare the Competent Persons Report to report the results of the Scoping Study compiled on the Volspruit Project on the farm Volspruit 326 KR and portion 2 of Zoetveld 294 KR

with an effective date of 31 April 2024.

I have declared to the reporting company the full nature of the relationship between myself and the Company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Competent Persons Report is based on and fairly and accurately reflects the form and context in which it appears, the information in the Scoping Study compiled for the Volspruit Project.

I consent to the public filing by the Company of the Competent Persons Report.

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Johannesburg, South Africa
16 August 2024

Marcin Wertz PrEng FSAIMM
Partner & Principal Mining Engineer
SRK Consulting

STATEMENT OF COMPETENT PERSON

To accompany the Competent Persons Report dated 25 July 2024 and entitled "A Competent Persons Report on the Volspruit PGM Project, Limpopo Province, South Africa"

I, Andrew John McDonald,
Confirm that I am a Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code 2012 Edition, having more than five years of experience that is relevant to the style of mineralisation and the type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a graduate of the University of Witwatersrand with a BSc in Applied Mathematics in 1973. I obtained BSc(Hons) and MSc (cum laude) degrees in Geophysics from the University of Witwatersrand in 1974 and 1982 respectively. In 1987, I was awarded the MBL degree from the University of South Africa. I am registered as a Chartered Engineer with the Engineering Council of the United Kingdom (Registration No 334987). I am a Fellow of the Southern African Institute of Mining and Metallurgy and a Member of the Institution of Materials, Minerals and Mining in the UK, both being Recognised Professional Organisations (RPO) included in the list promulgated by JORC.
- I have partially compiled and fully reviewed the Report to which this Consent Statement applies.

I am a Principal Engineer and part-time employee of

SRK Consulting (South Africa) (Pty) Limited, registered in South Africa (Reg No. 1995/012890/07), with an office at SRK House, 265 Oxford Road, Illovo, Johannesburg 2196, South Africa

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with an effective date of 31 April 2024.

I have declared to the reporting company the full nature of the relationship between myself and the Company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Competent Persons Report is based on and fairly and accurately reflects the form and context in which it appears, the information relating to Tenure, Market Analysis, Capital and Operating Costs and Economic Analysis in the Scoping Study compiled for the Volspruit Project.

I consent to the public filing by the Company of the Competent Persons Report.

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Johannesburg, South Africa
16 August 2024

Andrew McDonald CEng MIMMM FSAIMM
Principal Engineer
SRK Consulting

23 Glossary Of Terms, Abbreviations, Units

23.1 Terms

Term	Description
Aeromagnetic survey	a geophysical method used to measure variations in the Earth's magnetic field from the air. This technique is widely used in mineral exploration, geological mapping, and environmental studies to detect and map subsurface geological structures and magnetic anomalies.
Alluvial	derived from alluvium
Alluvial fan	an accumulation of sediments shaped like a section of a shallow cone with its apex at a point source of sediments, such as a narrow canyon emerging from an escarpment
Alluvium	loose clay, silt, sand, or gravel that has been deposited by running water
Assay	the chemical analysis of ore samples to determine their metal content.
Bond ball mill work index	a measure of the resistance of a material to grinding in a ball mill. It is used to estimate the energy required for grinding a material from a given feed size to a specified product size. It is an important parameter in the design and optimization of grinding circuits in the mining and mineral processing industries.
Basalt	an extrusive igneous rock formed from the rapid cooling of low-viscosity lava rich in magnesium and iron (mafic lava) exposed at or very near the surface; more than 90% of all volcanic rock on Earth is basalt
Borehole	is a narrow, deep hole drilled into the ground to explore subsurface conditions, extract resources, or monitor environmental parameters. Boreholes are used in various fields, including geology, hydrogeology, mining, environmental science, and engineering.
Bushveld complex	The BC is a magmatic layered mafic intrusion. As one of the largest known differentiated igneous bodies, it hosts world class deposits of PGMs, nickel, copper, chrome and vanadium.
Cascade Water Balance Model	a hydrological model used to simulate the movement and distribution of water within a catchment or watershed.
Chalcopyrite	an important copper mineral commonly called 'fool's gold' – $Cu_2S.Fe_2S_2$
Chalcopyrite	a copper iron sulfide mineral with the chemical formula $CuFeS_2$
Cubanite	a copper-iron sulfide mineral with the chemical formula CuFe(_2)S(_3). It is an important mineral in the study of ore deposits and is often associated with other sulfide minerals in hydrothermal and magmatic environments.
Chromitite	an oxide mineral composed primarily of iron(II) oxide and chromium(III) oxide compounds with the chemical formula of $FeCr_2O_4$
Crusher Work Index	a measure of the resistance of a material to crushing. It is used to estimate the energy required to crush a material in a crusher. The CWI is an important parameter in the design and optimization of crushing circuits in the mining and mineral processing industries.
Dip	the angle of inclination from the horizontal of a geological feature.
Dyke	a type of geological feature that represents a sheet-like intrusion of igneous rock that cuts across pre-existing rock layers. Dykes are formed when magma from the Earth's interior forces its way through cracks and fissures in the surrounding rock and then solidifies.
Fault	a break in the continuity of a body of rock, usually accompanied by movement on one side of the break or the other so that what were once parts of one continuous rock stratum or vein are now separated
Felsic	an adjective describing igneous rocks that are relatively rich in elements that form feldspar and quartz
Footwall	the underlying side of a fault, orebody, or mine working
Graben	a depressed block of the Earth's crust that has been down-dropped relative to the surrounding areas due to extensional forces.
Granite	a coarse-grained intrusive igneous rock composed mostly of quartz, alkali feldspar, and plagioclase
Hangingwall	the overlying side of an orebody, fault, or mine working,
Harzburgite	an ultramafic, igneous rock consisting mostly of olivine and low-calcium pyroxene
HEC-RAS model	a widely used software application developed by the U.S. Army Corps of Engineers for hydraulic modeling of rivers, streams, and other water bodies. It is designed to perform one-dimensional (1D) and two-dimensional (2D) hydraulic calculations for a full network of natural and constructed channels.
Horst	an elevated block of the Earth's crust that has been uplifted relative to the surrounding areas due to extensional forces.
Hydrocensus	a comprehensive survey and inventory of water resources within a specific area. It involves the systematic collection of data on various water sources, including surface water bodies (rivers, lakes, reservoirs), groundwater wells, springs, and other water-related infrastructure. The primary goal of a hydrocensus is to assess the availability, quality, and usage of water resources to inform water management and planning decisions.
Hydropedological	an integrated study that combines hydrology and pedology (the study of soils) to understand the interactions between soil properties, water movement, and landscape processes. This type of assessment is crucial for effective water resource management, agricultural planning, and environmental conservation.
Indicated Mineral Resource	that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing which is sufficient to assume geological and grade or quality continuity

Term	Description
	between points of observation.
Inferred Mineral Resource	that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve.
Inverse distance weighting	a commonly used interpolation method in geostatistics and spatial analysis. It estimates the value of a variable at unsampled locations based on the values at nearby sampled locations, with closer points having more influence on the estimated value than farther points.
Karoo basalts	a significant geological formation that is part of the Karoo-Ferrar Large Igneous Province (LIP), which spans parts of southern Africa and Antarctica. These basalts are primarily found in the Karoo Basin in South Africa and are known for their extensive lava flows that were emplaced during the Early Jurassic period.
Kriging	an interpolation method that minimizes the estimation error in the determination of a mineral resource.
Layered intrusion	a large sill-like body of igneous rock which exhibits vertical layering or differences in composition and texture
Lithology	the study and description of the physical characteristics of rocks, particularly their mineral composition, grain size, texture, and color. It is a fundamental aspect of geology that helps in understanding the history, formation, and classification of rocks.
Lopolith	a large igneous intrusion which is lenticular in shape with a depressed central region. Lopoliths are generally concordant with the intruded strata with dike or funnel-shaped feeder bodies below the body. The
Mafic	a silicate mineral or igneous rock rich in magnesium and iron
Magma	the molten or semi-molten natural material from which all igneous rocks are formed
Magoga fault	a geological feature located in South Africa. It is part of the complex network of faults and fractures that characterize the region's tectonic landscape. Faults like the Magoga Fault are important for understanding the tectonic history and structural geology of the area.
Managed aquifer recharge	a technique used to enhance the natural replenishment of groundwater aquifers. It involves the intentional introduction of surface water or treated wastewater into aquifers to increase groundwater storage, improve water quality, and manage water resources sustainably.
Measured mineral resource	that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing which is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or a Probable Mineral Reserve.
Mineral Reserve	the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include applications of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.
Mineral Resource	a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such a form, grade or quality, and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.
NiS method	a widely used technique for the pre-concentration and analysis of platinum group elements (PGEs) and gold in geological samples. This method involves the use of nickel sulfide as a collector to concentrate these precious metals from large sample volumes, making it easier to detect and quantify them using analytical techniques such as Inductively Coupled Plasma Mass Spectrometry (ICP-MS) or Atomic Absorption Spectroscopy (AAS).
Norite	a mafic intrusive igneous rock composed largely of the calcium-rich plagioclase labradorite, orthopyroxene, and olivine
Oikocrysts	in poikilitic fabric, the enclosing crystal
Olivine	the name of a group of rock-forming minerals that are typically found in mafic and ultramafic igneous rocks such as basalt, gabbro, dunite, diabase, and peridotite
Outcrop	a visible exposure of bedrock or ancient superficial deposits on the surface of the Earth
Overburden	material, usually barren rock overlying a useful mineral deposit.
Palaeoproterozoic	a geological era within the Proterozoic Eon, spanning from approximately 2.5 billion to 1.6 billion years ago. It is one of the three subdivisions of the Proterozoic Eon, the others being the Mesoproterozoic and the Neoproterozoic
Payability factor	a term commonly used in the mining industry to assess the economic viability of extracting a particular mineral or ore from a deposit. It represents the proportion of the total mineral content that can be economically recovered and sold, taking into account various factors such as mining, processing, and market conditions.
Pit shell	a conceptual representation of the ultimate shape and extent of an open-pit mine. It is generated through a process called pit optimization, which aims to determine the most economically viable configuration of the pit based on various factors such as ore grade, mining costs, processing costs, and metal prices.
Pentlandite	an iron–nickel sulfide with the chemical formula $(Fe,Ni)_9S_8$
Plagioclase feldspar	a group of feldspar minerals that form a solid solution series ranging from pure albite, $Na(AlSi_3O_8)$, to pure anorthite, $Ca(Al_2Si_2O_8)$.
Poikilitic	a texture of igneous rocks in which numerous smaller grains of various minerals in random orientation are completely enclosed within a large, optically continuous crystal of different composition

Term	Description
Pothole	circular to oval-shaped depressions within the Merensky Reef and UG2 Reef. Within the depression, the reef unit may crosscut the footwall stratigraphy at a high angle and ultimately lie at a lower stratigraphic elevation than the typical reef. Within the pothole, anomalous hangingwall, footwall and reef stratigraphy may be developed. In some instances, the reef within a pothole may have higher than average grades; in others it may be uneconomic. In extreme cases, reef is not recognisable within the pothole.
Pretoria group quartzites	a type of geological feature that represents a sheet-like intrusion of igneous rock that cuts across pre-existing rock layers. Dykes are formed when magma from the Earth's interior forces its way through cracks and fissures in the surrounding rock and then solidifies.
Probable Mineral Reserve	the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.
Proterozoic	of or relating to the later of the two divisions of Precambrian time, from approximately 2.5 billion to 570 million years ago, marked by the build-up of oxygen and the appearance of the first multicellular eukaryotic life forms
Proved Mineral Reserve	the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.
Pyrite	an iron sulfide mineral with the chemical formula FeS2 (iron (II) disulfide); pyrite is the most abundant sulfide mineral
Pyroxenite	an ultramafic igneous rock consisting essentially of minerals of the pyroxene group
Pyrrhotite	an iron sulfide mineral with the formula Fe(1-x)S (x = 0 to 0.2)
Quaternary catchment	a hydrological unit used in water resource management and environmental studies, particularly in South Africa. It represents a subdivision of a larger river basin or catchment area, and is part of a hierarchical system of catchment classification.
Radiometric surveys	geophysical methods used to measure the natural gamma radiation emitted by rocks and soils. These surveys are commonly used in geological mapping, mineral exploration, and environmental studies to identify and map the distribution of radioactive elements such as uranium (U), thorium (Th), and potassium (K).
RAMSAR list	the List of Wetlands of International Importance, which is maintained under the Ramsar Convention. The Ramsar Convention, officially known as the Convention on Wetlands of International Importance especially as Waterfowl Habitat, is an international treaty adopted in 1971 in the Iranian city of Ramsar. The primary aim of the convention is to promote the conservation and sustainable use of wetlands worldwide.
Reef	a thin, continuous layer of ore-bearing rock
Rom	Run-of-Mine – usually ore produced from the mine for delivery to the process plant.
SAMESG guidelines	The South African Guideline for the Reporting of Environmental, Social and Governance Parameters within the Solid Minerals and Oils and Gas Industries (The SAMESG Guideline, 2017) prepared by the South African Environmental, Social and Governance (SAMESG) Committee under the joint auspices of the Southern African Institute of Mining and Metallurgy (SAIMM) and the Geological Society of South Africa (GSSA).
SAMREC code	The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code), 2016 Edition, compiled by the Working Group of the SSC Committee under the joint auspices of the Southern African Institute of Mining and Metallurgy (SAIMM) and the Geological Society of South Africa (GSSA).
Serpentine	a name used for a large group of minerals that fit the generalized formula $(Mg,Fe,Ni, Mn,Zn)_{2-3}(Si,Al,Fe)_2O_5(OH)_4$
Serpentinize	to convert into serpentine
Stratigraphic column	a grouping of sequences of strata onto systems
Stripping ratio	ratio of waste rock to ore in an open pit mining operation
Sulfide	an inorganic anion of sulfur with the chemical formula S^{2-} or a compound containing one or more S^{2-} ions
Tailings	refuse or dross remaining after the mineral has been removed from the ore - metallurgical plant waste product
Thabazimbi-murchison lineament	a significant geological feature in South Africa. It is a major structural lineament that extends across the northern part of the country and has played a crucial role in the geological evolution of the region. It marks the boundary between different geological terrains, such as the Kaapvaal Craton to the south and the Limpopo Belt to the north.
Ultramafic	igneous and meta-igneous rocks with a very low silica content (<45%), generally >18% MgO, high FeO, low potassium, and are composed of usually >90% mafic minerals (dark coloured minerals with high magnesium and iron content)
Variogram	a measure of the average variance between sample locations as a function of sample separation
Volcanics	rocks formed from lava erupted from a volcano
Waterberg group	a clastic sedimentary succession of coarse siliclastic rocks preserved across the northern part of the Kaapvaal Craton

23.2 Abbreviations

Acronym	Definition
3E	shorthand for Pt + Pd + Au
4E	shorthand for Pt + Pd + Rh + Au
5E	shorthand for Pt + Pd + Rh + Au + Ru
AG	autogenous grinding
AIM	Alternative Investment Market of the London Stock Exchange
AMD	Acid Mine Drainage
AMIS	African Mineral Standards
AngloPlats	Anglo Platinum Limited
BAP	Biodiversity Action Plan
BEE	Black Economic Empowerment
B-BBEE	Broad-Based Black Economic Empowerment
BC	Bushveld Complex
BEE	Black Economic Empowerment
Capex	Capital expenditure
CGS	Council for Geoscience
Charter I	Mining Charter, 1 May 2004
Charter II	Amended Mining Charter, 2010
Charter III	Amended Mining Charter, June 2017, now withdrawn
CoG	cut-off grade
CoP	Code of Practice
CP	Competent Person
CPI	consumer price indices
CPR	Competent Persons Report
CRP	Chromite Recovery Plant
CSI	corporate social investment
CWBM	Cascade Water Balance Model
DEA	Department of Environmental Affairs
DMRE	Department of Mineral Resources and Energy
DMS	Dense Media Separation
DWS	Department of Water and Sanitation
E	Young’s modulus
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EC	Electrical Conductivity
EBIT	Earnings Before Interest and Taxes
ECA	Environmental Conservation Act (Act 73 of 1989)
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspectors
EMP	Environmental Management Programme
EMPr	Environmental Management Programme Report
EMV	Earth Moving Vehicle
EPCM	Engineering, Procurement and Construction Management
ERI	Electrical Resistivity Imaging
ESG	Environmental, Social and Governance
FEPA	Freshwater Ecosystem Priority Area
FoS	factor of safety
FS	feasibility studies
FW	footwall
G&A	general and administration
GHG	Green House Gas
GISTM	Global Industry Standard on Tailings Management
GNR	Government Notice Regulation
GPS	Global Positioning System
GPT	Geo Pollution Technologies
HARD	Half Absolute Relative Difference
HDPE	high-density polyethylene
HDSA	Historically Disadvantaged South Africans
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HR	Human Resources
HRD	Human Resources Development

Acronym	Definition
HW	hangingwall
ID^2	Inverse Distance Squared
LCT	Leachable concentrate threshold
LDB	lighting distribution board
LGS	Lebowa Granite Suite
LHD	load-haul-dump
LoM	Life-of-mine
MAR	Managed Aquifer Recharge
MCC	motor control centre
MF2	mill-float - mill-float
MHSA	Mine Health and Safety Act (Act No. 29 of 1996)
M + I + I	Measured + Indicated + Inferred
MPRDA	Mineral and Petroleum Resources Development ACT No. 28 of 2002
MPTRO	Mineral and Petroleum Titles Registration Office
MR	Mining Right
MRA	Mining Right Application
MRE	Mineral Resource Estimate
MWP	Mine Works Programme
NEM:AQA	National Environmental Management: Air Quality Act (Act 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act (10 of 2004)
NEM:PAA	National Environmental Management: Protected Areas Act (57 of 2003)
NEM:WA	National Environmental Management: Waste Act (Act 59 of 2008)
NEMA	National Environmental Management Act (Act 107 of 1998)
NFA	National Forests Act (Act 84 of 1998)
NGER	National Greenhouse Gas Emission Reporting Regulations
NHRA	National Heritage Resources Act (Act 25 of 1999)
NiS	Nickel Sulfide
NMD	Notified Maximum Demand
NOMR	New order mining right
NPAT	Net Profit After Tax
NPV	Net Present Value
NWA	National Water Act (Act 36 of 1998)
OEL	occupational exposure limit
OK	Ordinary Kriging
Opex	Operating expenditure
PCD	Pollution Control Dam
PEA	Preliminary Economic Assessment
PFS	Prefeasibility Study
PGE	Platinum Group Element
PGM	Platinum Group Metal
PPX	pegmatoidal pyroxenite
Q	Barton's Q Rock Mass Rating System
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
QKNA	Quantitative Kriging Neighbourhood Analysis
QS	Quantity Surveyor
RC	Reverse Circulation
RG	Rooiberg Group
RLS	Rustenburg Layered Suite
RoM	Run of Mine
RPEE	Reasonable Prospects of Economic Extraction
RS	Regression Slope
RWD	return water dam
S&EIA	scoping and environmental impact assessment
SACNASP	South African Council for Natural Scientific Professionals
SAHRA	South African Heritage Resources Agency
SARS	South African Revenue Services
SG	Specific Gravity
SGS	SGS Lakefield Research Africa (Pty) Ltd
SiBX	Sodium Isobutyl Xanthate
SLP	Social and Labour Plan
SMU	Small Mining Unit

Acronym	Definition
SRK	SRK Consulting (South Africa) (Pty) Ltd
SWCD	stormwater control dam
SWMP	Stormwater Management Plan
T	Transmissivity
TCR	Total Core Recovery
TDEM	Time Domain Electromagnetic Methods
TDS	Total dissolved solids
TEM	Technical-economic model
TEP	Technical-economic parameter
TML	Thabazimbi-Murchison Lineament
TSF	tailings storage facility
TSP	tailings scavenging circuit
UG	Upper Group
UG2	UG2 Reef
UV	utility vehicle
v	Poisson’s ratio
VR	Volspruit Reef
WACC	weighted average cost of capital
Wi_{BM}	Bond Ball Mill Work Index
Wi_{RM}	Bond Rod Mill Work Index
WRD	waste rock dump
WUL	Water Use Licence
WULA	Water Use Licence Application
Y%	mineral royalty percentage rates

23.3 Chemical Elements

Symbol	Element
Al_2O_3	aluminium
Au	gold
Cl	chlorine
Cr	chromium
Cr_2O_3	chromite
Cu	copper
Fe_2O_3	iron
Ir	iridium
MgO	magnesium
Ni	nickel
Pd	palladium
Pt	platinum
Rh	rhodium
Ru	ruthenium
S	sulfur
SiO_2	silica

23.4 Units

Acronym	Definition
A	ampere
cm	a centimetre
g	grammes
g/t	grammes per metric tonne – metal concentration
ha	a hectare
kg	one thousand grammes
km	a kilometre
kt	a thousand metric tonnes
ktpa	a thousand tonnes per annum
ktpm	a thousand tonnes per month
kV	one thousand volts
kVA	one thousand volt-amperes
kW	kilowatt
kWh	kilowatt hours
L	litre
m	a metre
m^3	a cubic metre
m^3/s	a cubic metre per second
mamsl	metres above mean sea level
mbgl	meters below ground level
mbs	metres below surface
mg	a milligram
mm	a millimetre
mm/a	millimetres per annum
Ma	a million years before present
MPa	a million pascals (a megapascal)
MSL	mean seal level
Mt	a million metric tonnes
Mtpa	a million tonnes per annum
MVA	a million volt-amperes
MW	a million watts (a megawatt)
oz	ounce
s	second
t	a metric tonne
t/m^3 / tm^{-3}	density measured as metric tonnes per cubic metre
USD	United States Dollar
USD/oz	US Dollars per ounce
USDm	a million United States Dollars
V	volt
ZAR	South African Rand
ZARm	a million South African Rands
ZAR/oz	South African Rand per ounce
ZAR/t	South African Rand per tonne
°	degrees
°C	degrees Celsius
‘	minutes
%	percentage

Appendices

APPENDIX A - JORC Table 1

The following table provides a summary of important assessment and reporting criteria used at the Volspruit North and South deposits for the reporting of Mineral Resources and Ore Reserves in accordance with the Table 1 checklist in The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition). Criteria in each section apply to all preceding and succeeding sections.

1. Sampling Techniques and Data - Section 1

JORC CRITERIA / EXPLANATION	DISCUSSION
1.1 **Sampling techniques** • Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. Historical Work Completed • A total of 150 un-orientated sampled drill holes were analysed for the North Body resource re-modelling on the Volspruit Project. Samples were taken at 1 m intervals throughout the entire length of the drill holes, where only crosscutting granite and dolerite dykes were left unsampled. • Measures were put in place to prevent sampling errors. • Hand-held portable XRF device was used at 1 m intervals for aiding in the stratigraphic position of the mineralised intersections. • Double check metre marks and sample numbers • Mark in standard, duplicates & blanks • Any errors would be picked up further down the line with SG measurements as a set number of primary samples needed to be present for a representative SG.
1.2 **Drilling techniques** • Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. Historical Work Completed • Both diamond core and reverse circulation drilling methods were used to recover in-situ material for the Volspruit Project. • Diamond core drilling was done at NQ size core (47.6 mm diameter) using a standard tube. • Diamond drill core was not orientated.
1.3 **Drill sample recovery** • Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. Historical Work Completed • Drill core was transported from the drilling site to the core yard daily. Core received was measured for core recoveries to consider any losses and gains and recorded onto a recovery log. RQD measurements were also conducted. Any discrepancies noted were taken up with the drill rig supervisors to be rectified and resolved.
1.4 **Logging** • Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. Historical Work Completed • Geological logging of the drill holes was done qualitatively by Pan Palladium (PPD).

JORC CRITERIA / EXPLANATION	DISCUSSION
studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. • The total length and percentage of the relevant intersections logged.	• Logging included lithological, structural, alteration and weathering. These were logged by zones showing the same characteristics rather than in extreme detail. The historical dataset includes a combination of cumulus and whole rock terminology. Stratigraphic logs were not consistent throughout the drill holes. Postprocessing operations were required to delineate geological horizons with acceptable continuity. • Geological logging was done over the entire length of the drill holes. Relogging • 150 Historical diamond drill holes of NQ-size core were relogged amounting to 21,949.38 m. The core was a mixture of full core, half core, and quarter core. The drill holes were logged in terms of their stratigraphy, lithology, BMS mineralisation and weathering intervals. The relogging started in January 2023 and was completed in June 2023. • It was established that the Volspruit Reef was only confined to the Cyclic Unit 11 Upper associated with the BMS concentrates hosted in the pyroxenites. The units above and below can be considered as hanging wall and footwall, respectively. In some instances, the core was very structurally dense and highly serpentinised.
1.5 **Sub-sampling techniques and sample preparation** • If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. Historical Work Completed • Two core cutters were allocated to split the core to produce 1 m half-core samples for laboratory analysis. The remaining half-core samples were left in the original core trays for future analysis and verification, or resampling. Every sample was duplicated into quarter core samples with the same sample number. One sample went for assay analysis and the other for bulk sampling. • Sample preparation techniques were conducted by two commercial laboratories over the life of the exploration campaigns for the Volspruit Project. These were Setpoint Laboratories and ALS Chemex Laboratories. ALS supplied PPD with their certificates of accreditation and descriptions of each method conducted on the samples, while Setpoint only provided a description of the methods used at their laboratories. • The exploration geologist on-site provided the sampling team with a control sheet that specified the type, sample number, and depth intervals of all control samples inserted into the consignment. The control samples include both standards and blanks. • From the historical data, it is not clear whether field duplicates were created for the purpose of verifying the representativeness of the in-situ material collected. It is clear that a substantial portion of pulp duplicates was created by the laboratories at the time of analysis which has been analysed by Earthlab for QAQC purposes of the assay data. • The sample sizes for the drill core were physically composited at 1 m intervals, which is considered standard practice and suitable for drill core material.
1.6 **Quality of assay data and laboratory tests**	• All quality control sample assays were analysed by Earthlab Technical Division (Pty) Ltd to assess the usability and quality of the assay data for Mineral

JORC CRITERIA / EXPLANATION	DISCUSSION
• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Resource Estimation. • All samples were analysed for Pt, Pd, Au using Fire Assay technique. Cu and Ni were analysed using ICP-AES techniques. • Verification of depth intervals allocated for sampling, a hand-held XRF device was used at 1 m intervals on the half core. No information regarding calibration of this instrument at the time has been retained. • Quality control procedures adopted for the historic exploration included several certified reference materials and blanks. Duplicates were created as lab duplicates for selected samples throughout the sampling campaigns. • Acceptable levels of accuracy and precision were established for the Volspruit Project.
1.7 **Verification of sampling and assaying** • The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Independent verification of the significant intersections has not been completed to date. • Although holes have previously been twinned, no twinned holes were drilled as part of this MRE. • Historical data has been migrated from an Access Database to a secure and validated SABLE®7.0 Database. • No numerical adjustments were made to the assay data in the database. Top capping was done within the project files.
1.8 **Location of data points** • Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • All VN drill hole collars for the North Body deposit were surveyed by a certified land surveyor, L. Nel. • Collar surveys were measured in the WGS84 as well as the Clarke 1880 grid system. • Collar position coordinates were converted from the WGS84 to Hartebeesthoek 94 Lo29 for geological modelling and Mineral Resource Estimation by Earthlab. • No information regarding downhole surveys has been retained by the historical database, the method, and instrument used is currently unknown. • Topographic control was completed through collar survey data and geophysics provided by GAP Geophysics (LiDAR). SRK comments: • No adjustments were made to the collar locations as the differences between the positions for the holes containing potentially economic mineralization were typically less than 1 m.
1.9 **Data spacing and distribution** • Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • The average drill hole spacing (of those used in the estimation) was 59.9 m, however the spacing varies from area to area. • The data spacing and distribution is sufficient to produce geological and grade continuity appropriate for a Mineral Resource, with a combination of Indicated, and Inferred classifications. • 1 m composites were created, bounded by the CU11U, interpreted Mineralised Domain and Waste Domain, as well as weathering zones.
1.10 **Orientation of data in relation to geological**	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices.

JORC CRITERIA / EXPLANATION	DISCUSSION
structure • Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The orientation of the mineralised horizon is horizontal to sub-horizontal, while all of the drill holes used in the MRE were vertical to subvertical, resulting in approximately perpendicular intersection of the reef mineralisation. The Mineralised Domain does have various dips, but sampling bias was not expected for the general intersection. SRK recommendations: • A dedicated geotechnical drilling campaign designed to intersect the planned pit slopes and account for drilling orientation bias. • The holes should be fully orientated, triple tube and they should terminate in at least NQ3 sized core. Whole core samples should be available for geotechnical testing.
1.11 **Sample Security** • The measures taken to ensure sample security.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Samples were transported from the Volspruit core yard to the laboratories by a senior geologist or responsible assistant. All samples were checked into the various facilities and signed for by a facility representative. The signed sample submission control documents and laboratory work orders are filed at the Volspruit office. All laboratory pulps and reject returns are stored at the Volspruit core yard facility.
1.12 **Audits or reviews** • The results of any audits or reviews of sampling techniques and data.	• SRK reviewed the Mineral Resource Estimates conducted by Earthlab. Data was provided to SRK and the two parties were able to engage for discussion and clarification purposes. The outcomes of the review have been incorporated in this report and in the relevant sections of this table.

2. Reporting of Exploration Results – Section 2

JORC CRITERIA / EXPLANATION	DISCUSSION

2.1 Mineral tenement and land tenure status
• Type, reference number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings
• The security of tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.
	Mining rights
	• Details of the new order mining right (NOMR) issued to the Volspruit Mining Company (Pty) Ltd are set out in Table ES 1 and shown in Figure ES 1.
	• Sylvania holds an indirect 74% interest via its subsidiary companies in the Volspruit Mining Company, with the remaining 26% held by Iolite Trading 16 (Pty) Ltd, the Black Economic Empowerment (BEE) participants.
	• A mining right MPT No. 11/2018 in respect of the farm Volspruit 326 KR and portion 2 of Zoetveld 294 KR was granted to Volspruit Mining Company (Pty) Ltd. (Volspruit) for thirty years commencing on 4 October 2017.
	• Grasvally Chrome Mine (Pty) Ltd was sold by Sylvania with the condition precedent that the rights to the PGM and associated minerals be transferred to the Volspruit Mining Company.
	  ○ An agreement between Grasvally Chrome and Volspruit Mining sets out the basis for the abandonment by Grasvally Chrome of the PGM and associated minerals and the transfer to Volspruit Mining. The extent of the affected mineral rights is shown in Figure ES 2.
	• An amended MWP for Volspruit Mining Company in terms of Section 102 of the MPRDA read in conjunction with Section 11 of the MPRDA was submitted to the DMRE in December 2023 and again in June 2024 (see Table ES 1)
	  ○ The current EIA and WUL amendment and application submitted by Sylvania also covers the Section 102 amendment.
	SRK comments:
	• SRK has reviewed a copy of the NOMR awarded to Volspruit Mining Company and is satisfied that the extent of the property described in the NOMR is consistent with the maps and diagrams received from Sylvania.
	• SRK has reviewed documentation provided by the Company related to the Grasvally Chrome NOMR and the transfer of PGM and associated minerals rights to Volspruit Mining Company and is satisfied that the maps and diagrams are consistent.
	• Nevertheless, this does not constitute a legal due diligence review, and SRK does not make any claim nor state any opinion as to the validity, legality or status of the mineral rights held or purported to be held by the Volspruit Mining Company
	Surface rights
	• Sylvania Properties (Pty) Ltd owns Portion 5 (a Portion of Portion 4) and Portion 7 of the farm Volspruit 326KR. These are marked as 5/236 and 7/236 respectively in Figure 3-3. Sylvania through its subsidiary companies holds a 100% indirect interest in Sylvania Properties.
	• Zoetveld Properties (Pty) Ltd (previously called Zoetveld

JORC CRITERIA / EXPLANATION	DISCUSSION
	Mining and Exploration (Pty) Ltd) owns the Remaining Extent and Portions 4, 5 and 18 of the farm Grasvally 293KR, as well as Remaining Extent and Portion 1 of the farm Zoetveld 294KR. Sylvania through its subsidiary companies holds a 100% indirect interest in Zoetveld Properties (Figure 3-2 and Figure 3-3). • Per the contract between Grasvally and Volspruit Mining (cf section 3.1.1), certain surface rights are to be excluded from the Grasvally NOMR, as shown in Figure Figure 3-4. Sylvania advised that it is the process of subdividing Zoetveld 294 to reflect the property portions shown. Sufficiency of rights • Sylvania has confirmed that it does not own the surface rights to Portions 1 and 2 (respectively 1/236 and 2/236 in Figure 3-3). • Sylvania advised that the surface rights owners are aware there is an active NOMR over their properties and that Sylvania will buy the rights once all permits are in place. Formal negotiations with either party have not yet started. Legal claims and proceedings • Sylvania advised SRK that there are no legal claims or proceedings that will affect its ability to undertake further exploration, engineering studies, development or mining operations at the Volspruit Project.
2.2 Exploration done by other parties • Acknowledgment and appraisal of exploration by other parties.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Exploration work over the Volspruit Project has been conducted by various mineral exploration companies as far back as the 1950s by Anglo American. • Between 1970 and 1992 Rio Tinto Zinc and Genmin conducted exploration activities that led to the definition of Mineral Resources for two deposits, namely North Deposit and South Deposit. The initial Mineral Resources were defined by Rio Tinto for North Deposit (7 Mt with 1.99 g/t Pt & Pd, 0.15% Ni and 0.06% Cu) and South Deposit (39 Mt with 1.15 g/t Pt & Pd, 0.17% Ni and 0.05% Cu). • Genmin updated the Mineral Resources of Volspruit in 1988 with additional drilling to: Indicated Mineral Resource at 12.7 Mt 2.25 3E + Au g/t and 0.19% Ni for the North Deposit and 24 Mt at 1.33 3E + Au g/t for the South Deposit. • Additional drilling of 151 drill holes by PPD as part of the Pre-feasibility Study on the Volspruit Project was commissioned between 2001 and 2003, followed by several specialised studies by various consultants to support the Prefeasibility Study covering the period 2004 to 2012. • DRA was commissioned in 2020 —2021 to, among other things, produce a Whittle Pit optimisation for the North and South bodies. They further conducted optimised metallurgical test work to understand the PGM recoveries. DRA reported on 16 November 2020 that PGM recovery was between 65-70% at a feed grade of 1.5-2 g/t. • Earthlab oversaw on behalf of Volspruit Mining

JORC CRITERIA / EXPLANATION	DISCUSSION
	Company (VMC), a subsidirary of Sylvania, the drilling of 10 drill holes on Volspruit North in 2023 for metallurgical sampling, however these drill holes were excluded from this MRE as sample analysis was incomplete at the time of Mineral Resource Estimation. • The exploration activities conducted on the Volspruit Project over the years have been of a professional level and have met industry standards at the time.
2.3 Geology • Deposit type, geological setting and style of mineralisation.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • The North Body is provisionally classified as a syngenetic, ortho-magmatic, PGE-Cu-Ni disseminated deposit hosted within the Lower Zone, of the RLS in the Northern Limb of the Bushveld Complex. • The Lower Zone magmas can be split into three units within the Northern Limb, from the base upwards; the Volspruit Pyroxenite, Drummondlea Harzburgite-Chromitite, and the Moordrift Harzburgite-Pyroxenite. The North Body is hosted within the middle portions of the Volspruit Pyroxenite sub-group. • The North Body is primarily hosted within finegrained ortho-pyroxenites with varying proportions of olivine, chromite, and minor plagioclase. The overall textures of the host rocks vary from massive equigranular to streaky or even poikilitic. • The genesis of the deposit is linked to a series of partially developed ultramafic magmas progressively increasing in incompatible elements, i.e., PGMs, within the upper portion of cyclic unit 11. Together with this increase in incompatible elements, along with mixing from a pulse of more evolved magma, the precipitation of PGE minerals and base-metal sulphides could occur through sulphur saturation. • The sulphide mineralisation within this horizon, in decreasing abundance, consists of pyrrhotite, pentlandite, chalcopyrite and cubanite, where the only noted platinum group mineral within this zone is sperrylite. Mineralisation is predominantly interstitially disseminated to nettextured sulphide assemblages hosted within olivine and chrome bearing pyroxenites. Sulphide assemblages reach their peak modal abundance at approximately 3 wt.% of the whole rock composition.
2.4 Drill hole Information • A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the	• Provided by Earthlab in Appendix B of EARTH-PPD-PO_976-1-Technical_Report_1 found in the Appendices of this report.

<table>
<tr><th>JORC CRITERIA / EXPLANATION</th><th>DISCUSSION</th></tr>
<tr><td>basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly state.</td><td></td></tr>
<tr><td>2.5 Data aggregation methods
In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.
Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.
The assumptions used for any reporting of metal equivalent values should be clearly stated.</td><td>Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices.
The following top-capping was applied to the elements in the Mineralised Domain unit during variography and estimation.
Domain NE:
Pt: 5.5 g/t
Pd: 4.5 g/t
Au: 0.30 g/t
Cu: 0.30 %
Ni: 0.65%
Domain SW:
Pt: 3.0 g/t
Pd: 3.5 g/t
Au: 0.30 g/t
Cu: 0.20 %
Ni: 0.45%
Waste Domain:
Pt: 1.0 g/t
Pd: 1.1 g/t
Au: 0.15 g/t
Cu: not top-capped
Ni: 0.35%
Density samples were bottom-cut at 1.5 g/cm^3 and top-capped at 3.5 g/cm^3.
No metal equivalent values are reported.</td></tr>
<tr><td>2.6 Relationship between mineralisation widths and intercept lengths
These relationships are particularly important in the reporting of Exploration Results.
If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.
If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. ‘down hole length, true width not known’).</td><td>Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices.
The mostly near-perpendicular intersection of the drill holes relative to the mineralised horizon offers a good representation of the mineralisation width.</td></tr>
<tr><td>2.7 Diagrams
Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</td><td>Provided by Earthlab in EARTH-PPD-PO_976-1-Technical_Report_1 found in the Appendices.</td></tr>
<tr><td>2.8 Balanced reporting
Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of</td><td>The ten metallurgical holes drilled in 2023 were excluded from the 2024 MRE statement due to sample analysis incompleteness at the time of Earthlab undertaking the Mineral Resource Estimation.
Re-logging of the historic core resulted in the exclusion of Ir as the Ir values from the sampling were largely</td></tr>
</table>

JORC CRITERIA / EXPLANATION	DISCUSSION
Exploration Results.	below the lower detection limits.
2.9 Other substantive exploration data • Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Geophysical surveys, bulk sampling and metallurgical testing conducted.
2.10 Further work • The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• No official future work has been planned to Earthlab's knowledge at the time of reporting, however future work recommendations were included in the report EARTH-PPD-PO_976-1-Technical_Report_1 found in the Appendices.

3. Estimation and Reporting of Mineral Resources – Section 3

JORC CRITERIA / EXPLANATION	DISCUSSION
3.1 Database integrity • Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Data was migrated from a historical Microsoft Access database into a secure SABLE®7.0 Database.
3.2 Site visits • Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Earthlab has been conducting work on behalf of VMC and other subsidiaries of Sylvania since 2020, with a team on the Volspruit farm for more than two years and is familiar with the project site. The CP has also been on-site several times.
3.3 Geological interpretation • Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Earthlab re-logged the available 150 drill holes' core and defined a more detailed breakdown of the cyclic units. • After modelling the stratigraphic units (CU12U, CU12L, CU11U, and CU11L), it was clear that practically all of the mineralisation was situated within a single stratigraphic unit namely CU11U. After evaluating several sample-level cut-off grades, a cut-off grade of 1.2 g/t 2E+Au was applied with the parameters such as requiring a minimum length of 2.5 m, allowing up to 2.5 m of internal waste. The cut-off grade and accompanying parameters were used to code samples with indicators: 1 for the Mineralised Domain and 0 for the Waste Domain. • Probability estimation with IPD4 was used in 2.5 mX by 2.5 mY by 2.5 mZ blocks and by applying a probability threshold 0.4 and manual cleaning of artifact blocks, the (grade-based) Mineralised Domain was created in a block model. • The data showed significant short-range variability of the position of the mineralisation. The current model was therefore useful in estimating the approximate metal content and approximate locations, however a thorough grade-control programme will still be necessary during the mining of the deposit like this. • If more geophysics and/or drilling is done and/or a different resource geologist creates a new geological model, domain and MRE, the numbers will undoubtably change, however they should not change materially. The locations (and orientation) of faults and the perimeter will change, and it is most likely the domain will also change; however, it is unlikely that a completely new structural interpretation e.g., a deposit-scale folded structure is interpreted, altering the model, grade, and metal content completely. The likelihood of alternative geological interpretation is suspected to be very low, however any alternative domain modelling technique would definitely alter the numbers.

JORC CRITERIA / EXPLANATION	DISCUSSION
	SRK comments: • The mineralisation within Cyclic unit 11 is not stratiform and lateral correlation of the mineralisation proved challenging. Considering the highly variable nature of the mineralization, SRK recommends that in future work the use of longer composites is considered. Longer composite lengths will reduce the variance of the composite dataset, and, where the potential smallest mining unit (SMU) is planned as 2.5 m vertical, there is scope for using longer composites without overly smoothing the estimates. • The short-range variability in the mineralization thickness and location within the stratigraphy may present challenges during mining, and SRK considers this to be a risk to the achievement of production targets. • SRK recommends a detailed grade control drilling programme to be planned during mining to address the risk that the mineralization is more variable than modelled and is too inconsistent to allow highly selective mining and production of a higher grade run of mine (RoM) feed.
3.4 Dimensions • The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • The Mineral Resource was confined by interpreted faults, geological features suggested by the geophysics, the absence of mineralisation, and the EcoE-designed flood barrier. The model roughly has an L-shape with ~1 150 m at its longest, covering an area of approximately ~450 000 m^2 (~45 ha). The Mineralised domain ranges from subcropping at the surface to roughly 140 m below surface. The Mineralised Domain's block model's vertical thickness has an arithmetic mean of 7.8 m and geometric mean of 5.8 m with the median at 5.0 m.
3.5 Estimation and modelling techniques • The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Domaining was done on a cut-off grade basis, with certain additional parameters set in the software. Probability estimation with a threshold of 0.4 was applied to create the Mineralised Domain in a block model. • Drill hole plotting, wireframe modelling, and estimation were performed in Datamine Studio RM v1.13.202. Sample statistical evaluation, directional variography, and preliminary Kriging Neighbourhood Analysis were done in Snowden Supervisor v8.14. • Grade estimation of Pt, Pd, Au, Cu, and Ni was done by means of Ordinary Kriging, with a search distance allowed to a maximum of three times the variogram range of the respective elements, however, during estimation, the transformed distance of the search ellipsoid remained mostly below 1. • A minimum of three octants had to be filled during grade estimation. The number of samples used was limited to between 10 and 100 samples, with a maximum of three samples per drill hole allowed. • Density estimation was done by Ordinary Kriging, Simple Kriging and Inverse Power of Distance depending on the stratigraphical unit and/or weathering

JORC CRITERIA / EXPLANATION	DISCUSSION
• Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the Mineral Resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	zone, using between 10 and 100 samples. • Rh and Ru estimation was done by means of machine learning regression, using Pt, Pd, and Au in the block model. The machine leaning model was trained with the 2023 metallurgical drilling's samples that were analysed for 5E+Au. Ir was excluded from regression due to being mostly below the detection limit. • Parent block dimensions for grade and density estimation was 50 mX by 50 mY by 2.5 mZ, allowing subcells. Parent cell estimation with 10x10x2 cell discretisation was used. • Block estimates were compared to drill hole samples on section as part of validation. • Cu and Ni were included in the Mineral Resource with the assumption that it can be recovered. • No other deleterious elements were estimated. • No mine production data exists to use in estimation or validation. SRK comments: • Indicators were estimated using inverse distance weighting (rather than Kriging) as Earthlab reports that testing showed too much smoothing and poor honouring of the drill holes. The indicator estimation at both Volspruit North and South produces a credible model which SRK considers can be used for Mineral Resource estimation. • The difficulty in generating a wireframe of the mineralised domain, and the differences between the previous wireframe model and the current domain indicate the challenges with modelling the continuity of the mineralization at both deposits. • Semi-variogram modelling is subjective and results from different modellers are rarely identical, SRK considers the effective range of continuity may be between 50 and 150 m. • SRK considers the selected block size parameters attained from the kriging neighbourhood analysis done by Earthlab appropriate. • Search volume dimensions were set to the modelled semi-variogram ranges. SRK considers the ranges to generally be optimistic interpretations of the continuity of the mineralization and therefore also optimistic ranges for the search. • Considering the limited number of drill holes (16 intersecting the mineralisation) for Volspruit South, this maximum will never be reached, and the only effective limitation on the maximum is the 4 composites per drill hole limit. • An octant search was applied at Volspruit North (it is uncertain if this is four sectors with no vertical split of the ellipsoid or eight sectors with a vertical split as the terminology applied in the software is ambiguous) with a minimum of 4 octants required to be filled, and a minimum of 2 samples per octant. • The choice of 1 m composites, 2.5 m vertical block

JORC CRITERIA / EXPLANATION	DISCUSSION
	dimension, and a highly variable mineralisation all point to generating a highly localized estimate. While generally true that increasing the number of composites results in improved kriging statistics, this comes at the expense of local precision and at the risk of over smoothing and high negative weights. • SRK agrees with the application of Simple Kriging, however Earthlab applied a local mean (i.e. for each block the mean applied in the Simple Kriging matrix is the mean of the samples within the ellipsoid) which SRK do not support as it is inconsistent with the premise for Simple Kriging. • SRK considers some of the ranges modelled by Earthlab to be optimistic, and at times are modelling longer range trends within the data.
3.6 Moisture • Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Tonnages were estimated with SG measurements that could have included natural moisture. Earthlab noted the Oxidised Zone could have had over-measured SG values and therefore applied a 10% reduction on the estimated densities in the Oxidised Zone. Grades reported by the lab were based on dried weights. Reported metal content could therefore potentially still be over-stated, hence the verification of SG measurements suggested by Earthlab.
3.7 Cut-off parameters • The basis of the adopted cut-off grade(s) or quality parameters applied.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • A sample-level cut-off grade of 1.2 g/t 2E+Au was used to create the grade-based domain within the CU11U. • No cut-off grade was applied on a block model level post grade estimation.
3.8 Mining factors or assumptions • Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• The planned mining method is open pit mining utilizing a mining contractor. • Open pit optimisation was undertaken to obtain optimum pit limits, LoM practical pit design, and a high level production schedule. Optimisation input parameters used in this report (Table 8-3) were made in agreement with Sylvania. Input parameter sources included previous studies done by Earthlab and La Pucella. • Geological losses of 10% were recommended by Earthlab and were applied to the resource tonnage. • The resource is constrained by the flood line and the mining right. The North pit extension to the west was limited by a 50 m buffer from the wetland (provided by Sylvania). • The practical pit design criteria comprises: ○ Overall slope angle: 49º north pit and 39º south pit; ○ Bench height: 10 m; ○ Batter angle: 55º weathered rocks and 75º fresh rocks; ○ Berm width: 6 m for north pit and 9.5 m for south pit; ○ Ramp width: 21 m; and ○ Ramp gradient: 10%.

JORC CRITERIA / EXPLANATION	DISCUSSION
	• The pits comprise approximately 25 Mt of ore of which 8.5 Mt is classified as inferred resource. The pits comprise 158 Mt of waste. Steady ore production rate of 1.8 Mtpa (150 kt per month) was used as recommended by Sylvania. The annual waste removal is approximately 13 Mt. The ore was adjusted for mining and geological losses of 12%. • Mining should start approximately six months before plant commissioning. The plant will require six months to ramp up. • A small mining unit is required for mining the ore. The recommended fleet for material movement has been described below with further details found in Table 8-11: o 60 t articulated trucks for waste haulage; o Five Shovels with 4-5 m^3 bucket size; o Drill rigs suitable for 5-10 m benches; and o Auxiliary equipment to assist the load and haul activities. • The assumptions for mine operating times comprise: o 347 scheduled days per year; o 3 Shifts waste mining and 2 shifts ore mining per day. This results in 5 710 operating active hours per year per fleet for waste mining and 4 175 hours for ore; Recommendations: • The Inferred Resource should be upgraded to the minimum required Indicated Resource class for the next study phase; • Pit slope angles were derived from studies conducted in 2012, which are not regarded as detailed designs and should therefore be revised to incorporate more recent data; • ~9% (2.3 Mt) of minable ore is oxide ore, it is assumed that the processing facility should combine 90% fresh ore and 10% oxide ore throughout the mine's life and commissioning phase. Further investigation and confirmation to be done for the mining production schedule. • ~33% of the 158 Mt waste produced during the mining operation is comprised of the mineralized low grade material. It is recommended to carry out separate disposal of this waste.
3.9 Metallurgical factors or assumptions • The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Minerology: • Detailed mineralogical analysis was not provided for this study. SRK's interpretation is based on the chemical analysis. The oxidized ore does not resemble the North nor South ores from grade Pt-Pd ratio; although Pt and Pd still make up 87% of the PGMs. Normally no change in PGM distribution from fresh to oxidized ore occurs, this anomaly should be investigated. • There is a difference in the host rock and major gangue minerals between the three ore types (South Fresh, North Fresh, and oxidized ore) given in Table 9-2. This may impact plant performance (mills) and will require a stockpiling/blending strategy to be employed.

JORC CRITERIA / EXPLANATION	DISCUSSION
	Metallurgical test work: • Comminution test work was conducted by Mintek in 2023 comprising milling and flotation test work conducted on samples from North Fresh, South Fresh and oxidised ores. No results provided for Crusher Work Index. • Bond Mill Work Index tests were provided and indicate that the ore can be classified as hard to very hard to achieve a particle size of ~80% passing 75 micron with Bond Mill Work Index between 17-21 kW/t. A fine grind can be achieved by using the 106 micron limiting screen, but will require two stages of grinding. • Flotation test information was provided which included open-circuit cleaner tests and locked cycle tests, the results and interpretation can be found in section 9.4.2 of this report. The rougher rate flotation tests were not reported. These tests are critical in determining kinetic response of the ore and are a better tool to indicate potential recovery than batch cleaner tests. The absence of detailed minerology and the difference in the PGE+AU distribution between the ores would have necessitated rougher rate flotation tests to determine flotation residence time for each flotation stage. • The grades of the ores are lower when compared to other operations in the Bushveld Igneous Complex. It has been observed in the other ores that feed grade has a significant impact on the recovery. There is an opportunity to investigate pre-upgrading the plant feed using technology such as X-Ray sorting. • Detailed concentrate analysis was conducted on fresh and oxidized concentrates. Metallurgical performance was forecasted with the recommended mass pulls and recoveries to be used. Process design: • Locked-cycle circuit is used called MF2 circuit which consists of a mill-float-mill float in series.. • Top size crusher sized to crush RoM of up to 1 m in diameter to 300 mm. Crusher product stockpiled and fed to a RoM ball mill in a closed circuit with screens. It produces a product of 40% passing 75 micron (~80% passing 150 micron). • Three stage primary flotation circuit consisting of a rougher and two stages of cleaning for recovery of the liberated coarse material. Tailings from this circuit is fed to a secondary ball mill in a closed circuit with cyclones to produce a product of 80% passing 75 micron. • The secondary mill product is pumped to the secondary flotation circuit consisting of a rougher and rougher-scavenger circuit that feed three stages of cleaning. The rougher-scavenger tailing is pumped to the tailing thickener. Tailing • thickener underflow is then pumped to the tailing storage facility. • Concentrate from primary and secondary cleaner circuits are thickened in a single concentrate thickener and then

JORC CRITERIA / EXPLANATION	DISCUSSION
	filtered. • Process design criteria, mass balance and equipment sizing is detailed in this report.
3.10 Environmental factors or assumptions • Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• There is an approved EIA/EMPr for the Volspruit project on farm Volspruit 326 KP. Remaining areas of farm Zoetveld 294 KR have been permitted for the establishment of aboveground support infrastructure. • The MR and environmental authorisation was amended between 2021-2023 as a result of optimisation and environmental studies conducted for the Volspruit project. A Waste Management Licence was also obtained in that time. The Volspruit project will need to attain other permits such as Water Use Licence and Air Emission Licence from competent authorities prior to commencing operations. • Volspruit applied for an amendment to the MR in terms of section 102 of the MPRDA to address changes to the mine infrastructure and apply for an Integrated Waste Management Licence. The application requires that a scoping and EIA process be undertaken. Volspruit has begun the process and have provided a Draft Scoping Report dated 22 January 2024. Public participation in fulfilment of the EIA is undertaken and the comments from the interested and affected parties will be considered in the preparation of the Final Scoping Report, which was scheduled for submission to the DMRE in March 2024. Volspruit will proceed to the EIA phase upon DMRE approval. • Key environmental and social sensitivities details are included in this report, these comprise: o Agricultural activities located within the MR boundary and surrounding areas; o Sensitive social receptors within and surrounding the mine area; o Declared private nature reserves lie partially within or surrounding the Volspruit MR area; o The aquifer system in the MR area is classified as a major aquifer due to reliance of surrounding water users on groundwater resources. It is also reasonably sensitive to long-term contamination from land surface activities; o The project site falls within an area that is deemed to have high terrestrial biodiversity sensitivity; o Several archaeological sites were identified within the MR area, including Stone and Iron Age sites as well as the remains of old homesteads and farm structures. Although not identified, there is a possibility of graves and graveyards occurring in the area; and o The surrounding area is predominately rural, with high unemployment levels. There are no settlements in the immediate vicinity of the mine. Within a 60km radius there are several towns, including Mokopane, Sterkrivier, Polokwane and Moletlane.

JORC CRITERIA / EXPLANATION	DISCUSSION
3.11 Bulk density • Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices • No bulk density campaigns have been performed.
3.12 Classification • The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	Information obtained from the EARTH-PPD-PO_976-1-Technical_Report_1 in the Appendices. • Earthlab performed a quality verification exercise on the assay data. • The Mineral Resource classification was manually done by the Competent Person and based on the Kriging Efficiency and Slope of Regression which coincided with areas of denser drill hole spacing. • The Competent Person considered reliability of input data, data coverage, continuity, and statistical performance in the manual classification.
3.13 Audits or reviews • The results of any audits or reviews of Mineral Resource estimates.	• SRK reviewed the Mineral Resource Estimates conducted by Earthlab. Data was provided to SRK and the two parties were able to engage for discussion and clarification purposes. The outcomes of the review have been incorporated in this report and in the relevant sections of this table.

3.14 Discussion of relative accuracy/confidence
• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the Mineral Resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.
• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.
• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.
	• Earthlab has classified and reported the Mineral Resources in accordance with the definitions and guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2012 edition.
	• A quantitative discussion of the approach and procedures performed by Earthlab to quantify the relative accuracy of the Mineral Resource within the stated confidence limits was provided in sections 1 and 2 of the JORC tables.
	• The qualitative discussions of the factors that could affect the relative accuracy and confidence of the resource estimate have been incorporated in the relevant sections of the JORC tables.
	• SRK considers the classifications assigned to the Mineral Resources to be appropriate and adequately supported in the Earthlab report. The following is considered for the Mineral Resources reporting:
	  ○ Mineral Resources are reported on an in-situ basis and include any Mineral Reserves that could be derived from them;
	  ○ Mineral Resource are reported excluding a

JORC CRITERIA / EXPLANATION	DISCUSSION
	10% geological loss factor applied globally to the tonnage and metal contents; ○ No cut-off is applied to the Mineral Resources, and where constrained by a pit optimisation, SRK considers this to be appropriate. Regarding Volspruit North, the SRK reporting indicates that higher metal price assumptions or lower costs are required to support the Earthlab statement which appears to be unconstrained by an economic pit shell; ○ At Volspruit North, the Mineral Resource reporting is constrained to be within the mining right, and also inside a flood barrier perimeter. The Copper and Nickel metal content is limited to the portion of the orebody within the mining right, since the adjacent Mining Right on Zoetveld 294 KR RE, also held by Sylvania, did not include Cu and Ni.

4. Estimation and Reporting of Ore Reserves – Section 4

The following section outlines the criteria followed for the development of this preliminary economic assessment. Although Mineral Reserves were not declared, the Mineral Resource used for this study is referenced.

JORC CRITERIA / EXPLANATION	DISCUSSION
4.1 Mineral Resource estimate for conversion to Ore Reserves • Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• The Mineral Resource Estimate used is given in Table 5-3 as provided by Earthlab, with effective date of January 2024. • SRK has reviewed and used the MRE for the purpose of this study. • **No Mineral Reserves were declared.**
4.2 Site visits • Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Site visits were carried out by Earthlab as part of their studies in developing the MRE used in this report. • SRK conducted a desktop study of the source information and was satisfied with the level of detail provided. • SRK considered it was not necessary to conduct any site visits for a scoping-level study.
4.3 Study status • The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	• A preliminary economic assessment (scoping study) was undertaken. • **No Mineral Reserves were declared**.

JORC CRITERIA / EXPLANATION	DISCUSSION
4.4 Cut-off parameters • The basis of the cut-off grade(s) or quality parameters applied.	• A 2E + Au cut-off grade of 1.2 g/t was applied by Earthlab to define a mineralised domain for the MRE. • As part of the open pit optimisation, economic cut-off grades for six metals of interest in the Mineral Resource were used and are provided in Table 8-5.

4.5 Mining factors or assumptions
 	
• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).
• The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.
• The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.
• The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).
• The mining dilution factors used.
• The mining recovery factors used.
• Any minimum mining widths used.
• The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.
• The infrastructure requirements of the selected mining methods.
	• The planned mining method is open pit mining utilizing a mining contractor.
	• **No Mineral Reserves were declared in this CPR.**
	• Open pit optimisation was undertaken to obtain optimum pit limits, LoM practical pit design, and a high level production schedule. Optimisation input parameters used in this report (Table 8-3) were made in agreement with Sylvania. Input parameter sources included previous studies done by Earthlab and La Pucella.
	• Geological losses of 10% were recommended by Earthlab and were applied to the resource tonnage.
	• The resource is constrained by the flood line and the mining right. The North pit extension to the west was limited by a 50 m buffer from the wetland (provided by Sylvania).
	• The practical pit design criteria comprises:
	  ○ Overall slope angle: 49º north pit and 39º south pit;
	  ○ Bench height: 10m;
	  ○ Batter angle: 55º weathered rocks and 75º fresh rocks;
	  ○ Berm width: 6m for north pit and 9.5m for south pit;
	  ○ Ramp width: 21m (based on 5.7 m (90 t trucks operating width) x 3 m + 4 m (safety berm and ditch); and
	  ○ Ramp gradient: 10%.
	• The pits comprise approximately 25 Mt of ore of which 8.5 Mt is classified as inferred resource. The pits comprise 158 Mt of waste. Steady ore production rate of 1.8 Mtpa (150 kt per month) was used as recommended by Sylvania. The annual waste removal is approximately 13 Mt. The ore was adjusted for mining and geological losses of 12%.
	• Mining should start approximately six months before plant commissioning. The plant will require six months to ramp up.
	• A small mining unit is required for mining the ore. The recommended fleet for material movement has been described below with further details found in Table 8-11:
	  ○ 60 t articulated trucks for waste haulage;
	  ○ Five Shovels with 4-5 m^3 bucket size;
	  ○ Drill rigs suitable for 5-10 m benches; and
	  ○ Auxiliary equipment to assist the load and haul activities.
	• The assumptions for mine operating times comprise:
	  ○ 347 scheduled days per year;
	  ○ 3 Shifts waste mining and 2 shifts ore mining per day. This results in 5 710 operating active hours per year per fleet for waste mining and 4 175 hours for ore;

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	Recommendations: • The Inferred Resource should be upgraded to the minimum required Indicated Resource class for the next study phase; • Pit slope angles were derived from studies conducted in 2012, which are not regarded as detailed designs and should therefore be revised to incorporate more recent data; • ~9% (2.3 Mt) of minable ore is oxide ore, it is assumed that the processing facility should combine 90% fresh ore and 10% oxide ore throughout the mine's life and commissioning phase. Further investigation and confirmation to be done for the mining production schedule. • ~33% of the 158 Mt waste produced during the mining operation is comprised of the mineralized low grade material. It is recommended to carry out separate disposal of this waste.
4.6 Metallurgical factors or assumptions • The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. • Whether the metallurgical process is well-tested technology or novel in nature. • The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. • Any assumptions or allowances made for deleterious elements. • The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	• **No Mineral Reserves were declared in this CPR.** Minerology: • Detailed mineralogical analysis was not provided for this study. SRK's interpretation is based on the chemical analysis. The oxidized ore does not resemble the North nor South ores from grade Pt-Pd ratio; although Pt and Pd still make up 87% of the PGMs. Normally no change in PGM distribution from fresh to oxidized ore occurs, this anomaly should be investigated. • There is a difference in the host rock and major gangue minerals between the three ore types (South Fresh, North Fresh, and oxidized ore) given in Table 9-2. This may impact plant performance (mills) and will require a stockpiling/blending strategy to be employed. Metallurgical test work: • Comminution test work was conducted by Mintek in 2023 comprising milling and flotation test work conducted on samples from North Fresh, South Fresh and oxidised ores. No results provided for Crusher Work Index. • Bond Mill Work Index tests were provided and indicate that the ore can be classified as hard to very hard to achieve a particle size of ~80% passing 75 micron with Bond Mill Work Index between 17-21 kW/t. A fine grind can be achieved by using the 106 micron limiting screen, but will require two stages of grinding. • Flotation test information was provided which included open-circuit cleaner tests and locked cycle tests, the results and interpretation can be found in section 9.4.2 of this report. The rougher rate flotation tests were not reported. These tests are critical in determining kinetic response of the ore and are a better tool to indicate potential recovery than batch cleaner tests. The absence of detailed minerology and the difference in the PGE+AU distribution between the ores would have necessitated rougher rate flotation tests to determine flotation residence time for each flotation stage.

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- Metallurgical factors.

Process Recovery	Oxide Ore	Fresh Ore
Platinum	30.3%	64.9%
Palladium	36.7%	78.5%
Rhodium	26.6%	64.6%
Gold	47.7%	53.6%
3E +Au	33.30%	71.6%
Copper	27.3%	48.6%
Nickel	24.10%	61.7%

- The grades of the ores are lower when compared to other operations in the Bushveld Igneous Complex. It has been observed in the other ores that feed grade has a significant impact on the recovery. There is an opportunity to investigate pre-upgrading the plant feed using technology such as X-Ray sorting.
- Detailed concentrate analysis was conducted on fresh and oxidized concentrates. Metallurgical performance was forecasted with the recommended mass pulls and recoveries to be used.

Process design:

- Locked-cycle circuit is used called MF2 circuit which consists of a mill-float-mill float in series.
- The selected metallurgical process is well-tested technology.
- Top size crusher sized to crush RoM of up to 1 m in diameter to 300 mm. Crusher product stockpiled and fed to a RoM ball mill in a closed circuit with screens. It produces a product of 40% passing 75 micron (~80% passing 150 micron).
- Three stage primary flotation circuit consisting of a rougher and two stages of cleaning for recovery of the liberated coarse material. Tailings from this circuit is fed to a secondary ball mill in a closed circuit with cyclones to produce a product of 80% passing 75 micron.
- The secondary mill product is pumped to the secondary flotation circuit consisting of a rougher and rougher-scavenger circuit that feed three stages of cleaning. The rougher-scavenger tailing is pumped to the tailing thickener. Tailing
- thickener underflow is then pumped to the tailing storage facility.
- Concentrate from primary and secondary cleaner circuits are thickened in a single concentrate thickener and then filtered.
- Process design criteria, mass balance and equipment sizing is detailed in this report.The difference in the host rock mineralogy between the North and South fresh ores may impact on the plant operation. A blending/stockpiling strategy must be considered.
- The samples used for the test work may not be representative of the orebody.
- Finding an off-take for the low-grade concentrates on good terms may be a challenge

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4.7 Environmental
 	
• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.
	• Potential environmental impacts to the mining and processing operations is given in section 15 of this report.
	• **No Mineral Reserves were declared in this study**.
	• There is an approved EIA/EMPr for the Volspruit project on farm Volspruit 326 KP. Remaining areas of farm Zoetveld 294 KR have been permitted for the establishment of aboveground support infrastructure.
	• The MR and environmental authorisation was amended between 2021-2023 as a result of optimisation and environmental studies conducted for the Volspruit project. A Waste Management Licence was also obtained in that time. The Volspruit project will need to attain other permits such as Water Use Licence and Air Emission Licence from competent authorities prior to commencing operations.
	• Volspruit applied for an amendment to the MR in terms of section 102 of the MPRDA to address changes to the mine infrastructure and apply for an Integrated Waste Management Licence. The application requires that a scoping and EIA process be undertaken. Volspruit has begun the process and have provided a Draft Scoping Report dated 22 January 2024. Public participation in fulfilment of the EIA is undertaken and the comments from the interested and affected parties will be considered in the preparation of the Final Scoping Report, which was scheduled for submission to the DMRE in March 2024. Volspruit will proceed to the EIA phase upon DMRE approval.
	• Key environmental and social sensitivities details are included in this report, these comprise:
	  o Agricultural activities located within the MR boundary and surrounding areas;
	  o Sensitive social receptors within and surrounding the mine area;
	  o Declared private nature reserves lie partially within or surrounding the Volspruit MR area;
	  o The aquifer system in the MR area is classified as a major aquifer due to reliance of surrounding water users on groundwater resources. It is also reasonably sensitive to long-term contamination from land surface activities;
	  o The project site falls within an area that is deemed to have high terrestrial biodiversity sensitivity;
	  o Several archaeological sites were identified within the MR area, including Stone and Iron Age sites as well as the remains of old homesteads and farm structures. Although not identified, there is a possibility of graves and graveyards occurring in the area; and
	• The surrounding area is predominately rural, with high unemployment levels. There are no settlements in the immediate vicinity of the mine. Within a 60km radius there are several towns, including Mokopane, Sterkrivier, Polokwane and Moletlane.

4.8 Infrastructure • The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk	The following provides a summary of the estimated infrastructure for the Volspruit project basis the provided Mineral Resource Estimate.

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commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	Mechanical infrastructure • Access to the Volspruit project site will be through a 7 m wide paved road which joins the existing public road coming from Mokopane. Approximately 2 km of gravel internal service roads will be required. Dedicated haul roads, with allowance for two haul trucks to easily drive past each other, from the North and South pits to the process plant. There will be approximately 6 m wide internal plant roads that are gravel and kerbed. • A 2.5 m minimum height of perimeter fencing will be established to include the open pits, mining contractor's yard, the process plant, and the TSF. Each of these areas will have a central access point fully equipped with manned security personnel and manually controlled boom gates. • The mining contractor to supply own infrastructure made mainly of prefabricated buildings which will include: offices, change houses, workshops, control room, stores etc; Figure 12-2 shows the location of the contractors camp within the mine. More details on building amenities, tools, equipment, contractor responsibilities etc is provided in section 12.1.3 of this report. Wash and fuel bay civils will be provided by the mine. • There will be an explosives magazine with strict access control and constructed in accordance to South African mining regulations. • Figure 12-3 shows the mine infrastructure and process plant as well as the WRDs for the North and South pits. Preparation of the rock dump and stockpile will include grubbing, topsoil removal and levelling of the area; of which all form part of the mining contractor's scope. • Plant support infrastructure will comprise plant workshop, change house facilities and laundry, medical Stabilisation Facility, Store Yard, offices and canteen. More details can be obtained in section 12.1.6 of this report. • Raw water will be pumped from the boreholes around the North and South pits via the surface overland pipes to the raw water storage tank at the mining contractors' yard. The raw water will be used for wash water and for the fire suppression systems. Potable water will also be from the boreholes to the potable water storage tank at the mining contractor's yard; this will be used at the change houses, workshops and all other applicable areas such as offices. • The Volspruit TSF is an upstream embankment facility with a LoM of 15 years. The RWD associated with the Volspruit TSF has both operating and standby compartments where return water to the concentrator plant is pumped from. Excess water from the RWDs is pumped back to the concentrator plant operations to optimise recovery and maintain the water balance. Details on the mechanical infrastructure is provided in section 12.1.8 of this report. • Sewage effluent from the plant will be treated by a trickling filter sewerage plant. This plant will be located on the west side of the mining contractor's yard. The effluent will be treated to conform to general standards and discharged in accordance with local environmental regulations, bearing in mind the ecological sensitivity of the area. Electrical infrastructure • Project power requirements have been estimated as indicated in Table 12-1. High level load lists were compiled for the relevant infrastructure. High level

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	installed power capacity estimate of 15 MW is assumed for the plant as a detailed list is not available and will be addressed in the next project phase. The mine should apply for an agreed NMD of 20 MVA from Eskom. • Bulk power supply requirements to be obtained with the consultation of a bulk power supply specialist for the next phase of the project. EIA for new overhead power line and a new independent power supply substation completed by Eskom. Sourcing power from Cromore substation was found to be more cost effective as it is closer to the mine site. The upkeep of the substation is uncertain as the information was attained from a PFS conducted more than 20 years ago. At the time, the substation was found to have only 20 MVA spare capacity; as a result, is has been assumed that bulk power will be provided from the Witkop substation which is further away from the mine for the purposes of capital expenditure estimate. • A 4-way RMU established in the mine office area support infrastructure will be fed from the closest 11 kV concentrator plant switchgear. It will in turn supply 250kVA 11 kV/400v minisub to the mine office area and 500 kVA 11 kV/400V minisub to the mining contractor's yard. A 75 kVA 400V emergency generator will supply critical mine office area support infrastructure equipment such as network servers and emergency lighting. The explosives magazine will have solar powered lighting to reduce overhead line establishment costs. More details can be found in section Mining Contractor's Yard Area Infrastructure Electrical Reticulation12.3.4 in this report. • The 500 kVA 11kV/400V minisub coupled with a 100kVA 400V emergency generator will also supply power to the mining contractor's support infrastructure and the concentrator area support infrastructure. Radial feeders will enable power supply to each building individual LDB via cables buried in trenches. • Power supply to the 400V RWD containerised MCC will be from the concentrator plant 11 kV switchgear. A 250 kVA 11kV/400V transformer will be established close to the RWD MCC to step down the voltage. The containerised MCC will in turn supply power to the RWD pumps via variable speed drives. The MCC will also supply power to the LDB which will in turn supply power to the container's lighting and small power requirements. This will also be coupled with a 250 kVA 400V emergency generator providing power to the pump and for emergency lighting. • The North pit will have ten boreholes and the south pit six boreholes, all equipped with a 45kW pump. Power to the pumps will be supplied through the pole mounted transformers receiving power from an 11 kV overhead line which will be routed to reach each pit. This infrastructure will be outside the 200 m blast radius around the pit. Human Resources • A staff complement of 388 people is envisaged which includes the owner and contractor's team. More details are provided in Table 14-1 and Table 14-2.
4.9 Costs • The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating	The following provides a summary of the costs estimated for the PEA study using Mineral Resource Estimate. • A production case for mining 1.8 Mtpa over 15 years LoM was utilised to estimate the capital costs at a conceptual level given in Table 13-1. Total capital costs are approximately ZAR5 181m and stay in business capital approximately ZAR355m.

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costs.
• Allowances made for the content of deleterious elements.
• The source of exchange rates used in the study.
• Derivation of transportation charges.
• The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.
• The allowances made for royalties payable, both Government and private.
	• EPCM costs were estimated at 18% processing and infrastructure costs, Owner's costs were estimated at 5% base capital expenditure, and contingency estimated at 25%. The effective date of this report and capital estimates is 30 April 2024; details for the basis of estimation is given in section 13.1.2 of this report.
	• The capital cash flows are detailed in Table 13-2 showing project start-up capital and stay in business capital over the LoM.
	• The total operating costs over the life of mine is approximately ZAR21 695m with a unit cost of ZAR860/t RoM, Table 13-3 details the summary of the operating costs. The following operating cost assumptions were made:
	  ○ Concentrator processing cost set at ZAR276.70/t of plant feed;
	  ○ Admin costs applied as ZAR55/t of plant feed;
	  ○ Tailings disposal estimated at ZAR6m per year applied at a unit cost of ZAR3.34/t of plant feed;
	  ○ SLP/CSI cost provided at 1% operating profit per year;
	  ○ Closure costs assumed at ZAR150m and accrued as equal annual amounts over the LoM;
	  ○ Royalties were calculated using refined formula as per the Royalty act; and
	  ○ A blanket contingency of 25% was applied to all operating costs except royalties.

4.10 Revenue factors • The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	The following factors are the outcome of the PEA study using the Mineral Resource Estimate. • The 4E recovery is very dependent on head grade, there may be an opportunity to upgrade the plant feed using technology such as X-ray sorting. In addition, pre-upgrading of the ore using X-ray sorting would reduce the capital cost of the plant. • The economic evaluation assumes that metal prices and ZAR:USD exchange rates for 2024 apply to Y0 and values for 2025 apply to Y1 etc. • Based on the Nedbank May'24 price deck, a 20% increase in the revenue yields a ca. 500% increase in NPV at 12% discount, from ZAR580m to ZAR3 000m. Such an increase in revenue could be generated by increases in one or more of, the feed grade, plant recoveries, concentrate payabilities, alternatively improved metal prices and/or exchange rates.

4.11 Market assessment
• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.
• A customer and competitor analysis along with the identification of likely market windows for the product.
• Price and volume forecasts and the basis for these forecasts.
• For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.
	• Five year historical prices for 4E and base metals Cu and Ni are provided in Figure 18-1 and Figure 18-2. The primary uses of the six metals of interest in this project were given in section 18.2 of this report.
	• All USD-based metal prices are converted to SA Rands at the ruling ZAR:USD exchange rate. The five year historical ZAR:USD exchange rates are provided in Figure 18-3.
	• The 2024 commodity outlook conducted by SBG Securities was provided by Sylvania and given in Figure 18-4; it details macro conditions, supply, and demand based on the commodity markets.
	• Commodity price projections were analysed considering:
	  ○ The three-year trailing average and spot price as at 22 April 2024 for 4E and 15 April 2024 for the Cu and Ni given in Table 18-1;
	  ○ Consensus Economics projections as at 15 April 2024 given in Table 18-2;
	  ○ SBG price projections for the six metals given in Figure 18-5 and rebased prices in Table 18-3 including spot ZAR:USD exchange rate as at

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	15 April 2024 kept constant for the purpose of the evaluation; and o Nedbank price and exchange rate forecasts as at May 2024 and given in Table 18-4 which includes spot prices as at 15 April 2024 for Au, Cu and Ni. • SRK noted from the outcome of the evaluation that the project is very sensitive to revenue and hence the price deck selected, this is illustrated in the summary financial results given in Table 19-4. The two twin-sensitivity tables given in Table 19-5 and Table 19-6 are based on the use of the Nedbank May'24 price deck. More details are unpacked in item 4.12 of this JORC table. • Material contracts required for the Volspruit project include concentrate treatment and refining, mining and other contracts. These are set out below: o The concentrate produced by the project is sent to a 3rd party PGM refinery. Test work has suggested that low grade (60-104 g/t 4E) concentrate will be produced and that the payabilities from such a refinery are likely to be lower than normal as set out in Table 18-5. The contract should specify a minimum 4E concentrate grade for each consignment with penalties applicable where the grade is less than the specified as set out in Table 18-6. Concentrate transport cost will be ~ZAR30/t and assumed treatment and refining costs for the six metals are given in Table 18-7. o The mining contractor will be an experience contractor, provide own labour, offices, equipment and surface support infrastructure etc. The assumed mining costs are given in Table 18-8. More details of the assumptions applied for the purposes of the economic evaluation is provided in section 18.5.2 of this report. o Other key contracts include bulk power supply from Eskom, TSF management and operation, and concentrate transport to refinery.
4.12 Economic • The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The economic assessment conducted is preliminary in nature as it relies on LoM production schedule which includes Inferred Mineral Resources and project engineering components compiled at a concept level of confidence. The key input assumptions and factors are as follows: • The evaluation assumes that the project timing will include 18 months of plant construction and commissioning in Y0 and half of Y1. All capex to be spent on the project will occur on Y0 and Y1. TSF construction capex will occur in later years. Mining will commence at the beginning of Y1 so that stockpiled ore is available as plant feed from July Y1. • Annual concentrator feed (RoM and stockpile) will maintain 90% fresh and 10% oxide blend as shown in Figure 19-1. The evaluation assumes that the 4E prill splits measured during the locked cycle tests on both ore sample types remain consistent (Table 19-1) irrespective of head grade variation. • For process recoveries, the evaluation assumes that: o The individual 4E and Cu/Ni recoveries as determined in the locked cycle tests for both ores can be applied regardless of whether the ore is fed as a blend or batch process; o Individual 4E and Cu/Ni recoveries do not vary with plant feed grade; o Individual mass pulls as indicated by the locked

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	cycle tests (Table 19-2) are applied to the individual fresh and oxide ore streams into the plant to determine total concentrate produced for the year; and o Total concentrate 4E grade (total recovered 4E in concentrate divided by total concentrate produced) is used to determine the penalties that would apply for concentrates with grades below specified. • Metal prices and exchange rates for 2024 apply to Y0 and for 2025 apply to Y1. • MPRDA royalties calculated based on the refined formula from the Royalty Act and was set at a maximum of 5% of the gross revenue. • Taxation and government levies assumptions comprised: o The application of 27% company tax on operating profit after capital allowances; o Capex in any year is deductible in full against operating profit in that given year; o Operating losses or Capex not redeemed in full in any year can be carried forward into subsequent years; and o A provision of 1% of operating profit is included to cater for the potential commitments that would appear in the Company's SLP and to satisfy the requirements of the Mining Charter III. • The summary cash flow for the project is set out in Table 19-3 and compared in Table 19-4. The analysis shows that NPV at a 12% discount rate for post-tax cash flows using different price decks varies considerably (from -ZAR1 298m to ZAR3 485m); and that the IRR also varies considerably from 5% to 28% under the same circumstances. This is reflected in the pay-back period which varies from 3 to 11 years. It is clear that the economic viability of the project is heavily dependent on the price forecast selected. • The sensitivity of the Volspruit project to changes in revenue, opex, and capex was assessed. The sensitivities were conducted and reported in Table 19-5 (changes in revenue and opex), Table 19-6 (changes in capex and opex), and Figure 19-3 (sensitivity to all three). o Examination of the twin sensitivity in Table 19-5 shows that a 20% increase in the revenue yields a ca. 500% increase in NPV at 12% discount, from ZAR580m to ZAR3 000m. Such an increase in revenue could be generated by increases in one or more of: the feed grade, plant recoveries, concentrate payabilities, alternatively improved metal prices and/or exchange rates. Feed grade improvement was recommended.
4.13 Social • The status of agreements with key stakeholders and matters leading to social licence to operate.	• The social factors are provided in section 15 of this report. • Key environmental and social sensitivities details are included in this report, these comprise: o Agricultural activities located within the MR boundary and surrounding areas; o Sensitive social receptors within and surrounding the mine area; o Declared private nature reserves lie partially within or surrounding the Volspruit MR area; o The aquifer system in the MR area is classified

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	as a major aquifer due to reliance of surrounding water users on groundwater resources. It is also reasonably sensitive to long-term contamination from land surface activities; o The project site falls within an area that is deemed to have high terrestrial biodiversity sensitivity; o Several archaeological sites were identified within the MR area, including Stone and Iron Age sites as well as the remains of old homesteads and farm structures. Although not identified, there is a possibility of graves and graveyards occurring in the area; and o The surrounding area is predominately rural, with high unemployment levels. There are no settlements in the immediate vicinity of the mine. Within a 60km radius there are several towns, including Mokopane, Sterkrivier, Polokwane and Moletlane.
4.14 Other • To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: o Any identified material naturally occurring risks. o The status of material legal agreements and marketing arrangements. o The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• A risk assessment for this PEA was undertaken, the findings are detailed in Table 17-1 and the recommendations for the project progression and future studies are given in section 17.4 of this report. • The material requirements for the progression of the project and the increase in the confidence level of the studies have been detailed in each these JORC tables under the relevant sections. • The Company confirmed that it does not own the surface rights to Portions 1 and 2 of Volspruit 326KR where the majority of the mine infrastructure will be located. Sylvania advised that the surface rights owners are aware there is an active NOMR over their properties and that Sylvania will buy the rights once all permits are in place. Formal negotiations with either party have not yet started.
4.15 Classification • The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• **No Mineral Reserves were declared.** • The Mineral Resource classification assigned by the Earthlab CP considers primarily the kriging statistics, and the geological complexity and confidence in mineralisation location and structures. • SRK considers the classifications assigned to the Mineral Resources to be appropriate and adequately supported in the Earthlab report.
4.16 Audits or reviews • The results of any audits or reviews of Ore Reserve estimates.	• SRK reviewed the Mineral Resource Estimates conducted by Earthlab. Data was provided to SRK and the two parties were able to engage for discussion and clarification purposes. The outcomes of the review have been incorporated in this report and in the relevant sections of this table.

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4.17 Discussion of relative accuracy/confidence
 	
• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.
• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation.
• Documentation should include assumptions made and the procedures used.
• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.
• It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.
	• Earthlab has classified and reported the Mineral Resources in accordance with the definitions and guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), 2012 edition.
	• A quantitative discussion of the approach and procedures performed by Earthlab to quantify the relative accuracy of the Mineral Resource within the stated confidence limits was provided in sections 1 and 2 of the JORC tables.
	• The qualitative discussions of the factors that could affect the relative accuracy and confidence of the resource estimate have been incorporated in the relevant sections of the JORC tables.
	• SRK considers the classifications assigned to the Mineral Resources to be appropriate and adequately supported in the Earthlab report. The following is considered for the Mineral Resources reporting:
	  ○ Mineral Resources are reported on an in-situ basis and include any Mineral Reserves that could be derived from them;
	  ○ Mineral Resource are reported excluding a 10% geological loss factor applied globally to the tonnage and metal contents;
	  ○ No cut-off is applied to the Mineral Resources, and where constrained by a pit optimisation, SRK considers this to be appropriate. Regarding Volspruit North, the SRK reporting indicates that higher metal price assumptions or lower costs are required to support the Earthlab statement which appears to be unconstrained by an economic pit shell;
	  ○ At Volspruit North, the Mineral Resource reporting is constrained to be within the mining right, and also inside a flood barrier perimeter. The Copper and Nickel metal content is limited to the portion of the orebody within the mining right, since the adjacent Mining Right on Zoetveld 294 KR RE, also held by Sylvania, did not include Cu and Ni.
	• **No Mineral Reserves were declared.**

APPENDIX B – Earthlab Reports

The Earthlab reports are included in a separate folder to manage the size of this report.