MAJA MINING LIMITED

MINERAL RESOURCE ESTIMATION REPORT

Bosveld Rare Earth Elements of the Phosphogypsum Stacks, Phalaborwa Mining Complex, South Africa

Rainbow Rare Earths Limited

1 JULY 2023

Report Number MML2023_001

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1 SUMMARY

Maja Mining Limited ("Maja") was engaged by Rainbow Rare Earths Limited ("Rainbow" or the "Company") to prepare a Mineral Resource estimate ("MRE") update for the Bosveld Rare Earth Element ("REE") Phosphogypsum Stacks located in Phalaborwa, South Africa.

Rainbow is a London listed (GBX) mining company focused on developing a responsible rare earths supply chain to help drive the green energy transition. The Company has two REE projects in Africa; the Phalaborwa Project in South Africa (the subject of this technical report) and the Gakara Project in Burundi.

The project is 85% owned by Rainbow and 15% owned by Bosveld Phosphates Pty Ltd. Rainbow has a right to acquire the remaining 15% subject to certain conditions being met.

The MRE set out in this report was prepared in accordance with the guidelines of the JORC Code (2012 Edition), containing an estimated 30.4 Mt at 0.44% total rare-earth oxides ("TREO"), 0.41% light rare-earth oxides ("LREO") with neodymium and praseodymium grades of 23.4% and 5.5% respectively, reported at a 0.2% TREO cut-off grade as of 28 February 2023. The MRE is classified as Measured, Indicated and Inferred Mineral Resources of 24%, 53% and 23% deposit tonnage respectively.

The MRE is located in two adjacent historically processed phosphogypsum stacks (termed Stack A and Stack B) in the Phalaborwa Mining Complex (Figure 1.1). The MRE update was completed in February 2023 and is based on additional drilling and sampling completed during 2022.

Figure 1.1 Location of the Phalaborwa Mining Complex

Figure 1.2 presents Google Earth images of the location. Figure 1.3 presents photographs of the stacks and Figure 1.4 presents a three-dimensional ("3D") plan view of the MRE showing drill traces and model blocks coloured by TREO %.

Figure 1.2 Google images of the Bosveld stacks (right –the position of the stacks in relation to the Phalaborwa Mining Complex and town; left – close-up of the stacks annotated as A and B)

Figure 1.3 View of Stack A (upper) showing existing surface water pond, and Stack B (lower) from Stack A with Phalaborwa Mining Complex in the background

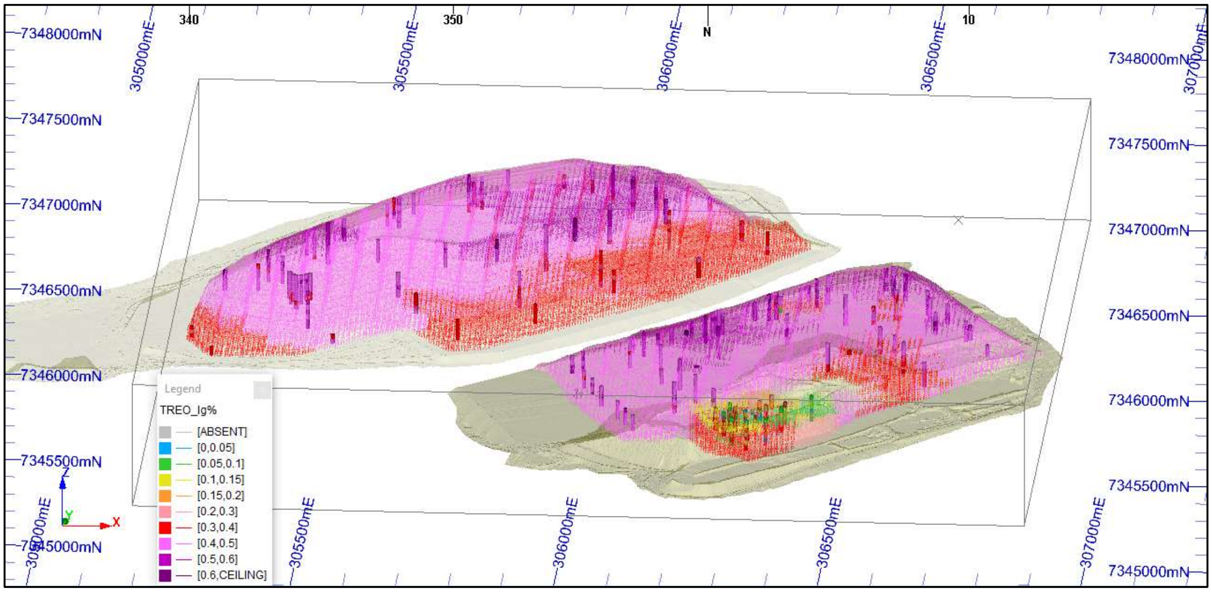


Figure 1.4 3D pseudo plan view looking north, model blocks and samples coloured by TREO % (3x vertical exaggeration)

Measured Mineral Resources are 24%, Indicated Mineral Resources 53% and Inferred Mineral Resources 23% of the total deposit tonnage estimated. Inferred Mineral Resources exist at depth and in the centre of the stacks where the surface water ponds (and elevated local stack water table) prevented drill access; as a result, sampling data is relatively low, underpinning confidence in Mineral Resource classification in these parts of the deposit. Table 1.1 (on the following page) presents the MRE tabulated by Resource classification at a 0.2% TREO cut-off grade.

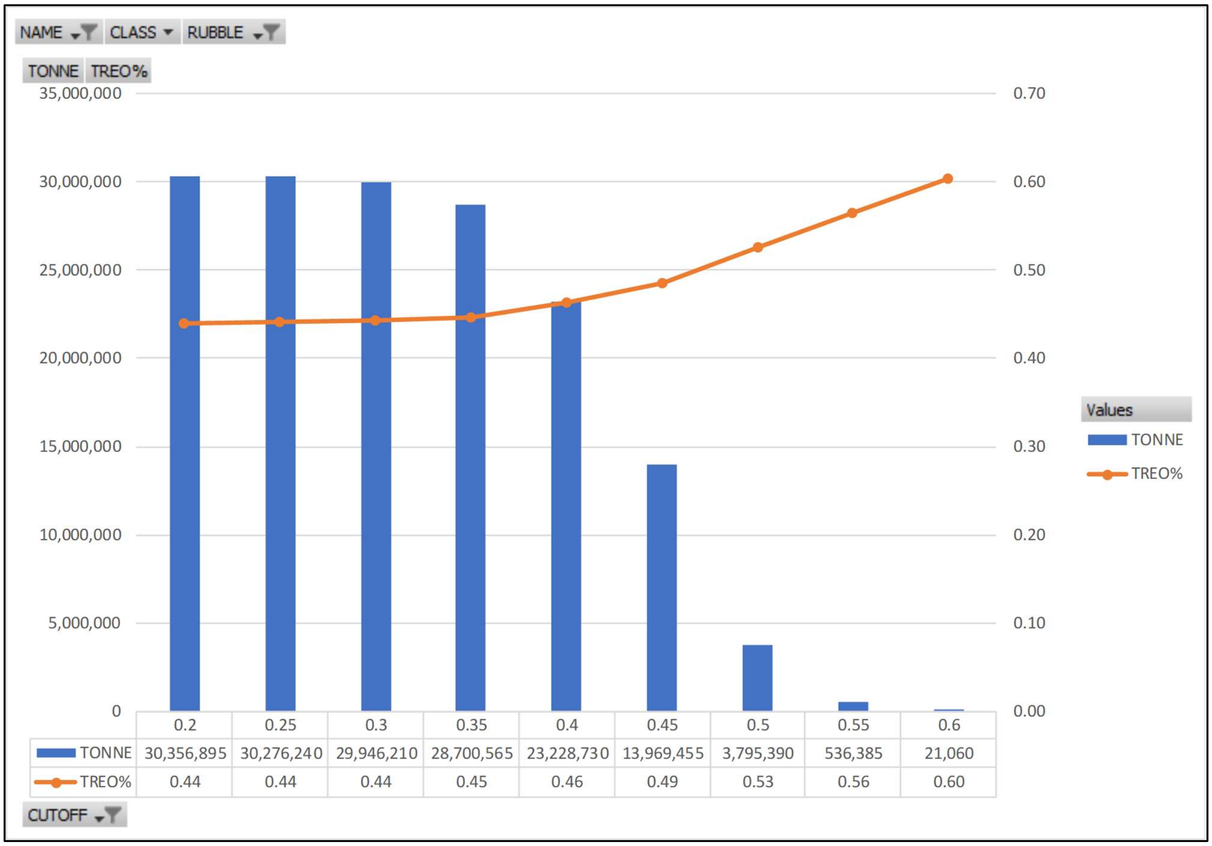
The cut-off grade of 0.2% TREO was selected on the basis that the stacks represent bulk material where 0.2% TREO is the minimum grade of the stacks. Selective mining is not considered an option and the average grade of the stacks using a 0.2% TREO cut-off has been demonstrated to be potentially economic, which supports the selection of this cut-off.

Table 1.1 MRE tabulated by Mineral Resource category

JORC 2012 classification	Stack name	Tonnes (Mt)	TREO %	NdPr Prop %	Nd Prop %	Pr Prop %	Dy Prop %	Tb Prop %	LREO Prop %	HREO Prop %	Ga (ppm)	F (%)	Th (ppm)	U (ppm)	In-situ dry bulk density
Measured	Stack A	4.5	0.46	29.5	23.6	5.8	1.0	0.3	92.3	5.5	10	0.82	48	1.40	1.20
	Stack B	2.8	0.48	29.3	23.4	5.9	0.9	0.3	92.5	5.4	9	0.80	46	1.89	1.20
	Total	7.3	0.47	29.4	23.5	5.9	1.0	0.3	92.4	5.4	10	0.81	47	1.59	1.20
Indicated	Stack A	11.6	0.43	29.1	23.6	5.5	1.0	0.3	92.2	5.5	10	0.70	51	1.60	1.20
	Stack B	4.5	0.45	28.9	23.2	5.8	0.9	0.3	92.6	5.3	9	0.79	43	1.94	1.20
	Total	16.1	0.44	29.0	23.5	5.6	1.0	0.3	92.3	5.4	10	0.73	48	1.70	1.20
Inferred	Stack A	4.1	0.42	28.3	22.9	5.4	1.0	0.3	92.3	5.3	11	0.61	49	1.63	1.20
	Stack B	2.9	0.42	29.0	23.3	5.6	1.0	0.3	92.6	5.3	8	0.82	40	1.88	1.20
	Total	7.0	0.42	28.6	23.1	5.5	1.0	0.3	92.4	5.3	10	0.70	45	1.73	1.20
GRAND TOTAL		**30.4**	**0.44**	**29.0**	**23.4**	**5.6**	**1.0**	**0.3**	**92.4**	**5.4**	**10**	**0.74**	**47**	**1.68**	**1.20**

Note: Reported at a 0.2% TREO cut-off grade. No constraining shell required as stacks above ground level. Adequate processing testwork completed to satisfy reasonable prospects for eventual economic extraction ("RPEEE").

Over 76% of the mineralisation modelled lies above a TREO grade cut-off of 0.4% (with an average grade of 0.46%). Figure 1.5 presents the grade-tonnage tabulation in 0.05% TREO increments.



	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6
TONNE	30,356,895	30,276,240	29,946,210	28,700,565	23,228,730	13,969,455	3,795,390	536,385	21,060
TREO%	0.44	0.44	0.44	0.45	0.46	0.49	0.53	0.56	0.60

Figure 1.5 Bosveld grade and tonnage curve in 0.05% TREO increments

Conversion of the remaining 23% of the Inferred tonnes to Measured and Indicated Mineral Resources is anticipated via the completion of additional drilling and sampling programs planned for completion during 2023 and 2024. Pumping of the surface water ponds and use of an alternative drilling method developed by Ardaman & Associates Inc. will be required to enable further drilling of the stacks and more accurate determination of the in-situ dry bulk density below the water table. It is anticipated that this additional data collection will be used to increase confidence and may facilitate conversion of currently defined Inferred Mineral Resources to higher categories and thus allow the full Mineral Resource to be the subject of a Mineral Reserves Study.

The MRE has been estimated by independent Competent Person, Malcolm Titley, of Maja, presented here with the following comments:

- The MRE is reported at a 0.20% TREO cut-off as of 28 February 2023. This updated MRE is similar in tonnes and grade to that which was previously reported (30.7 Mt at 0.43% TREO at a 0.20% TREO cut-off disclosed in September 2021) and increased confidence can be demonstrated as a result of recent infill drilling.
- The Competent Person notes that historically, some of the phosphogypsum precipitate was co-dumped with mining rubble and, in some areas, general rubbish. These identified areas, considered to be un-mineable, have been excised from the MRE. It is suggested that limited selective mining is required as 99.7% of the phosphogypsum tonnage is above the 0.2% TREO cut-off, with the exception of some soil zones mixed into the southern extents of Stack B (Figure 1.3).
- Material movement is anticipated to be dominantly via sluicing and pumping, with limited load and haul required, only to control the sluicing and pumping operation as appropriate.

- The MRE satisfies Reasonable Prospects for Eventual Economic Extraction ("RPEEE") based on the processing testwork completed to date which demonstrates a viable processing route, and in consideration of robust positive net present value ("NPV") as set out in the Preliminary Economic Assessment ("PEA") completed in September 2022. The Competent Person is of the opinion that the tonnage and average grade of the deposit, as estimated in 2023, has not materially changed since the previous estimate of 2021 and, as such, the conclusions of the PEA in 2022 as regards conceptual economics remain valid and have been considered as supporting the consideration of RPEEE of the 2023 estimate.
- The favoured mineral processing route uses a continuous ion exchange (to remove impurities) followed by REE leach and REE refining to produce three saleable products: neodymium/praseodymium oxide, dysprosium oxide, and terbium oxide. It should be noted that various intermediate product options may be possible depending on final economics, and pro-cut optionality should be explored during more detailed technical study. All processing is expected to be on-site at the Phalaborwa Mining Complex adjacent to the phosphogypsum stacks.

The MRE for the Bosveld Phosphogypsum REE Stacks A and B is classified as Measured, Indicated and Inferred Mineral Resources based on the guidelines defined in JORC (2012) utilising available drill coverage and associated sampling. The estimated Mineral Resource is considered suitable for Mineral Resource classification for the following reasons:

- Completion of site visit by the Competent Person from 11 to 12 December 2020 for two days to review the suitability of the auger drilling program, the overall stack geometry and geology, and the bulk density surface sampling process.
- Review and remote supervision of all subsequent drilling, sampling, and bulk density programs by the Competent Person.
- Adequate definition of TREO and REE mineralisation continuity derived from the two drilling and sampling programs.
- Appropriate sample assay analysis techniques with QAQC controls to define the tenor of TREO and REE grades.
- Adequate survey control using LiDAR to define the surface topography of both Stack A and B, combined with a reasonable estimate of the pre-stacking topography at the base of the stacks using surface trends from the topography around the edge of the stacks together with results of the drilling that penetrated the basal topography, to define the volume of each stack.
- Geological mapping and sampling used to excise areas where rubbish material was dumped together with the residue, and to excise areas currently being reclaimed for agricultural uses.
- An estimate of the average in-situ dry bulk density of 1.2 t/m^3 is used to estimate the mineral resource tonnage. The Competent Person acknowledges further bulk density testwork is required to improve the bulk density estimate based on potential variability with stacking depth, surface weathering and water saturation.
- Adequate initial metallurgical testwork and financial analysis completed to satisfy the requirement for RPEEE.

The following risks, uncertainties and opportunities are noted by Maja;

- Ardaman & Associates Inc. (phosphogypsum experts) suggest that bulk density may increase with depth below the saturated zone. Reliable estimates of tonnage below the saturated zone are a risk but should density values increase then some tonnage upside may be realised.
- Maja are reasonably confident that the drill program planned for Q3/Q4 2023 will provide sufficient additional data points to upgrade currently defined Inferred Mineral Resources to higher categories.

- There exists some potential to realise additional Mineral Resource below the rubble material if reliable drilling can be deployed to test this zone.
- Layered mineralisation within the mixed zone (between soil horizons) may exhibit a more complex boundary interface making extraction without significant dilution, impossible. This is a current risk which should be better understood and evaluated as part of further study.

Rainbow plans to complete the following work during 2023:

1. Metallurgical test work utilising the bulk samples collected during the Phase 2 RAB drilling phase to finalise the processing flow sheet based on utilisation of a pilot plant.
2. Utilise a drilling process called 'pitcher drilling' in an effort to collect in-situ sample which more accurately represent the in-situ dry bulk density. Based on discussion with professionals with expert experience in these types of stacks, the understanding is that in-situ dry bulk density increases with stack depth.
3. Update the MRE if warranted by the results from activities 1 and 2 above.

Maja consider these work programs to be valid and required to increase confidence ahead of more detailed techno-economic study. In addition, Maja recommends;

4. Pumping of surface water ponds to provide access to central areas of the stacks where additional infill drilling is required to facilitate potential upgrade of Inferred Mineral Resources to higher categories, and to obtain more accurate in-situ dry bulk density below the water table. Alternative drilling methods need to be evaluated and a suitable method selected to provide infill drill coverage.
5. Should additional drilling facilitate upgrade of Inferred Mineral Resources to higher categories, any updated MRE should be used as an input into more detailed techno-economic study and Mineral Reserves definition.

2 PROJECT LOCATION AND TENURE

2.1 Project Location

The Bosveld deposit is located 6.5 km from the town of Phalaborwa, South Africa. Access from the town is via all-weather roads. Phalaborwa is 572 km northeast from Johannesburg, a six-hour drive on sealed roads. Private charter flights are also available to access the Project, as well as commercial flights from Cape Town and Johannesburg.

Figure 2.1 Location of Rainbow REE Bosveld Project in Phalaborwa, South Africa

2.2 Land Tenure

The project, comprising Stack A and Stack B being the subject of investigative work with a view to reprocessing material from the Stacks to extract rare earth elements, is 85% owned by Rainbow and 15% owned by Bosveld Phosphates Pty Ltd following an agreement dated 27 June 2023. Rainbow has a right to acquire the remaining 15%, subject to certain conditions being met. Prior to 27 June 2023 the Project was 100% owned by Bosveld and Rainbow had a right to earn into a 70% ownership by completing a pre-feasibility study.

Figure 2.2 shows the land ownership by Bosveld through surface rights originally granted under the Mining Rights Act, 1967, not all of which are required for the Project.

These surface rights were registered with the Mineral and Petroleum Titles Registration Office when the Mining Rights Act, 1967, was replaced by the Minerals Act, 1991, and therefore are rights to the surface in perpetuity granted to Bosveld. The fact that they were originally granted under the Mining Act and that the gypsum stacks that sit on them contain a defined Mineral Resource do not mean that the rights or the Mineral Resource are considered minerals under SA legislation. The gypsum stacks are considered moveable property under SA legislation and are therefore outside mining legislation.

Bosveld has an obligation to grant Rainbow a long-term notarial lease over the surface area required for the Project and to transfer ownership of the gypsum stacks to an SPV at a time of Rainbow's choosing, with a long stop date of 31 December 2025.

The following is extracted from the legal opinion drafted for Rainbow;

- The gypsum stacks are situated on three surface rights having their origin surface rights permits originally granted in term of the Mining Rights Act, 1967, namely;
  - Certain Surface Right No 175/1976 on the farm Wegsteek 30, Registration Division L.U., Northern Province, RMT No O 240/74, t 316.4085 hectares in extent held under Surface Right No 175/1976 and Diagram RMT No O 240/1974 held by Bosveld under a Deed of Transfer 09/2013.
  - Certain Surface Right No F5/1964 on the farm Wegsteek 30, Registration Division L.U., Northern Province, RMT No 364, 145.6104 hectares in extent held under Surface Right No F5/1964 and Diagram RMT No 354 held by Bosveld under Deed of Transfer 10/2013.
  - Certain Surface Right No 92/1969 on the farm Wegsteek 30, Registration Division L.U., Northern Province, RMT No 364, 3.4261 hectares in extent held under Surface Right No 92/1969 and Diagram RMT No 0211/1968 held by Bosveld under Deed of Transfer 05/2013.

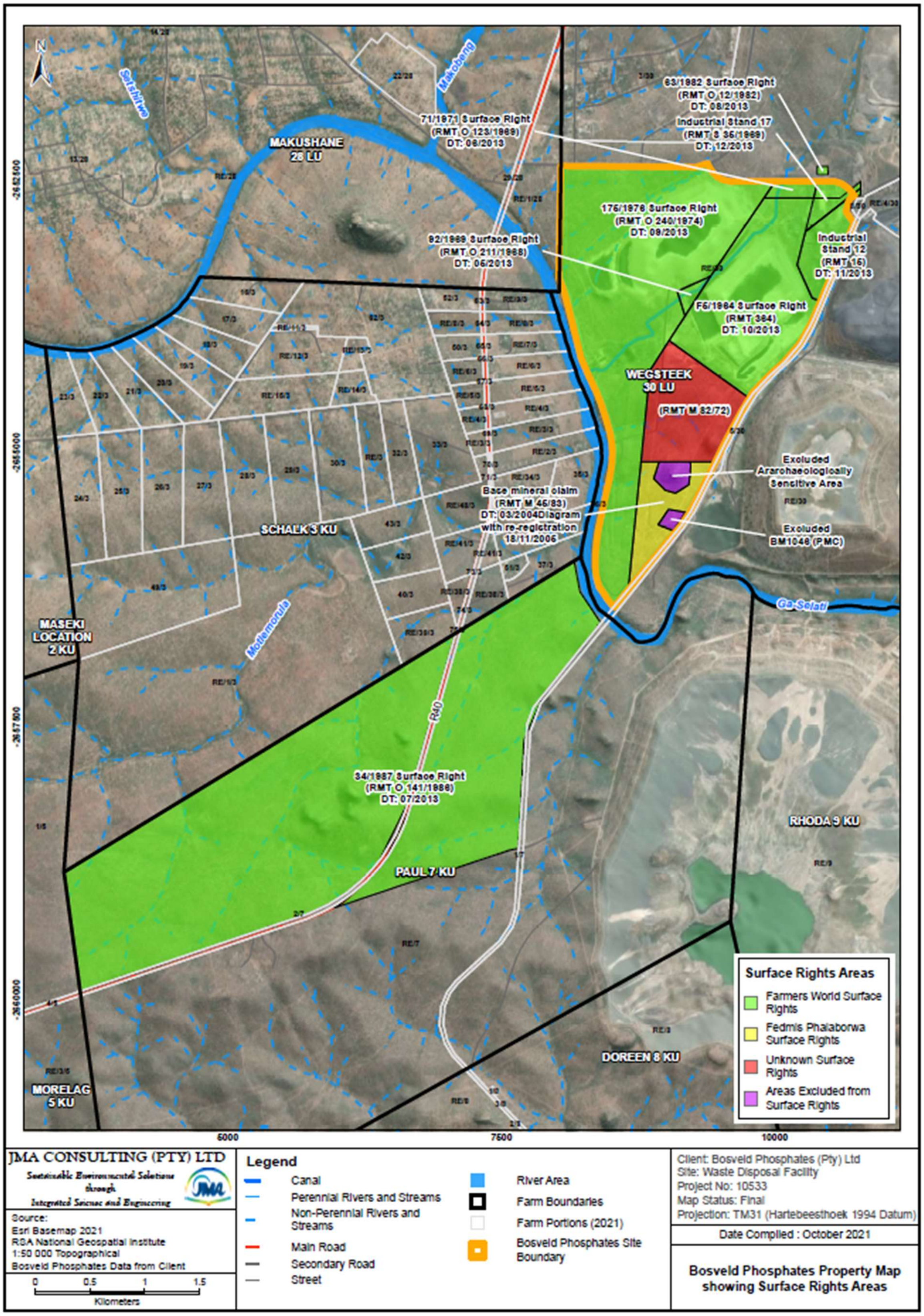


Figure 2.2 Land Tenure Map (2021)

3 PROJECT HISTORY

Following the discovery of the source of REE as being the Phalaborwa Igneous Complex ("PIC") discovered by ET Mellor in 1904, apatite/phosphate mineralisation was identified in 1931 and 1951, after which time exploitation of the deposit began. The Industrial Development Company acquired the PIC ownership and established the Phosphate Development Company Limited ("PDC"). PDC commissioned a concentrator plant in 1953 treating foskorite ore mined from the Loolekop orebody situated in the central part of the PIC (Figure 4.1). In 1987, PDC was renamed Foskor Limited ("Foskor").

Since the mid-1970s, the PIC has been mined using both open pit and underground mining methods by Foskor and others to produce products including copper, vermiculite, magnetite, zirconium, phosphoric acid ("PA") and nickel sulphate.

A processing plant to extract PA from the phosphate concentrate was built in 1964 by Bosveld Phosphates with a capacity of 200 tpd. A second PA plant was added by Fedmis Phalaborwa (Pty) Ltd in 1968 with a capacity of 160 tpd. The current PA plant was built in 1976 with a capacity of 575 tpd, and the first two plants decommissioned. BP operated the PA plant from 2012 to 2014, after which production of PA was stopped and the plant placed on care and maintenance.

The manufacture of PA from phosphate concentrate produced a phosphogypsum waste which has been deposited on two large stacks. The REE in the phosphate ore mined reported primarily to the phosphate concentrate delivered to the PA plants. During PA production, the REEs were broken down and re-precipitated with the phosphogypsum as calcium-aluminium-REE-fluoride minerals. As a result, the REEs from the phosphate ore have been upgraded and represent a resource of economic interest.

4 PROJECT GEOLOGY

4.1 Phosphogypsum Stack Development

The source of the REEs is the PIC discovered by ET Mellor in 1904 (Figure 4.1). The apatite/phosphate mineralisation containing the REEs in the PIC was identified in 1931 and in 1951.

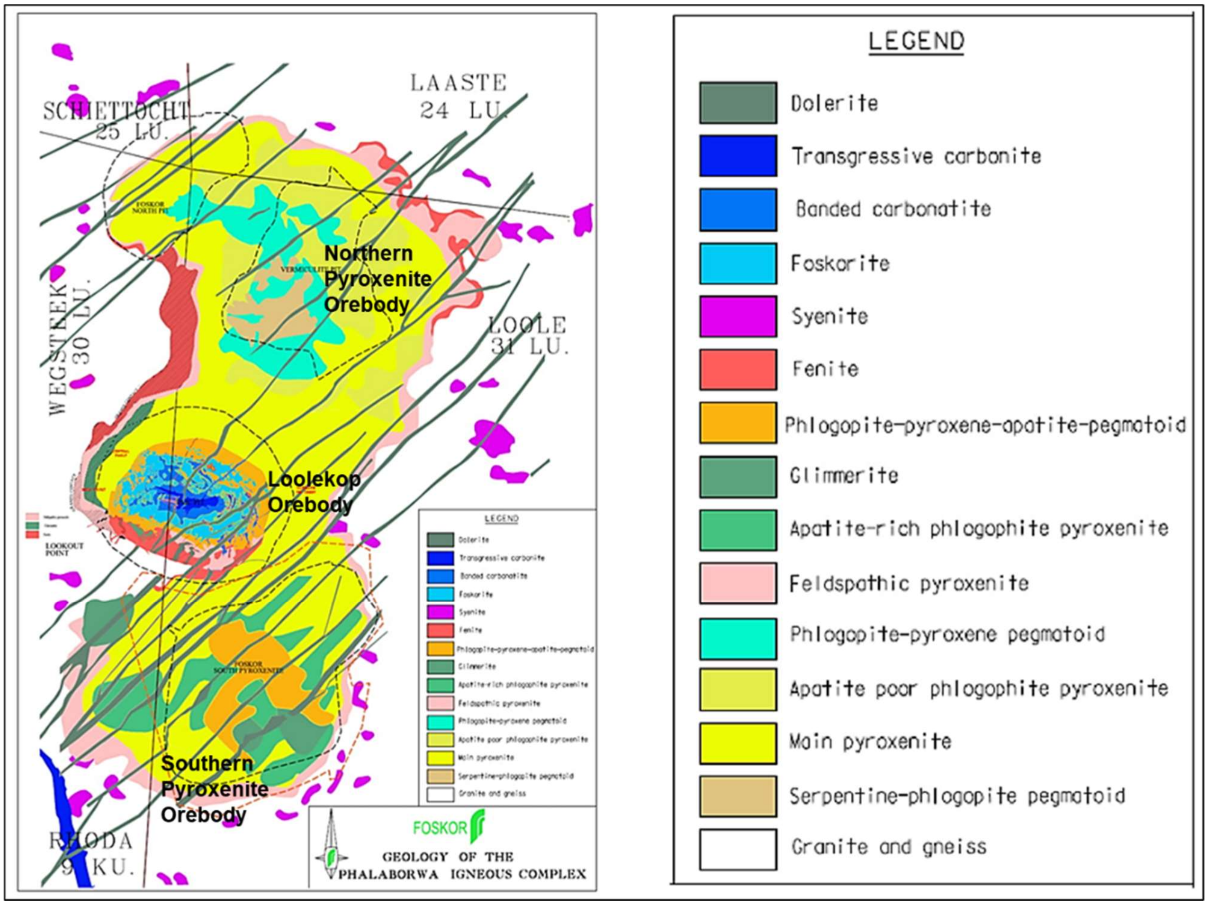


Figure 4.1 Geology of the PIC

The host apatite ore that originally contained the REEs has a favourable distribution of individual elements dominated by neodymium, praseodymium and dysprosium. The REEs were upgraded by the Foskor concentration process and then again during the PA production process where REEs report to the phosphogypsum residue deposited on the stacks.

The two stacks annotated as “A” and “B” are situated to the west of the Phalaborwa Mining Complex. The residue stacks were deposited on a relatively flat base consisting of soil and gravel which was intersected during Rainbow’s sampling programs.

In both stacks, the material is made of white fine-grained friable phosphogypsum which is indurated/cemented at surface. The gypsum residues have been deposited as a thinly bedded layered sediment pack (Figure 4.2A); however, various other facies have also been observed at surface (Figure 4.2C and Figure 4.2D). The gypsum takes a grey colouration at surface (caused by magnetite dust from the nearby dump used to feed to the magnetite plant) but becomes white underneath (Figure 4.2E and Figure 4.2). Around and probably in the floor of the acid water ponds, the surface material is made of hard/cemented gypsum with a 5–10 cm thick crust (Figure 4.2B).

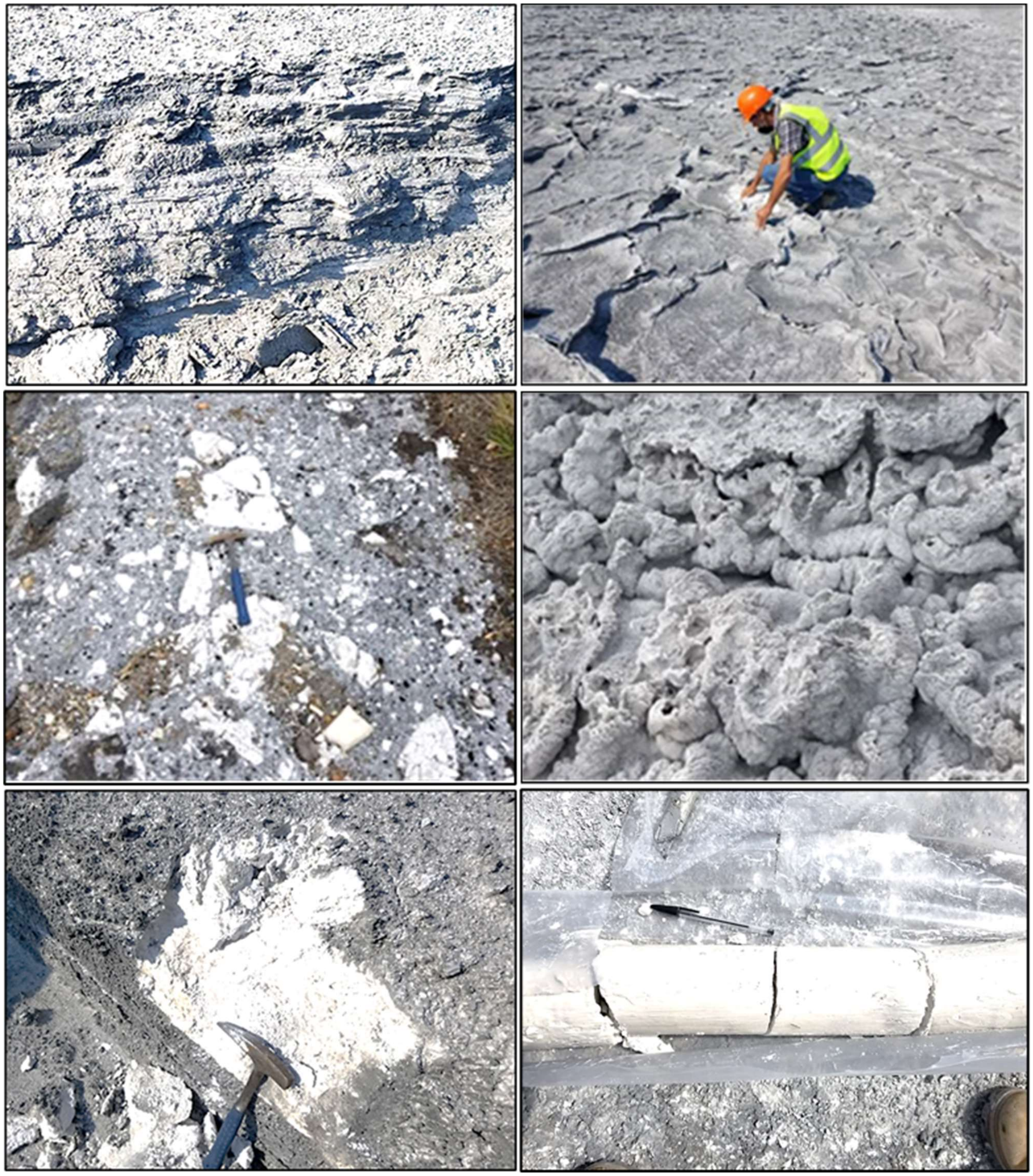


Figure 4.2 A – Horizontally laminated facies; B – Indurated crystalline carapace; C – Breccia facies; D – Botryoidal-like crystalline surface; E – Grey crust and white phosphogypsum; F – Sonic drill core of white phosphogypsum (collected from c. 7 m below surface)

5 RESOURCE DEFINITION DRILLING

Auger and open-hole drilling carried out by Rainbow in 2020 and 2022 is presented in Figure 5.1 and Table 5.1. Geology logging of the drilling has shown that the phosphogypsum material is uniform in colour and grain size from the surface to the bottom of the stacks. Moisture content increases with depth, ranging from relatively dry to totally sloppy, to a point that samples cannot be recovered using conventional drilling methods. Not all holes were sampled. None of the drilling methods were successful below the perched internal water table.

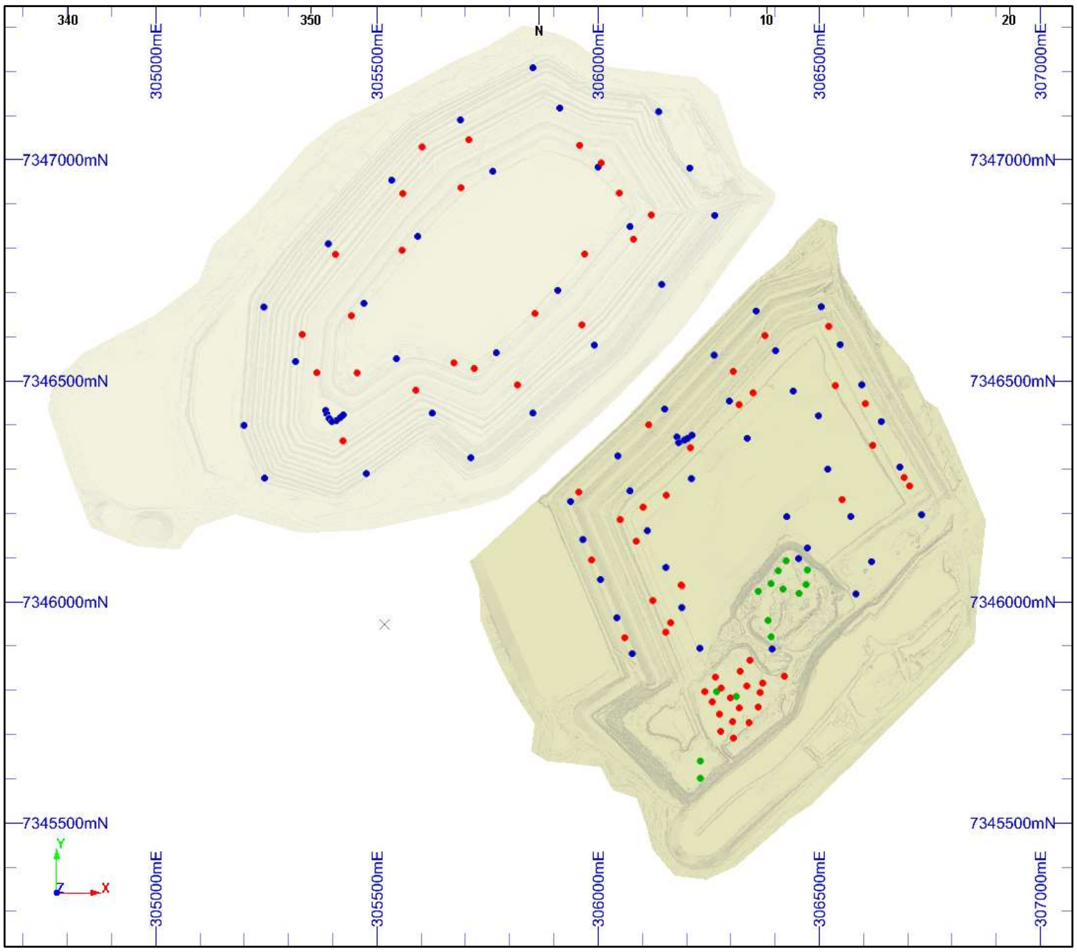


Figure 5.1 MRE definition drilling (blue – Phase 1 auger; red – Phase 2 open hole; green – rubble surface pits)

Table 5.1 Drilling summary

Stack	Hole type	No. of holes	Metres drilled
Stack A	Auger (AG)	33	501.2
	Sonic (SD)	5	50.0
	Open-hole rotary (RAB)	18	444.0
	Subtotal	**56**	**995.2**
Stack B	Auger (AG)	39	555.1
	Sonic (SD)	4	67.5
	Open-hole rotary (RAB)	39	678.0
	Surface pits (Excavator)	14	62.0
	Subtotal	**96**	**1,362.6**
TOTAL DRILLING		**152**	**2,357.8**

Table 5.2 Number of samples used in the MRE

Stack	Hole type	Samples (m) for MRE	No. of samples	No. of TREO assays
Stack A	Auger (AG)	501.0	334	333
	Open-hole rotary (RAB)	414.0	414	414
	Subtotal	**915.0**	**748**	**747**
Stack B	Auger (AG)	543.0	362	362
	Open-hole rotary (RAB)	536.0	536	525
	Surface pits (Excavator)	4.0	4	4
	Subtotal	**1,083.0**	**902**	**891**
Stack B Rubble Area	Auger (AG)	10.5	7	7
	Surface pits (Excavator)	34.0	34	34
	Subtotal	**44.5**	**41**	**41**
TOTAL SAMPLES AND REE ASSAYS		**2,042.5**	**1,691**	**1,679**

Table 5.3 Number of samples used in the MRE

The Phase 1 auger drilling was successful but had depth limitations due to the stickiness of the material. The Phase 1 resource drilling was completed during the period 2 to 17 December 2020. The drilling was conducted by SGS South Africa ("SGS") and was undertaken using a hand-operated power auger. In total, 1,056.3 m were drilled from 72 holes over the two stacks, Stack A and Stack B.

The Phase 2 open-hole rotary air blast ("RAB") was the most successful, producing large samples from an 8.5" drill bit which were suitable for both mineral resource estimation and metallurgy testwork. The Phase 2 resource drilling, which included two attempts at sonic drilling by Rosond during the period 1 to 12 May 2021 and then again by EDRS on 7 June 2021, was completed using RAB drilling during the periods 9 June to 2 July 2022 and then again during November 2022.

Sonic drilling had poor penetration rates and poor recovery and was abandoned after two attempts with the two contractors. Some bulk density samples were obtained from the first attempt at sonic drilling.

The drillholes were located on the ground using a handheld global positioning system ("GPS") based on planned grids.

Stack A auger holes were drilled on a nominal 200 m x 150 m grid with 33 holes for 501.2 m drilled. Twenty-seven (27) of the initially planned 29 holes were drilled; the remaining two were not drilled due proximity to the pond in the centre of Stack A. An additional four holes were drilled at a right angle around PAH08 at 10 m spacing to test close-spaced grade variability, with a further two holes drilled to fill gaps in the planned grid. Unfortunately, the SGS auger drill had inadequate power to drill to the bottom of Stack A from the top surface for all eight of the planned holes in this area, with the deepest hole in Stack A only reaching 27 m (Stack A is estimated to be up to 45 m thick). The RAB holes were drilled to infill the auger holes, where drill access was suitable. The RAB holes achieved greater depths but sample collection at the perched water table was impossible, so drilling was terminated.

Stack B was mostly drilled from the top to the natural topography basal surface and were auger drilled on a nominal 150 m x 100 m grid with 39 holes for 555.1 m drilled. Thirty-three (33) holes of the original planned 41 holes were completed, five of the planned holes not drilled were situated in areas mapped as containing rubble which prevented drilling, and three holes were inaccessible due to proximity to the pond in the centre of Stack B. The 39 auger holes drilled included six that were drilled at a 10 m right angle around hole PAH52 to test close-spaced grade variability. The RAB holes were primarily infill and drilled to collect metallurgy testwork bulk samples. The November RAB holes were focused on definition of the extractable phosphogypsum in the area located between the two rubble zones.

6 VOLUME MODEL DEVELOPMENT

Stack A and B plus local surrounds were surveyed by Drone Solutions International (DSI) during the period 27 April to 1 May 2021 and again in June 2022 (to update the volume of the area being mined as fertiliser – central south of Stack B). Ground control points were positioned and surveyed to provide accurate controls. The survey grid was WGS84/36S.

The survey was conducted at a height of ~75 m and 8 m/s flight speed generating 80–100 survey points per square metre employing a light detection and ranging (LiDAR) scanner attached to a multi-copter drone.

A bathymetric survey was conducted on the acid water ponds located in the centre of both stacks using a floating sonar depth sensor. This data was used to calculate the pond basal surface.

A high-resolution ortho-mosaic image was captured with a mirrorless Sony A600 camera mounted to a fixed-wing drone at 120 m above ground level. The resultant 2.5 cm resolution ortho-mosaic was geo-referenced using the surveyed ground control points.

The combination of the LiDAR survey, bathymetric survey and photographic imagery was used by DSI to create the XYZ points representing the upper surface of the phosphogypsum material for both Stack A and B at a 0.5 m XY resolution.

The Competent Person created a digital terrain model ("DTM") for both Stack A and B at a 1 m XY resolution of the gypsum upper surface to estimate the volume of phosphogypsum (Figure 6.1).

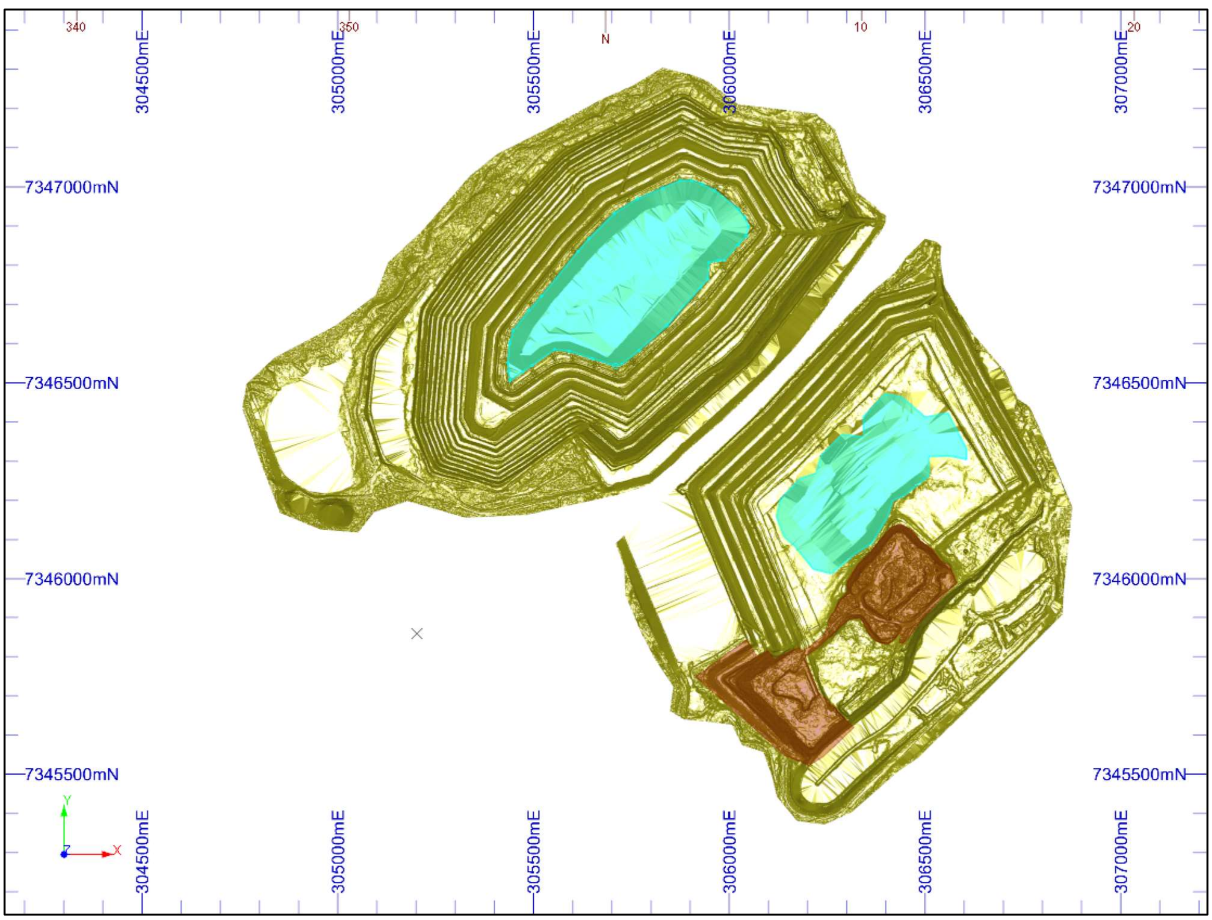


Figure 6.1 DTM surface of Stack A and B, with ponds in blue and mixed rubble and phosphogypsum zone in brown

Surface mapping identified an area (shown in brown in Figure 6.1) that contains a mixed zone of rubble and phosphogypsum. The depth of the rubble is unknown but based on personal communications with Bosveld staff (email to D. Dodd, 23 May 2021), it is understood that rubble and gypsum were dumped simultaneously in the designated area since 1965. A program of surface pitting in July 2022 using an excavator to a depth of 3 m to 4 m confirmed this area was dominated by rubble, so the complete area beneath the rubble was excluded from the mineral resource. The area between the two rubble zones contained two layers of soil and gravel within the phosphogypsum. Close-spaced drilling was required to model these soil/gravel zones, which were removed from the mineral resource.

The central ponds containing residual solution (acidic water and dissolved minerals) are shown in blue. These areas could not be pumped dry at the time of drilling to enable access.

The topography surface derived from the LiDAR survey at the edge of each stack was isolated and projected underneath each stack to create a basal DTM representing the original topography surface prior to the construction of the stacks. This basal layer was further refined, utilising drillhole data, where the base of the stack was intercepted during drilling (refer to Figure 6.2). The yellow periphery zone is the "natural topography" at the edge of each stack. The pink dots are the base of the last sample of REE gypsum before intercepting the base of the stack. The pale green surface is the interpolated "natural topography" prior to stack dumping of residue.

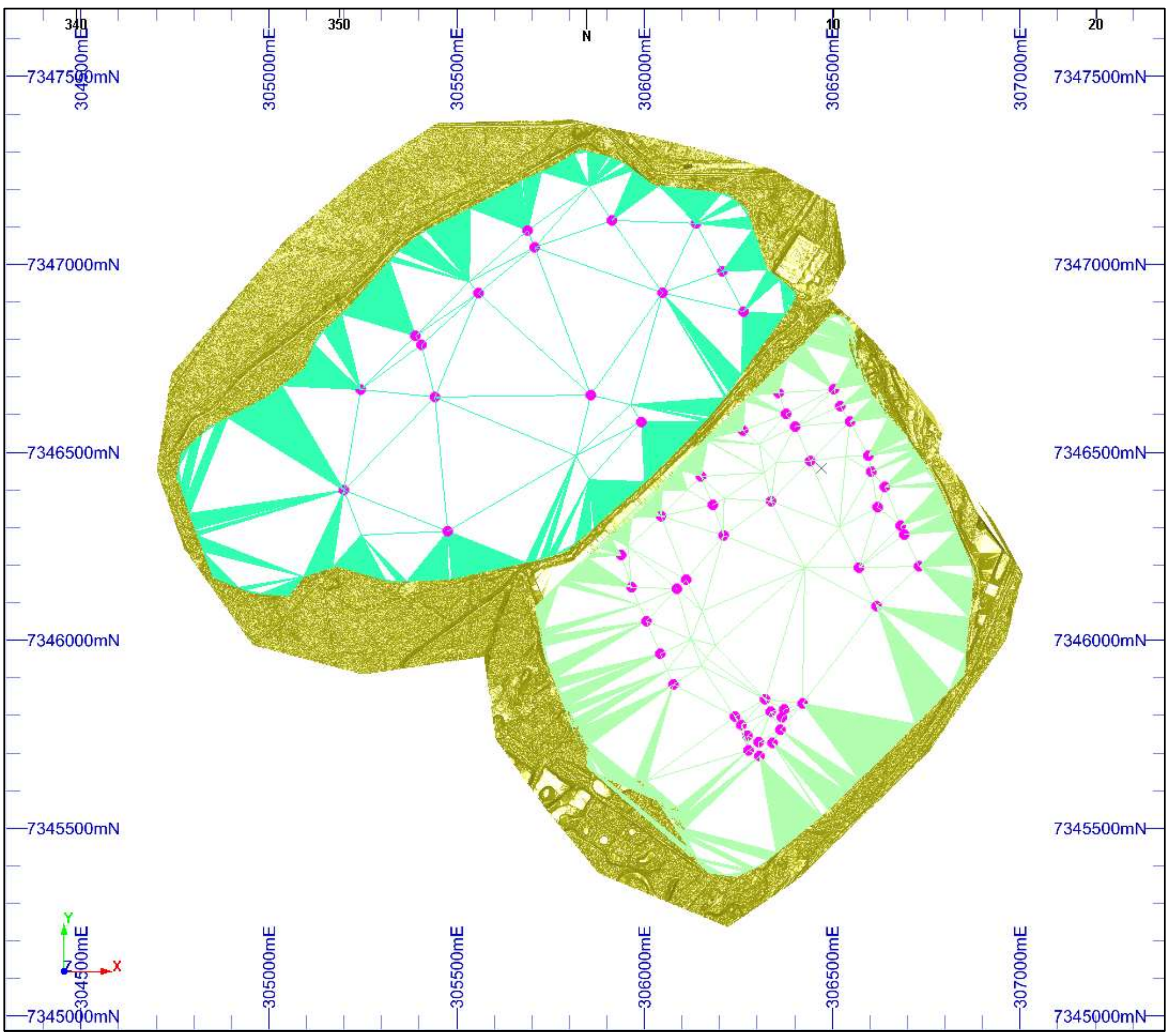


Figure 6.2 **Basal surface beneath each stack interpolated from surrounding topography and drillhole intercepts (pink)**

7 SAMPLING AND ASSAYING

7.1 Sampling and Analysis

The SGS auger drill rig utilised a rotating spiral auger encased in a stainless-steel core barrel to drill into the phosphogypsum material. This method ensured that contamination of the sample was minimised because the sample was contained within the barrel and not mixed with material above the drilling face. The SGS rig utilised a 50 mm nominal bore drill rod and produced between 3.5 kg and 7.0 kg of sample per 1.5 m increment. On withdrawing of the core barrel, the material recovered is extruded onto a 5 m plastic half-pipe located on a trestle to ensure total sample collection. The spiral is then removed from the core barrel and any remnant sample removed and added to the material on the half-pipe.

Auger sampling was completed on 1.5 m intervals. The 1.5 m interval samples were bagged in pre-marked and numbered plastic bags with 702 samples collected and sent for preparation and chemical analyses to SGS in Randfontein, Johannesburg. One sample (70600 – PAH85 4.5–6.0 m) was lost and 35 samples (70713 to 70751) did not have assay results for thulium and thorium.

Phase 2 drilling was completed in three increments. The first during the period 1–12 May 2021 utilising a sonic drill rig, however, this method proved unsuccessful due to stickiness of the material and no holes were completed to a satisfactory standard that could be utilised in the MRE.

The second increment from the 8 June to 2 July 2022 utilised an open-hole rotary percussion (RAB) drilling with an 8.5” drill bit. Assay samples were collected every 1 m. In addition to assay samples, bulk metallurgical and moisture samples were also collected.

The third increment was a completed during November 2022, and focused on the rubble (Hemi-Dump) area. This program focused on determining which part of the Hemi-Dump was potentially mineable. Pitting using an excavator tested the surface to a depth of 3–4 m and confirmed the extents of the un-mineable rubble zone. The pitting also identified a zone between the two rubble zones (Figure 6.1) which was amenable to drilling. This zone was subsequently drilling using the RAB rig on a roughly 40–50 m grid. The tighter grid was required to understand the depth of surface soil and model the intermediate soil layer (Figure 7.1).

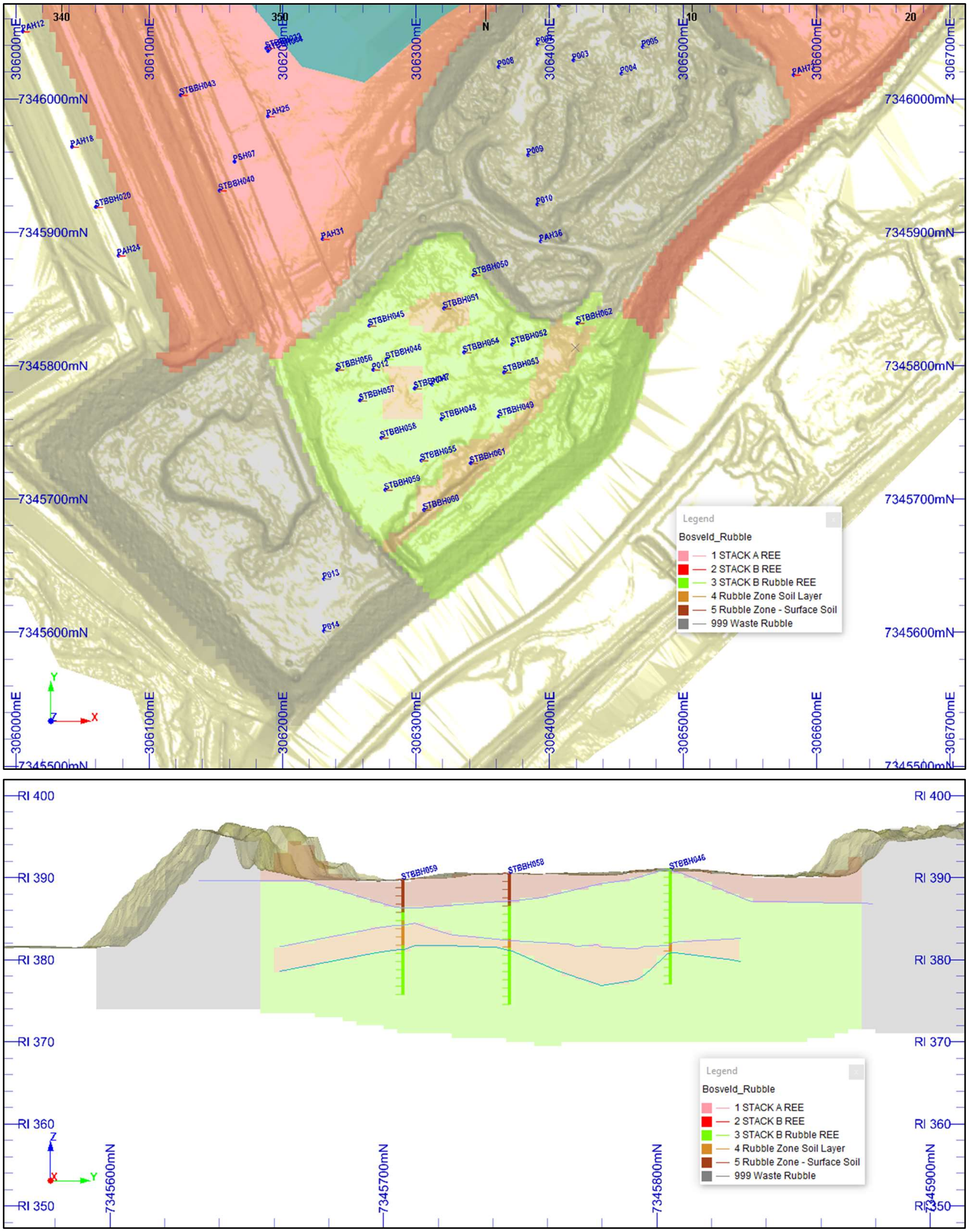


Figure 7.1 Plan view of REE zone within Hemi-Dump on Stack B (top), south-north section with 3x vertical exaggeration (bottom)

7.2 Quality Control and Quality Assurance

Quality control and quality assurance ("QAQC") samples (certified standards, blanks, and field duplicates) were inserted at a ratio of 18%. Umpire analysis was completed at ALS Johannesburg with 35 samples (5%) submitted for the Phase 1 drilling. No umpire analysis was considered necessary for the Phase 2 drilling. Of the 18.3% QAQC samples taken, 4% were discarded due to laboratory mix-ups; as a result, QAQC samples represented 14.5% of the samples taken (Table 7.1).

Table 7.1 QAQC sampling completed

Category	Label	Samples taken	Proportion	Samples used	Proportion	Average Ce	Average Dy	Average Gd	Average Nd
CRM	AMIS0276	75	4.5%	60	3.6%	215.0	8.4	8.4	53.8
CRM	AMIS0275	80	4.8%	65	3.9%	381.0	22.0	25.2	188.0
Blanks	AMIS0681	74	4.4%	54	3.2%	21.4	1.0	1.5	11.9
Field duplicates		79	4.7%	64	3.8%	1,500.7	36.7	132.0	878.4
Total		**308**	**18.3%**	**243**	**14.5%**				

Due to the complexity of the digestion methods used to extract REEs, there was some variance between standards, duplicates and umpire analysis. However, the Competent Person is satisfied that the QAQC results adequately support the REE grades, and the results of the sample analysis are suitable for the MRE.

Most importantly, the grades of the bulk samples (14 batches) collected for metallurgical testwork, which included back calculation of the sample head grade, matched the geological subsample TREO grade to within 3%. Local variability from batch-to-batch ranged from -30% to +20%, demonstrating the complexity of REE chemical analysis. This variability has demonstrated the requirement to rely on average grades from a large volume (and large number of samples) to provide grade confidence. The MRE is based on the premise of large volume bulk processing and not selective mining or subsampling.

A summary of the QAQC completed is presented in Table 7.1. Figure 7.3 to Figure 7.5 present examples of the QAQC results.

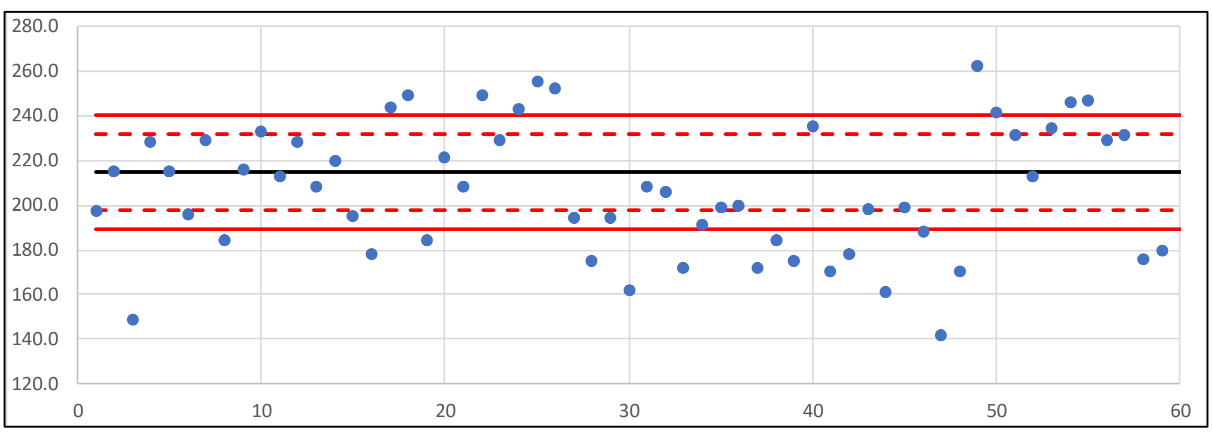


Figure 7.2 QAQC CRM AMIS0276 for cerium by number representing start to end timing

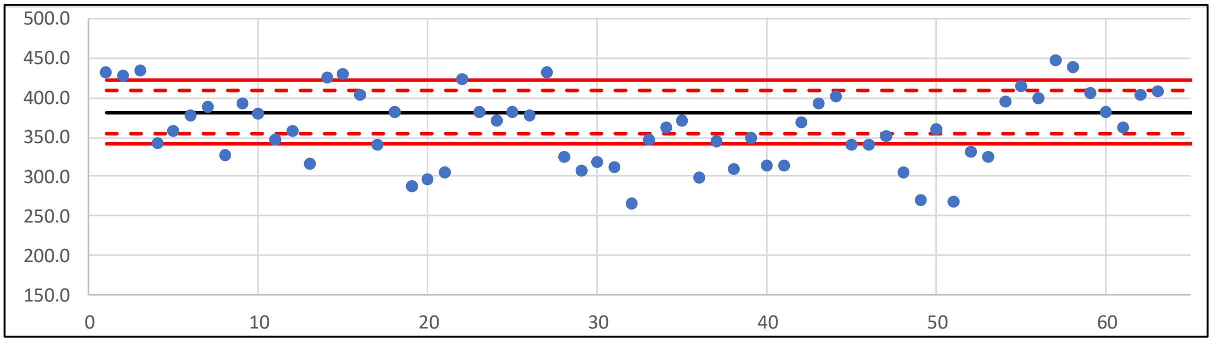


Figure 7.3 **QAQC CRM AMIS0275 for cerium by number representing start to end timing**

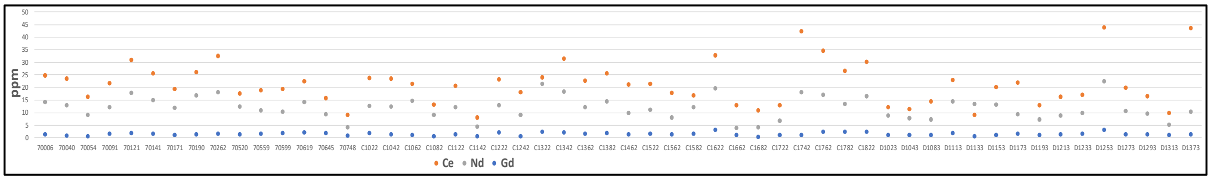


Figure 7.4 **QAQC blanks by sample number representing start to end timing**

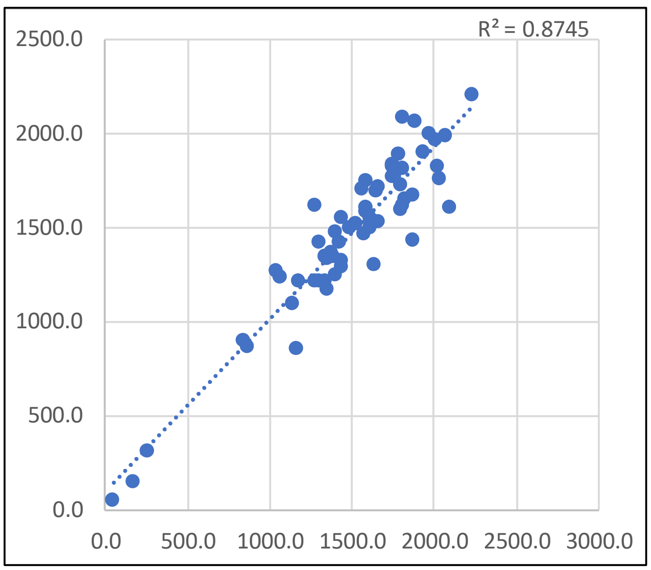


Figure 7.5 **Cerium QAQC field duplicates**

8 IN-SITU DRY BULK DENSITY

In-situ dry bulk density is used to estimate the mineral resource dry tonnes and in-situ metal content. Moisture content and sample mass were measured during the drilling programs. This data was useful for estimation of the in-situ dry bulk density.

The average dry mass of the 702 auger samples was 4.375 kg with an average moisture content of 18% (with 15% of the samples having a moisture content between 25% and 47%).

During the Phase 1 drilling campaign, additional samples were collected for bulk density estimation from the surfaces of the two stacks:

- 234 samples were collected using a one-litre volume steel mould hammered into selected surfaces of the stacks (e.g., access cuts and mining faces)
- 33 were specimen lumps weighing in average 364 g of reasonably competent gypsum found at the surface on the stacks.

The 234 one-litre samples yielded bulk density values ranging from 0.60 t/m^3 to 1.45 t/m^3 with an average of 1.00 t/m^3. The 33 hand specimen lumps samples were dried, and the bulk density analysed using the wax coated water immersion method. Fourteen (14) had an average bulk density of 1.27 t/m^3; the remaining 19 samples floated (bulk density <1.0). The potential issue with these two sample types is that they represent the weathered top 10–50 cm of the stacks, where weathering processes have affected the porosity of the original precipitate, making these samples unrepresentative of the bulk density of the entire stacks.

A literature review of phosphogypsum tails deposits indicated a bulk density of around 1.1–1.3 t/m^3, which also correlates with the estimated stack volumes and stated historical production of around 35 Mt of tailings. This information justified further work to obtain a representative set of samples from the stacks to estimate the bulk density. A bulk density drilling program was initiated in April 2021; the program included a sonic drilling method as an attempt to recover competent sections of core at depth.

The recovery of intact unbroken core from the Phase 2 sonic drilling was below expectation, with only 19 pieces of core recovered from the drilling which were competent enough to determine bulk density using the measured volume of the core cylinder divided by dry mass of core method. Five of the samples were cross-checked using the wax immersion method with identical results (within ±1–3%). The bulk density values were plotted in 3D (Figure 8.1) and reviewed spatially to determine if there were any obvious depth trends and statistically to review the data distribution. A histogram of the results is presented in Figure 8.2. The results show a normal distribution of values with a mean and median of 1.66 t/m^3 and 1.67 t/m^3, respectively.

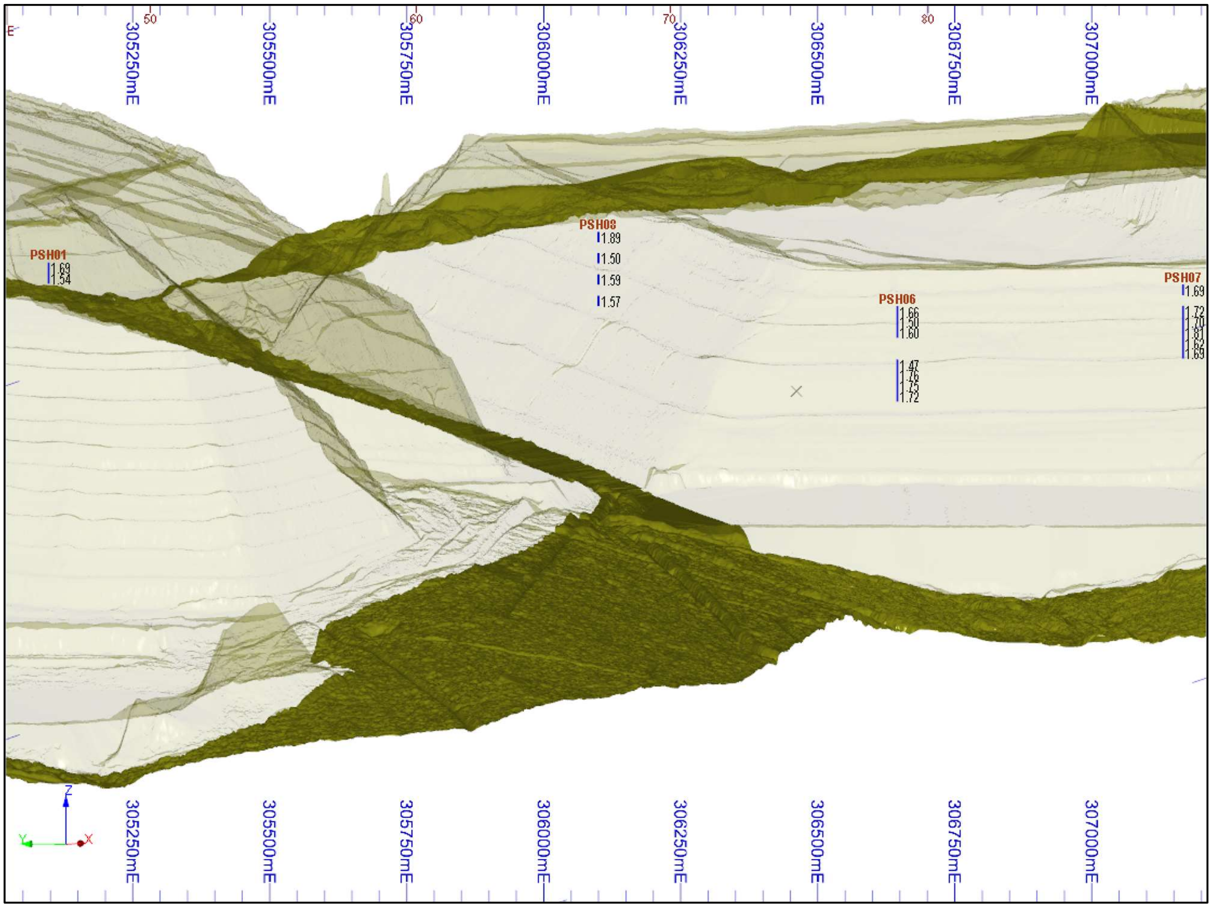


Figure 8.1 5x vertical exaggeration 3D image, showing bulk density results from four sonic drillholes completed on Stack A (one hole) and Stack B (three holes) during the Phase 2 drilling program

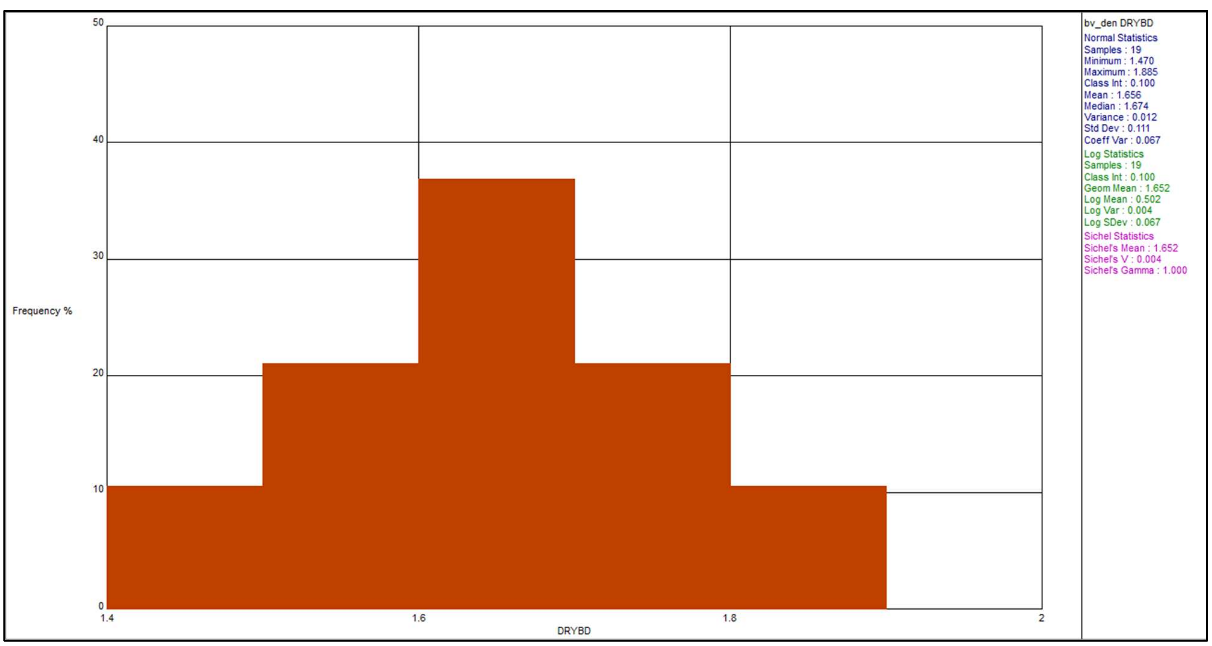


Figure 8.2 Histogram of bulk density distribution from the 19 sonic drilling core samples

The moisture content of the stacks is variable. Near-surface moisture content averages around 10–15%, increasing with depth below 10 m to 20–30%, with some areas being saturated near the base of the dumps and proximal to the central solution ponds.

In June 2022, an infill drilling program was completed with the following objectives:

- Using a higher-powered sonic drill, attempt to obtain intact in-situ core samples suitable for dry bulk density determination
- Obtain assay samples from areas not accessed in the previous drill campaigns
- Collect at least 20 tonnes of representative bulk sample for metallurgical pilot plant testwork.

The sonic drill was expected to deliver all three objectives but struggled to achieve reasonable production rates, failed to obtain intact samples suitable for bulk density, and was subsequently abandoned after drilling 26 m of the first hole planned on Stack A. The sonic drill was replaced by a 216 mm (8.5 inch) open hole rotary (RAB) drill rig (Figure 8.3).

Figure 8.3 Open-hole RAB drill rig

The RAB drilling had good production rates and good sample recovery (as chips/powder) in dry and damp areas. Near the base of the stacks and proximal to the ponds, the material was saturated and unable to be efficiently recovered and also due to mixing/contamination unlikely to be representative of the drilling interval.

Assay sampling was completed at 1 m intervals with moisture samples collected every 2 m. Every 1 m sampled was weighed and the sample recovery estimated by the drilling geologist. A total of 713 m was sampled.

Sample intervals with recovery greater than 70% and moisture recorded as dry or damp were considered suitable for dry bulk density determination. A total of 216 samples were available. Dry mass was calculated by application of the laboratory determined moisture content and volume estimated from the drillhole volume multiplied by the recovery. Figure 8.4 presents a histogram of the dry bulk density results. Outliers with values <0.7 t/m^3 and >1.7 t/m^3 were removed to avoid any bias. In both cases, the resulting average dry bulk density was 1.2 t/m^3.

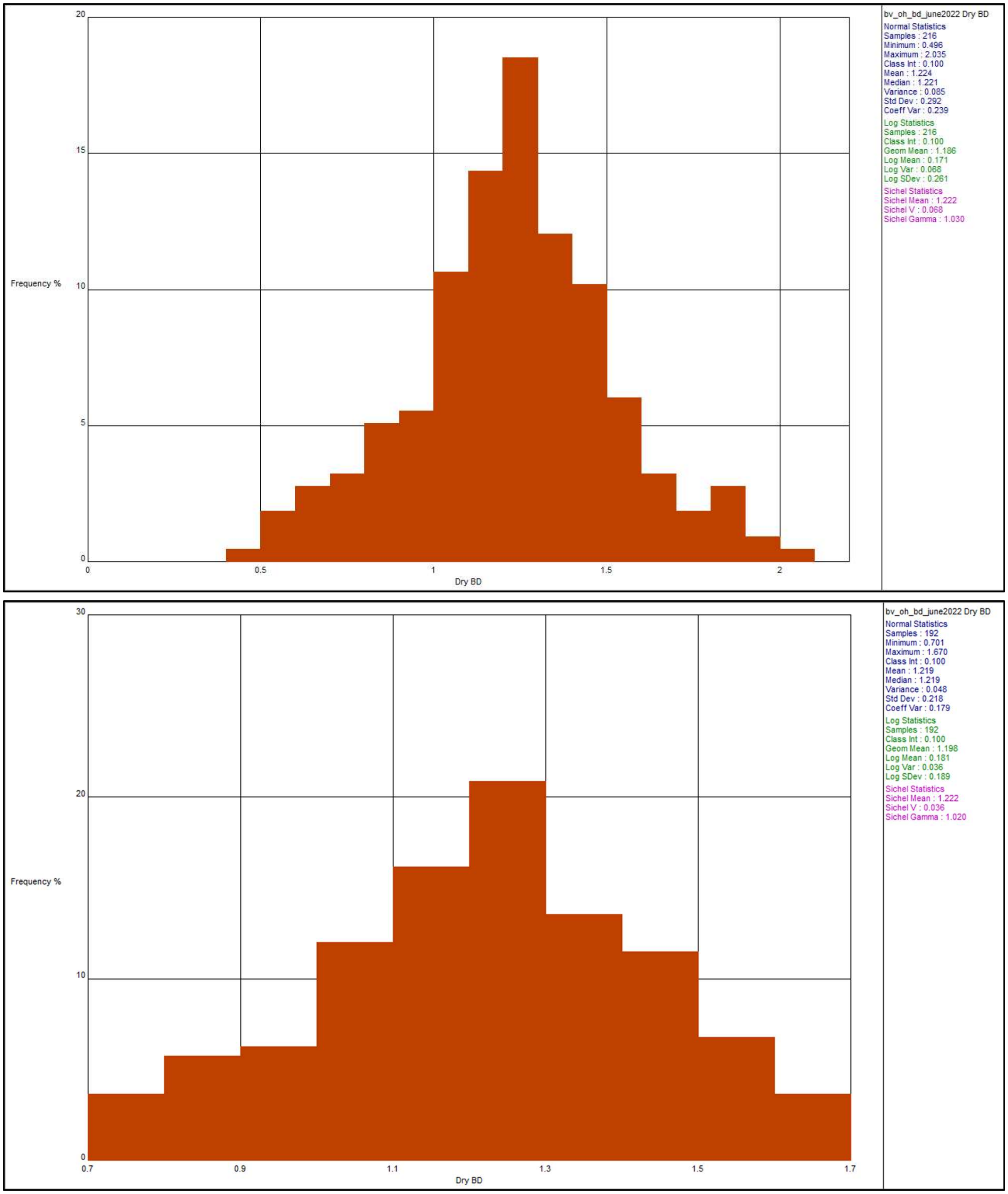


Figure 8.4 **Histograms of RAB samples used to estimate in-situ dry bulk density in September 2022 (top image showing full dataset of 216 samples; bottom image showing distribution after removal of outliers leaving 192 samples); the mean values are both 1.2 t/m^3**

Correlation of bulk density with drilling depth was reviewed. There is a possible positive correlation with a regression coefficient of 0.36, with average bulk density around 0.9 to 1.1 at the surface, increasing to 1.2 to 1.6 at depths greater than 20 m.

On 22 June 2022, DSI completed a LiDAR survey of the southeast sector of Stack B. Mining of the dump as a gypsum source for local farmers has continued throughout the period from the previous LiDAR survey in April

2021 to the current survey. DSI estimated the volume difference in the area of mining as 50,081 bcm. Maja verified the result using a block modelling method with a volume estimate of 51,110 bcm. All material mined was weighed over a weighbridge with a moist weight of 65,793 tonnes. Moisture sample of the dump (10 samples) gave an average moisture content of 13.8%. Using this information, the near surface bulk density of the mined material ranges from 1.11 t/m^3 to 1.13 t/m^3, which supports the results from the RAB drilling program.

In conclusion, the Competent Person is satisfied that an average bulk density of 1.2 t/m^3 is suitable for the Bosveld gypsum stacks tonnage estimate. Further work is required to determine if the indicative increase in bulk density with depth is correct and should be applied to future MRE updates.

9 ESTIMATION AND MODELLING TECHNIQUES

9.1 Site Visits

The Competent Person, Mr Malcolm Titley of Maja, visited the Bosveld Stacks during the period 11–12 December 2020 for two days to review the suitability of the auger drilling program, the overall stack geometry and geology, and the bulk density surface sampling process. The Competent Person also visited the SGS Roodepoort laboratory on 14 January 2021 to review the sample preparation, QAQC and analysis process. No issues were detected.

The Competent Person did not visit the site for the Phase 2 drilling due to COVID-19 restrictions on travel. The Competent Person did, however, control the location of the drilling, sample protocols, and was in daily contact with the project manager and consultant geologist during site activities.

9.2 Volume Block Model

Using the LiDAR stack DTMs and the interpolated basal DTMs, a 3D block model was constructed using Datamine mining software. The dimensions of the block models are presented in Table 9.1 on the following page.

The model was constrained using a limiting boundary for each stack. The limiting boundary perimeter (Figure 9.1 – blue outline) defined the potential mineable base of each stack and excluded areas currently affected by current and historical reclaim activity. An estimated water table (based on drill intercepts and central pond limits was interpreted and included in the block model.

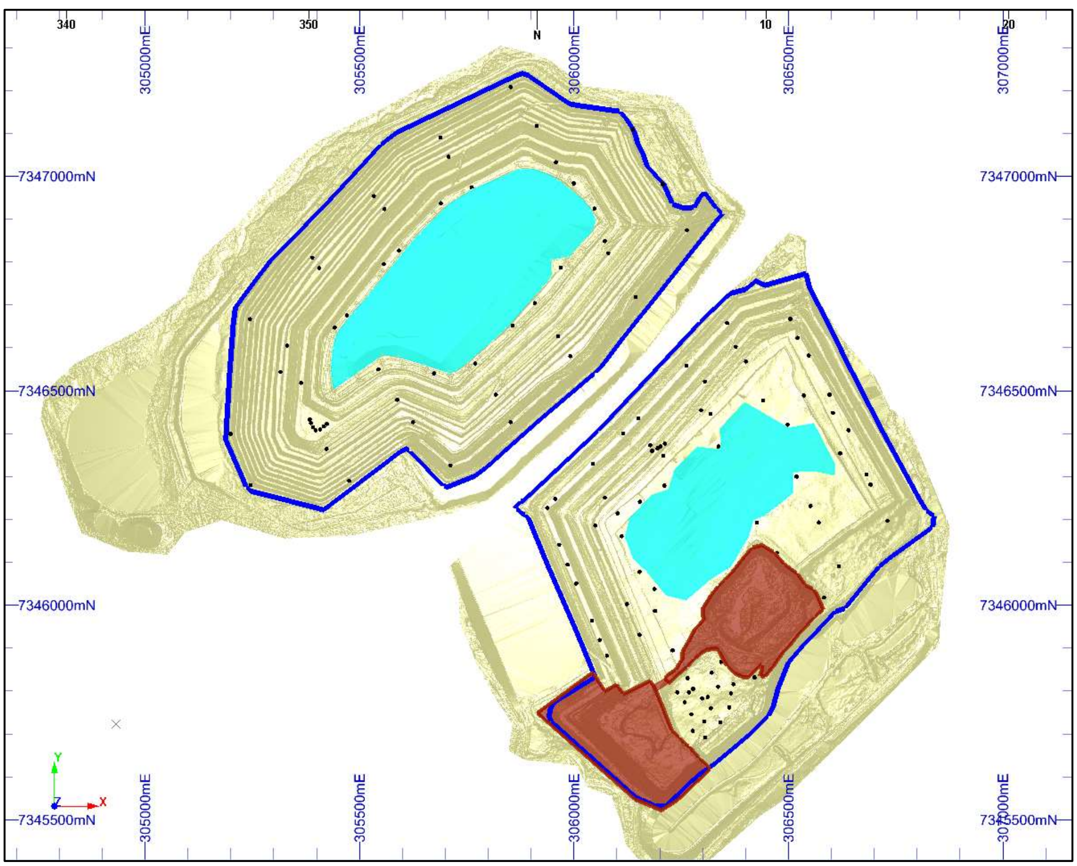


Figure 9.1 Plan view of Bosveld volume block model showing limiting boundary string – dark blue, rubble area – brown, and central solution ponds – light blue

Table 9.1 Datamine 3D block model dimensions and block sizes

Prospect	Origin			Maximum			Parent block size			Boundary resolution		
	Easting	Northing	Elevation	Easting	Northing	Elevation	Easting	Northing	Elevation	Easting	Northing	Elevation
Stack A	305,150	7,346,200	350	305,350	7,347,250	430	50	50	3	5	5	0.5
Stack B	305,850	7,345,500	350	306,850	7,346,800	410	50	50	3	5	5	0.5
Combined	305,150	7,345,500	350	306,850	7,347,300	430	50	50	3	5	5	0.5
Prospect	**Origin**			**Extent in metres**			**Parent block size**			**Boundary resolution**		
Stack A	305,150	7,346,200	350	1,200	1,050	80	50	50	3	5	5	0.5
Stack B	305,850	7,345,500	350	1,000	1,300	60	50	50	3	5	5	0.5
Combined	305,150	7,345,500	350	1,700	1,800	80	50	50	3	5	5	0.5

Stack B was separated into five zones: (1) clean phosphogypsum; (2) un-mineable rubble; and (3) three zones of mixed rubble, soil and phosphogypsum.

It is important to note that the centre surface of each stack is currently filled with solution produced from the processing plant, which is acidic and cannot be readily pumped to alternative storage areas. This solution prevented drilling in the centre of each stack and also likely impacts the moisture content of the phosphogypsum within the stacks.

9.3 Statistics and Variography

Top cuts were applied to remove local high-grade bias for values that exceeded the nominal 97.5 percentile. The top cuts were applied to all individual REEs prior to calculation of TREO and the other oxide baskets.

Table 9.2 presents the top cuts applied to the individual REEs.

Table 9.2 Elemental top cuts applied

Element	Top cut	No. of samples cut	Total samples	Proportion cut	Average cut grade	Comments
Ce ppm	None	None	1,680	None	1,438.0	
Dy ppm	65	4	1,680	0.2%	35.0	
Er ppm	17	None	1,680	None	6.4	
Eu ppm	60	5	1,680	0.3%	28.8	
Gd ppm	250	44	1,680	2.6%	105.9	May have been analytical issues
Ho ppm	8	6	1,680	0.4%	4.0	
La ppm	1,450	3	1,680	0.2%	626.0	
Lu ppm	1.3	11	1,680	0.7%	0.3	
Nd ppm	2,200	1	1,680	0.1%	839.5	
Pr ppm	670	1	1,680	0.1%	199.2	
Sm ppm	310	4	1,680	0.2%	142.8	
Tb ppm	26	2	1,680	0.1%	11.4	
Tm ppm	1.8	3	1,680	0.2%	0.6	
Y ppm	210	1	1,680	0.1%	73.0	
Yb ppm	7	6	1,680	0.4%	2.6	
Th ppm	190	2	1,680	0.1%	43.1	
Ga ppm	25	26	1,680	1.5%	9.3	
U ppm	None	None	1,680	None	1.8	
F %	2.3	42	978	4.3%	0.9	Very scattered outliers
Sc ppm	None	None	None	None	2.5	Not analysed - background grade applied

After top cutting the REE were converted to oxide form and TREO, heavy rare earth oxide (HREO), LREO, and the ratio between neodymium and praseodymium (NdPrRT).

Table 9.3 presents the oxide conversion formulae and the elements making up the various baskets.

Table 9.3 Oxide conversion ratios and basket definitions

Oxide form	CeO_2	Dy_2O_3	Er_2O_3	Eu_2O_3	Gd_2O_3	Ho_2O_3	La_2O_3	Lu_2O_3	Nd_2O_3	Pr_6O_{11}	Sm_2O_3	Tb_4O_7	Tm_2O_3	Y_2O_3	Yb_2O_3	Sc_2O_3
Conversion to oxide	1.2284	1.1477	1.1435	1.1579	1.1526	1.1455	1.1728	1.1371	1.1664	1.2082	1.1596	1.1762	1.1421	1.2699	1.1387	1.5338
TREO (1 used, 0 not used)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
HREO (1 used, 0 not used)	0	1	1	1	1	1	0	1	0	0	0	1	1	1	0	0
LREO (1 used, 0 not used)	1	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
NdPrRT (1 used, 0 not used)	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0

Drilling samples ranged from 1.0 m to 1.5 m intervals for the RAB and auger samples respectively. To ensure all samples had equal weight, samples were composited to 3.0 m downhole using the Datamine mode=1 option, where samples are composited as close to 3.0 m as possible with an interval that ensures no residuals (<= 1.5 m or >= 4.5 m samples) are created. A histogram showing the composite lengths is presented in Figure 9.2. There were nine 1.0 m composites created during the interpretation of the internal rubble boundaries for Stack B (due to the thin geometry of this zone). These samples were considered important so were left in and used for subsequent grade estimation.

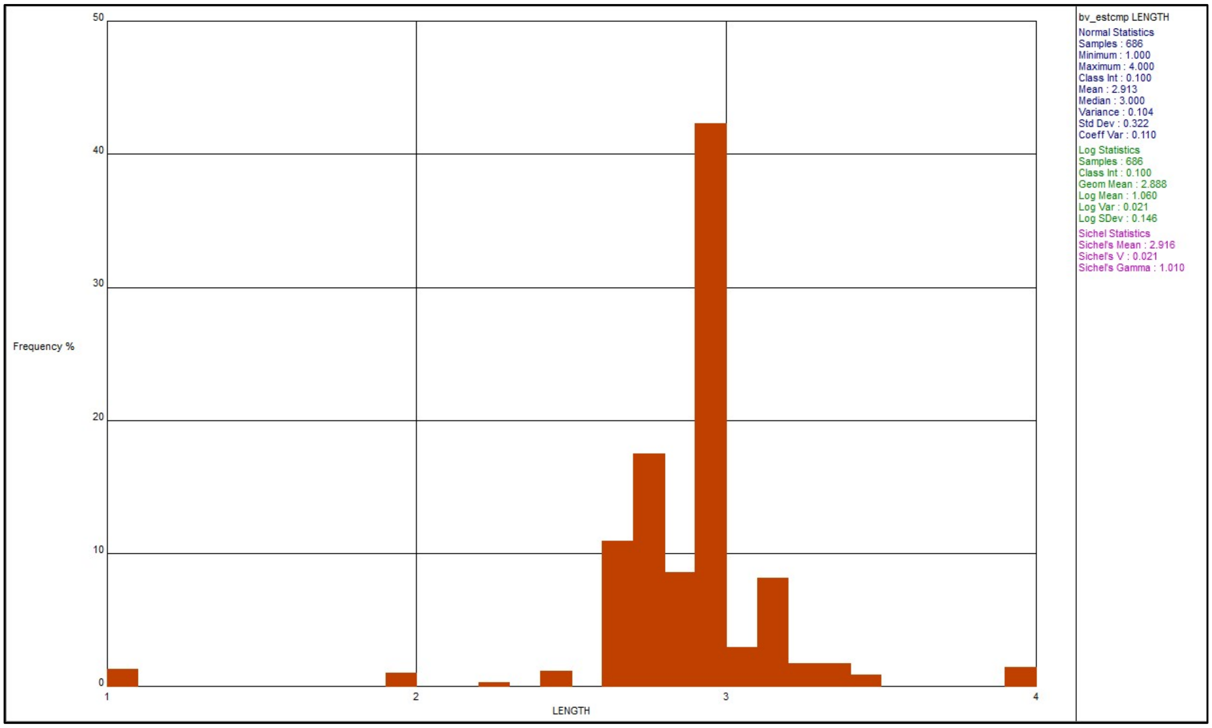


Figure 9.2 Histogram of grade composite lengths (using Datamine Mode = 1)

A comparison between the RAB and auger drilling methods was completed to ensure the drilling methods were not biased. Figure 9.3 shows histogram and probability plots by hole type; RAB is HTYPEN 2 and auger is HTYPEN 1. Note the same mean grade and similar distributions, demonstrating no bias was introduced due to the drilling and sampling method.

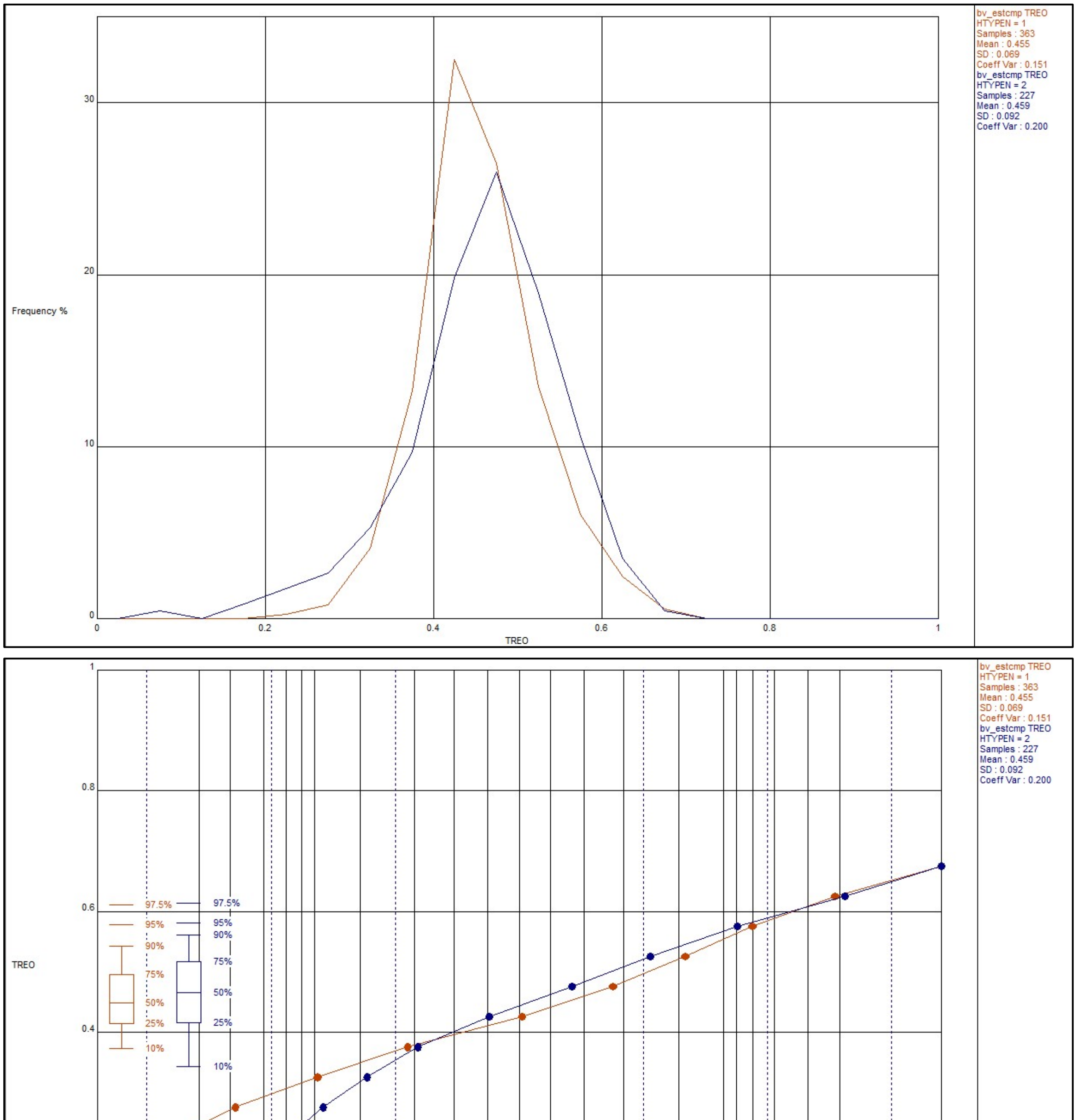


Figure 9.3 Comparison between RAB and auger drilling

The ratio between the REEs is relatively consistent with a good correlation between the REEs and TREO. Examples are presented in Figure 9.4. Showing the light REEs (LREO – cerium, lanthanum, neodymium, praseodymium, samarium), heavy REEs (HREO – dysprosium, erbium, europium, gadolinium, holmium, lutetium, terbium, thulium, yttrium, ytterbium), and neodymium compared to the TREO. Interestingly, neodymium shows a small sub-population of higher neodymium but lower TREO. This is also reflected in the plot of praseodymium with TREO (not shown). This may be related to the assay analytical method.

As there is adequate correlation of all elements to TREO, this was used as the master grade variable for statistical analysis, variography and grade estimation.

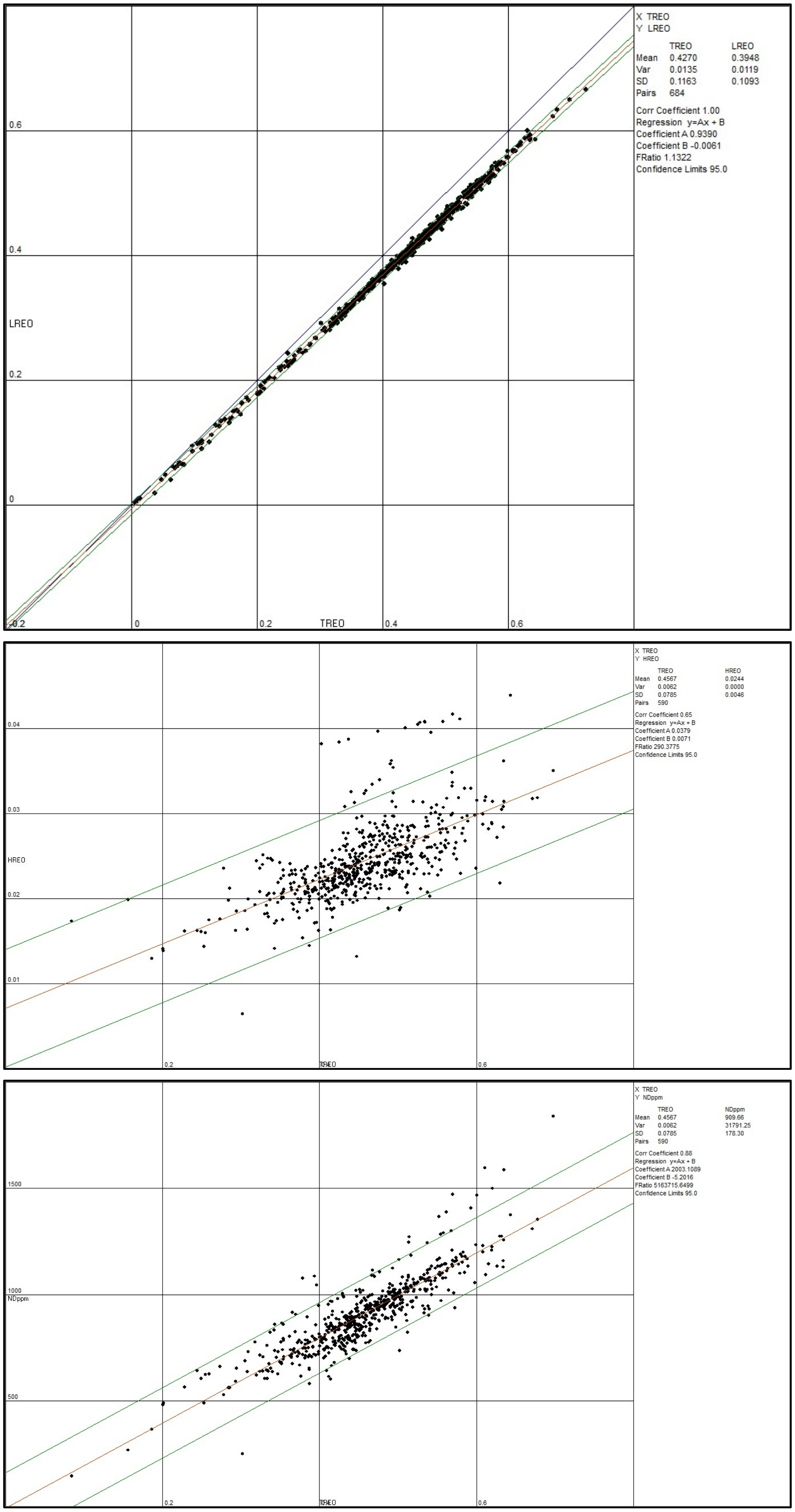
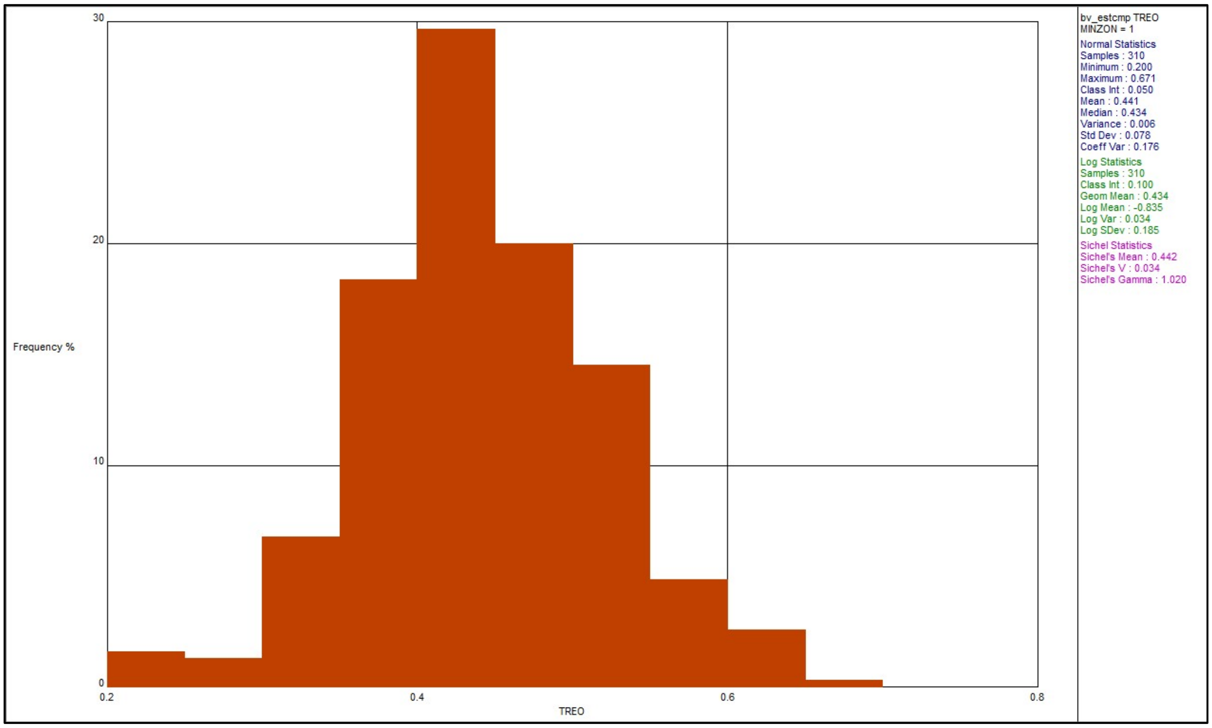


Figure 9.4 Correlation of LREO (top), HREO (middle), neodymium (bottom) with TREO

TREO was subdivided by stack. Figure 9.5 presents histograms of the TREO grade distribution. Stack A MINZON 1 – contains 310 x 3 m composites with an uncut mean of 0.44% TREO. Stack B MINZON 2 contains 277 x 3 m composites with a mean of 0.48% TREO. Both distributions are close to normal with a small negative skewed lower-grade tail.



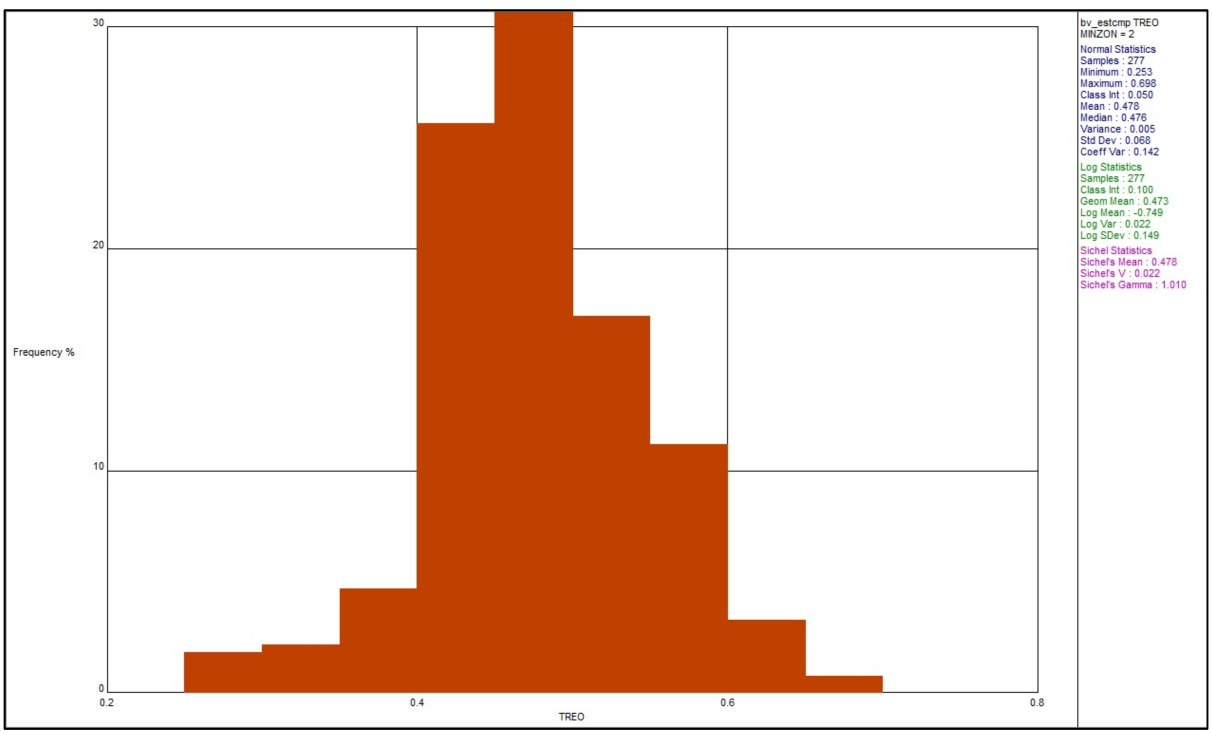


Figure 9.5 Histograms showing distribution of TREO for Stack A (MINZON 1) and Stack B (MINZON 2)

Figure 9.6 presents the grade distribution of the three mixed rubble zones in the southwest corner of Stack B. MINZON 3 is primarily phosphogypsum with some minor soil material with an average grade of 0.3% TREO. MINZONs 4 and 5 are waste rubble zones above and with MINZON 3.

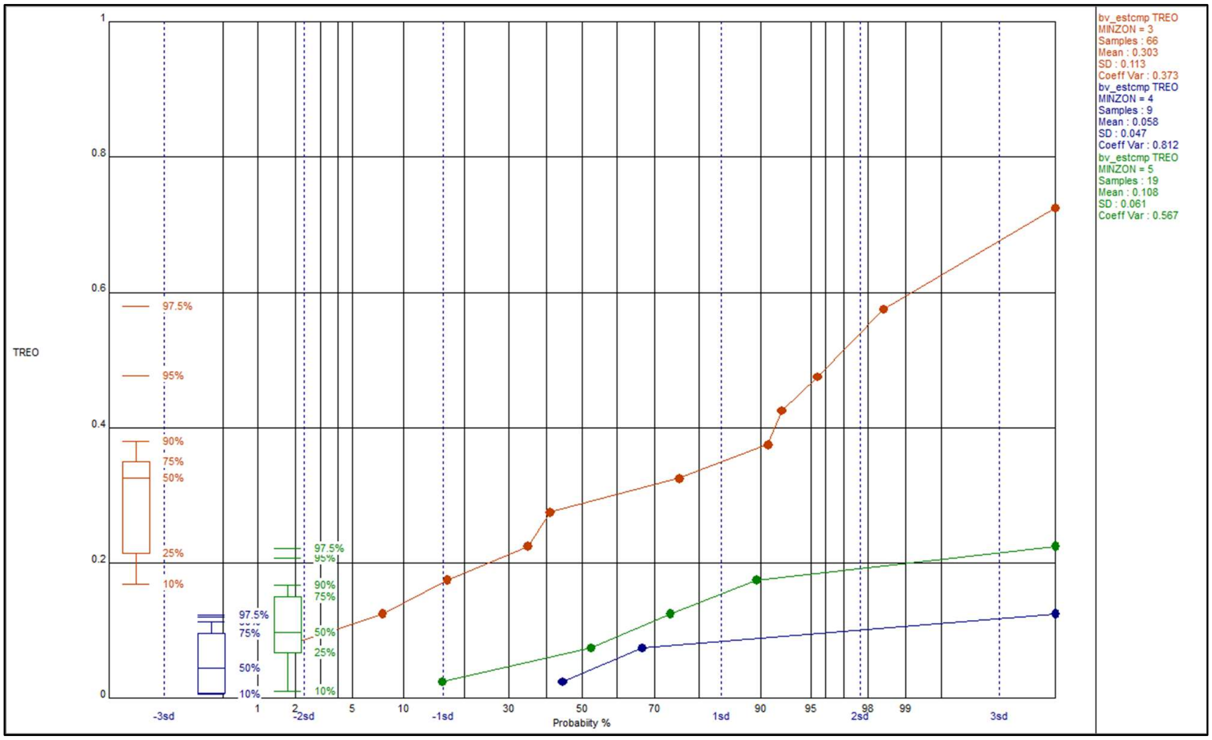


Figure 9.6 Probability plots for Stack B rubble zones (MINZONs 3, 4 and 5)

Variography was completed for TREO for each stack. Downhole variograms were used to determine the nugget and close-spaced vertical continuity. Figure 9.7 presents the downhole variogram for Stack A, which has a nugget of 20% and a vertical range of 27 m. Note that 70% of the sample variance occurs at 18 m.

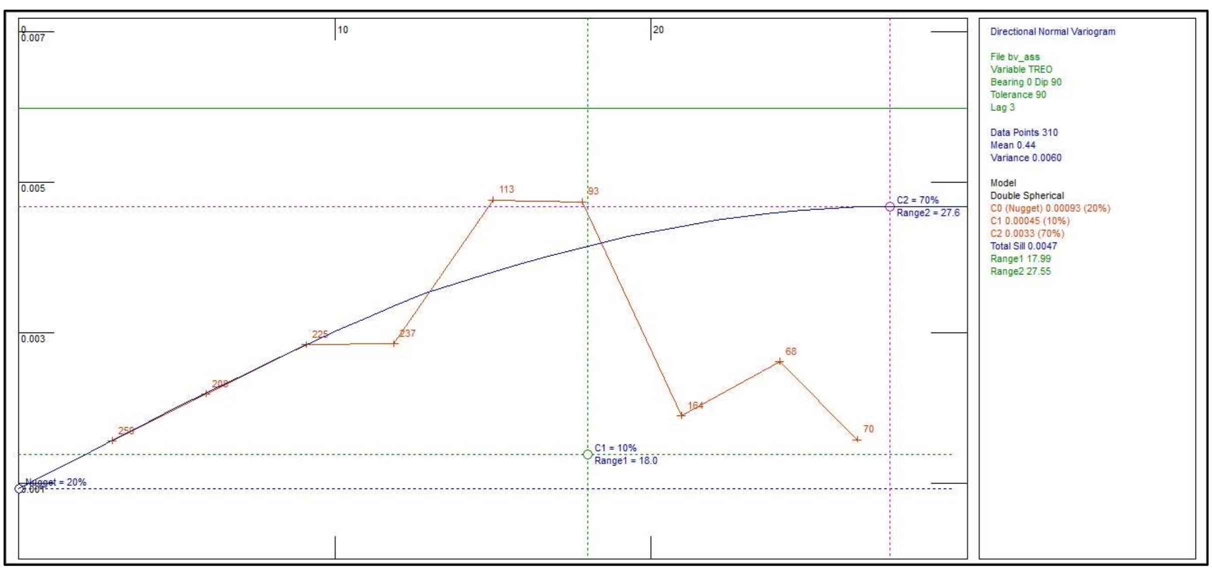


Figure 9.7 Downhole variogram for Stack A

Directional variograms were modelled by stack with the results presented in Table 9.4. An example of a modelled directional variogram is presented in Figure 9.8 for Stack A. The variogram directions of major direction followed the shallow depositional dip of each stack.

Table 9.4 Modelled variogram parameters

Variogram models using 3 m composites by stack										
Deposit	**Grade**	**Nugget**	**Structure 1**				**Structure 2**			
			Sill 1	**Range 1**	**Range 2**	**Range 3**	**Sill 2**	**Range 1**	**Range 2**	**Range 3**
Stack A	TREO	0.20	0.10	179	45	18	0.70	296	382	28
Stack B	TREO	0.07	0.49	167	97	14	0.44	177	249	15
Stack B Rubble	TREO	0.06	0.06	22	29	13	0.88	51	128	17

Variogram axis rotation – based on variography and visual validation, DIP DIR, DIP and PLUNGE						
Deposit	**Axis 1**	**Axis 2**	**Axis 3**	**Rotation 1**	**Rotation 2**	**Rotation 3**
Stack A	Z	X	Z	112.5	0.0	0.0
Stack B	Z	X	Z	112.5	1.5	0.0
Stack B Rubble	Z	X	Z	112.5	1.5	0.0

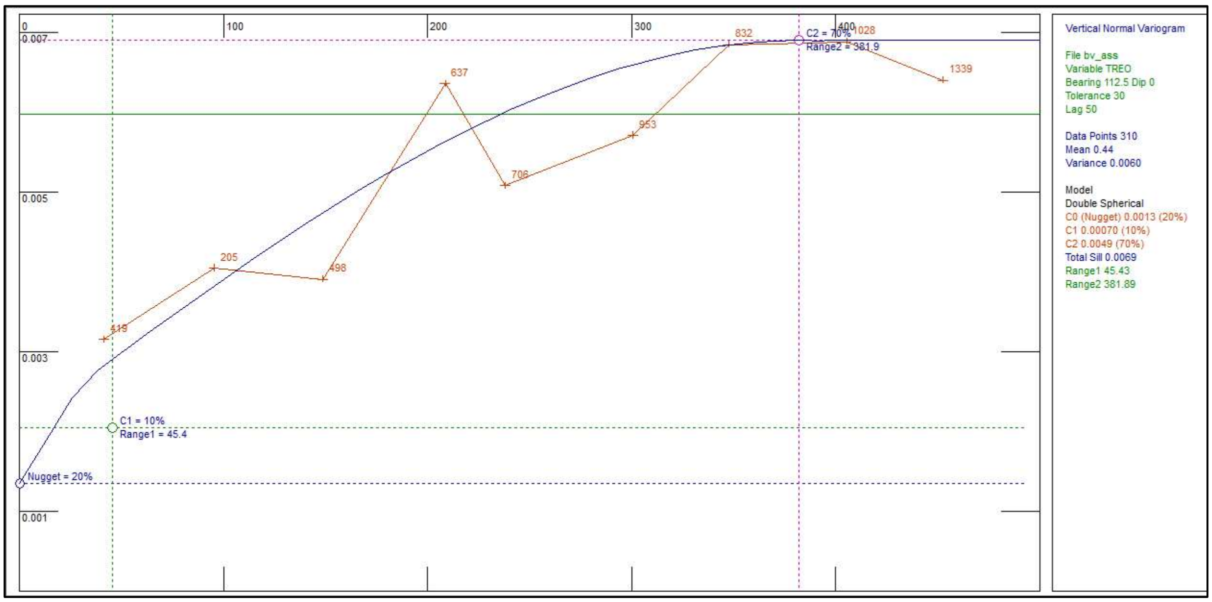


Figure 9.8 Example of a major direction variogram – Stack A MINZON 1

9.3.1 Estimation Procedure and Validation

TREO, thorium and uranium grades plus ratios of REEs to TREO were estimated using Ordinary Kriging ("OK"). The advantage of estimating the ratio and then back-calculating the individual REE grade is that the sample relationship between the elements is maintained at the estimation panel size. Table 9.5 presents the OK search neighbourhood parameters used to estimate REE grade data. The ratios were estimated for neodymium, praseodymium, dysprosium, terbium, LREO and HREO using the same variogram and search parameters as for TREO %, to honour the correlation between elements. Fluorine was estimated independently using independent search parameters and variography. Gallium was estimated using TREO search parameters and variography on the basis that a weak to moderate statistical correlation between Ga and TREO exists.

Table 9.5 OK sample search parameters

Deposit	Grade	Range 1	Range 2	Range 3	Search ellipse rotation	Minimum sample	Maximum sample	Search factor 2 and 3
Stack A	TREO	300	200	10	Defined based on variogram DIP DIRECTION, DIP and PLUNGE	15	21	2, 5
Stack B	TREO	225	150	7		15	21	2,5
Stack B Rubble	TREO	130	50	7		15	21	2,5

Notes: Kriging panel size 50 m x 50 m x 3 m. Discretisation to 5 m x 5 m x 1.5 m. Maximum three samples allowed from each drillhole.

The volume and grade model was validated by visual checks of the block volume against the LiDAR DTM surface, by comparing the average composite grades with the block model grades and through the use of swath plots and visual correlation of drillhole grades with block model grades.

Figure 9.9 to Figure 9.12 present plan and cross-section views with 5x vertical exaggeration showing the grade model, drillhole data and LiDAR DTM.

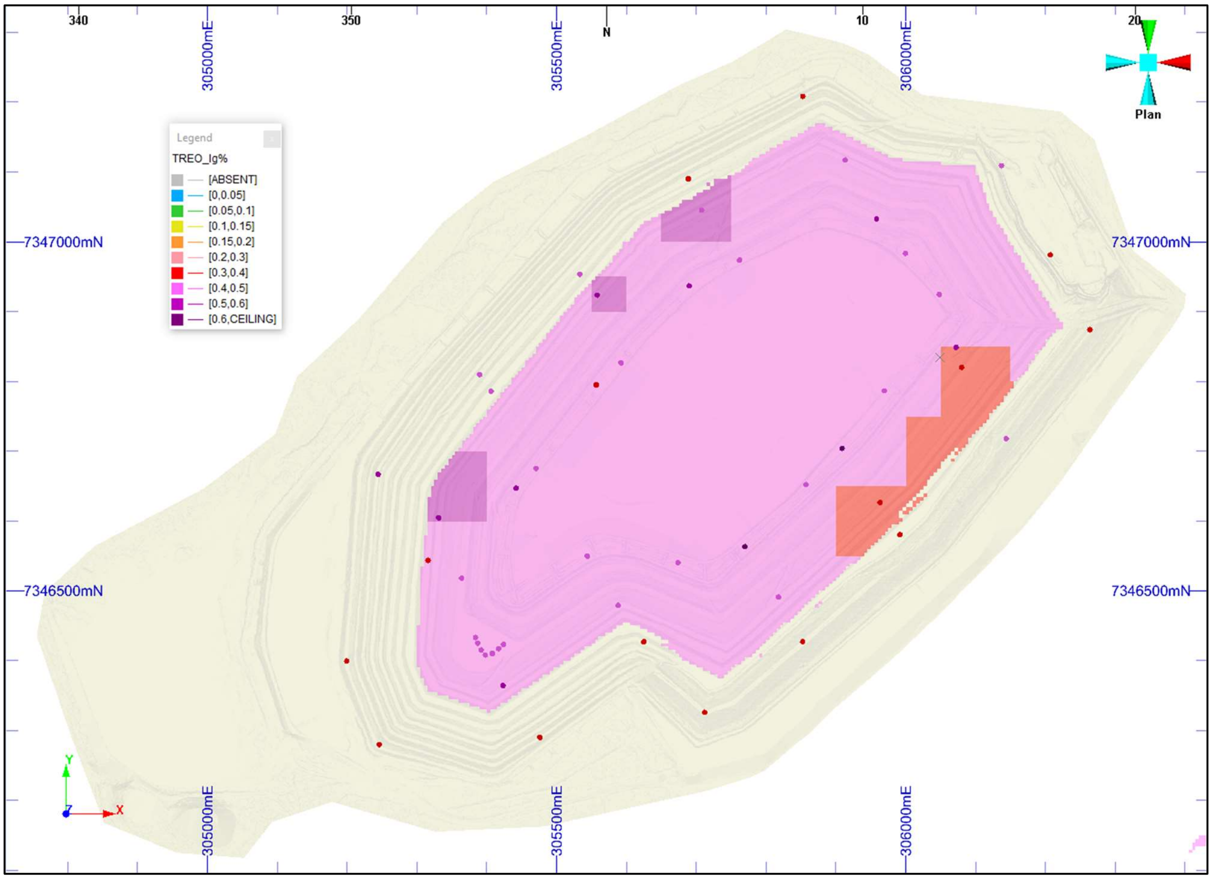


Figure 9.9 Plan section through the Stack A block model (elevation 394 m)

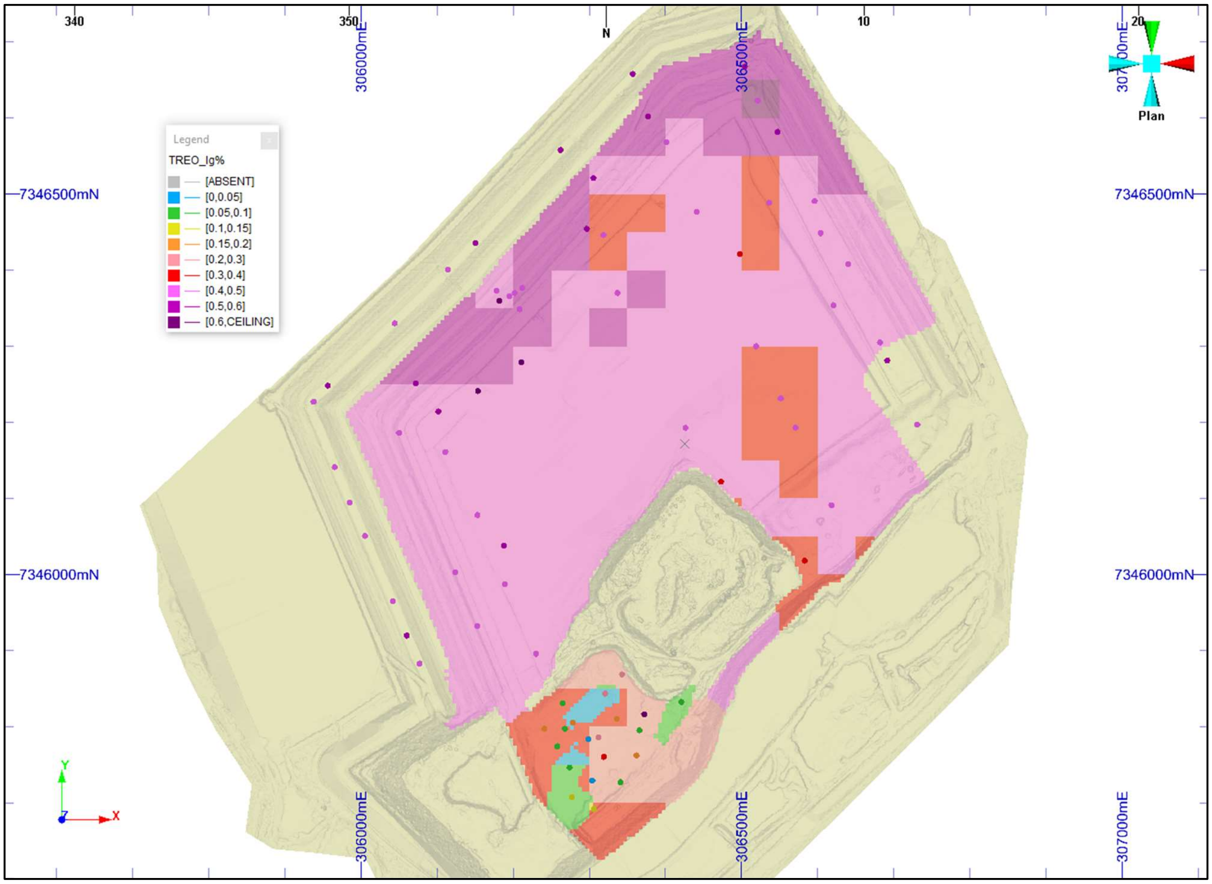


Figure 9.10 Plan section through the Stack B block model (elevation 382 m)

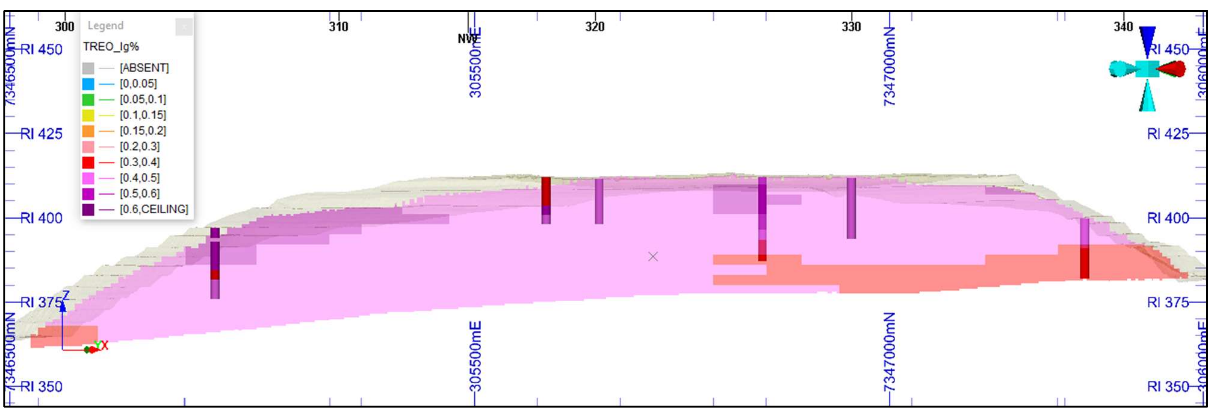


Figure 9.11 Cross section through the Stack A block model 3X vertical exaggeration (azimuth 320 ±35 m)

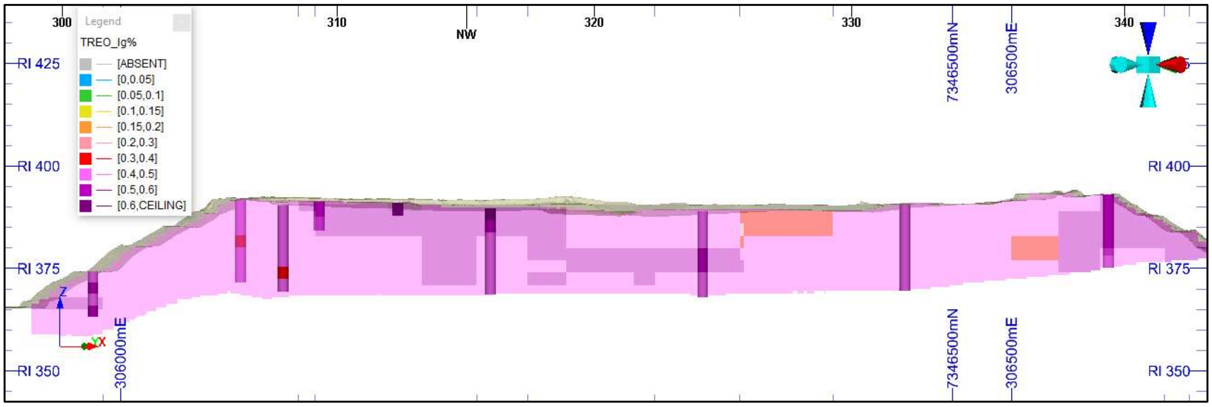


Figure 9.12 Cross section through the Stack B block model 3X vertical exaggeration (azimuth 320 ±35 m)

Figure 9.13 and Figure 9.14 present an example of the validation swath plots comparing model grade with weighted drillhole grade by northing, easting and elevation.

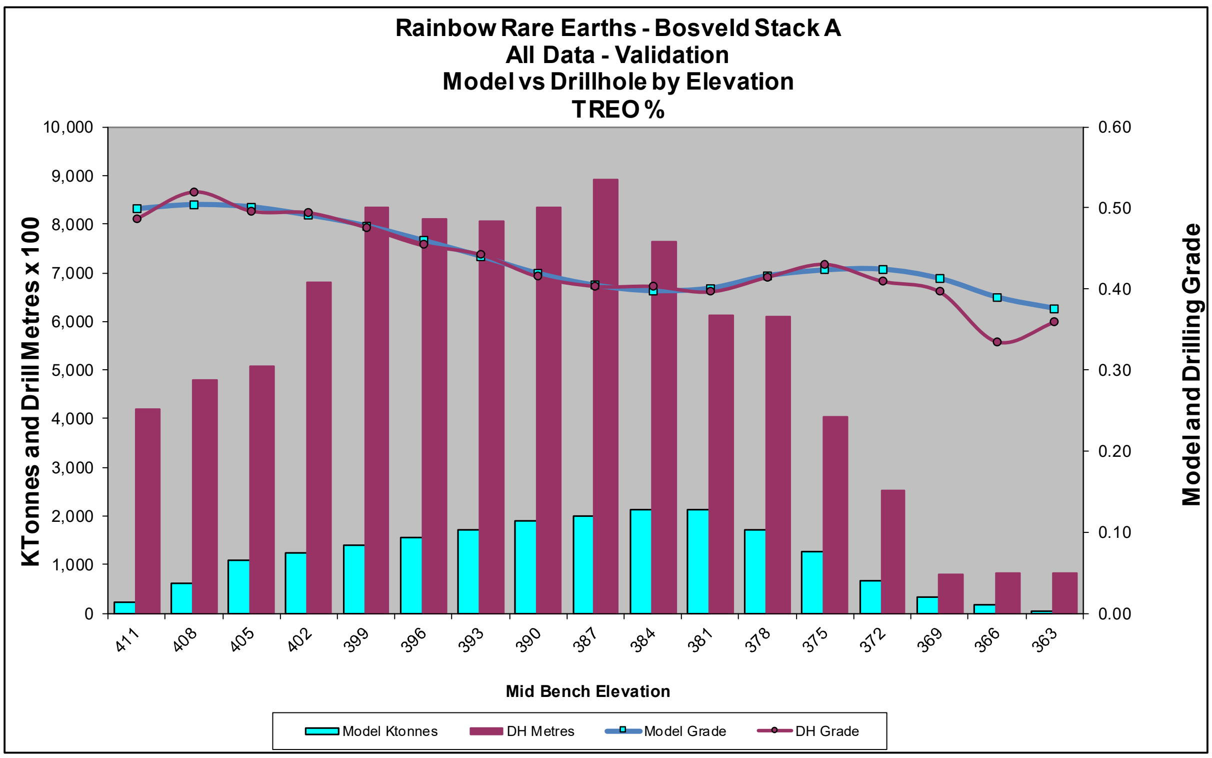


Figure 9.13 Stack A swath plot by elevation

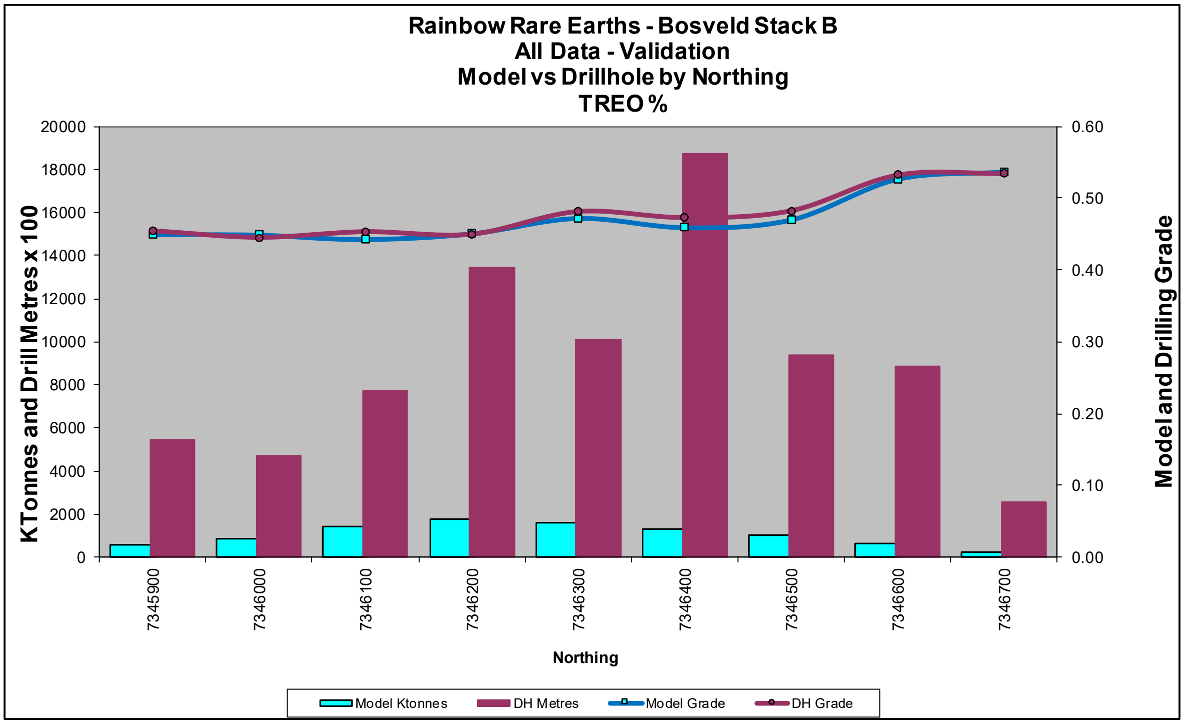


Figure 9.14 Stack B swath plot by northing

Table 9.6 presents the statistical comparison comparing mean sample grades with the mean block model grades for all grades and proportions estimated.

Table 9.6 Comparison of mean grades between model and sampling data

Stack A composites vs Block model comparison					
Stack A	**No. of samples**	**Sample mean (%)**	**No. of blocks**	**Model mean**	**% Compare to samples**
TREO %		0.441		0.433	98.2%
Nd Prop %		23.3		23.3	100.3%
Pr Prop %		5.6		5.6	99.1%
Dy Prop %		1.0		1.0	101.0%
Tb Prop%	310	0.3	3,120	0.3	98.5%
LREO Prop %		92.3		92.2	99.9%
HREO Prop %		5.4		5.5	100.4%
Th ppm		47.8		49.7	104.0%
U ppm		1.4		1.5	108.3%
F %	137	0.762		0.712	93.4%
Stack B Composites vs Block model Comparison					
Stack B	**No. of samples**	**Sample mean (%)**	**No. of blocks**	**Model mean**	**% Compare to samples**
TREO %		0.474		0.464	97.9%
Nd Prop %		23.2		23.2	99.7%
Pr Prop %		5.9		5.8	98.3%
Dy Prop %		0.9		1.0	100.8%
Tb Prop%	280	0.3	1,694	0.3	97.3%
LREO Prop %		92.5		92.6	100.1%
HREO Prop %		5.4		5.3	98.4%
Th ppm		45.6		49.7	109.0%
U ppm		1.8		1.9	101.7%
F %	90	0.779		0.758	97.3%

The biggest variance between the block model averages and the input samples is uranium (ppm) for stack A and thorium for Stack B with an 8% and 9% difference respectively, most likely due to clustering of lower uranium grades and reduced number of samples for fluorine. Most other comparisons are within ±1%, with a few differences up to ±3% to 5%.

The Competent Person concludes that the tonnage and grade estimate for the Bosveld Stacks A and B appropriately represent the volume, tonnage and grade of the input data. The spatial distribution appropriately follows the grade trends where adequate drilling data exists. At the central lower portions of Stack A where limited drilling was completed, the grade estimate is extrapolated horizontally between the available drill data. Further drilling is required to improve the confidence in the grade estimates for this zone.

9.3.2 Mineral Resource Classification

The MRE for the Bosveld Phosphogypsum REE Stacks A and B is presented in Table 9.7. The resource is classified as Measured, Indicated and Inferred Mineral Resources based on the guidelines defined in JORC (2012). The resource is suitable for Mineral Resource classification for the following reasons:

- Completion of site visit by the Competent Person from 11 to 12 December 2020 for two days to review the suitability of the auger drilling program, the overall stack geometry and geology, and the bulk density surface sampling process.
- Review and remote supervision of all subsequent drilling, sampling, and bulk density programs by the Competent Person.
- Adequate definition of TREO and REE mineralisation continuity derived from the two drilling and sampling programs.
- Appropriate sample assay analysis techniques with QAQC controls to define the tenor of TREO and REE grades.
- Adequate survey control using LiDAR to define the surface topography of both Stack A and B, combined with a reasonable estimate of the pre-stacking topography at the base of the stacks using surface trends from the topography around the edge of the stacks together with results of the drilling that penetrated the basal topography, to define the volume of each stack.
- Geological mapping and sampling used to excise areas where rubbish material was dumped together with the residue, and to excise areas currently being reclaimed for agricultural uses.
- An estimate of the average in-situ dry bulk density of 1.2 t/m^3 is used to estimate the mineral resource tonnage. The Competent Person acknowledges further bulk density testwork is required to improve the bulk density estimate based on potential variability with stacking depth, surface weathering and water saturation.
- Adequate initial metallurgical testwork and financial analysis completed to satisfy the requirement for RPEEE.

Table 9.7 MRE for the Bosveld Phosphogypsum Stacks

JORC 2012 classification	Stack name	Tonnes (Mt)	TREO %	NdPr Prop %	Nd Prop %	Pr Prop %	Dy Prop %	Tb Prop %	LREO Prop %	HREO Prop %	Ga (ppm)	F (ppm)	Th (ppm)	U (ppm)	In-situ dry bulk density
Measured	Stack A	4.5	0.46	29.5	23.6	5.8	1.0	0.3	92.3	5.5	10	0.82	48	1.40	1.20
	Stack B	2.8	0.48	29.3	23.4	5.9	0.9	0.3	92.5	5.4	9	0.80	46	1.89	1.20
	Total	7.3	0.47	29.4	23.5	5.9	1.0	0.3	92.4	5.4	10	0.81	47	1.59	1.20
Indicated	Stack A	11.6	0.43	29.1	23.6	5.5	1.0	0.3	92.2	5.5	10	0.70	51	1.60	1.20
	Stack B	4.5	0.45	28.9	23.2	5.8	0.9	0.3	92.6	5.3	9	0.79	43	1.94	1.20
	Total	16.1	0.44	29.0	23.5	5.6	1.0	0.3	92.3	5.4	10	0.73	48	1.70	1.20
Inferred	Stack A	4.1	0.42	28.3	22.9	5.4	1.0	0.3	92.3	5.3	11	0.61	49	1.63	1.20
	Stack B	2.9	0.42	29.0	23.3	5.6	1.0	0.3	92.6	5.3	8	0.82	40	1.88	1.20
	Total	7.0	0.42	28.6	23.1	5.5	1.0	0.3	92.4	5.3	10	0.70	45	1.73	1.20
GRAND TOTAL		**30.4**	**0.44**	**29.0**	**23.4**	**5.6**	**1.0**	**0.3**	**92.4**	**5.4**	**10**	**0.74**	**47**	**1.68**	**1.20**

Note: Reported at a 0.2% TREO cut-off grade. No constraining shell required as stacks above ground level. Adequate processing testwork completed to satisfy RPEEE.

The MRE was classified as Measured in areas with adequate close spaced drilling – nominally better than 100 m spacing, with adequate continuity in the OK statistics to define a suitable contiguous volume of higher confidence mineralisation. Figure 9.15 presents a 3D view of the volume defined as Measured.

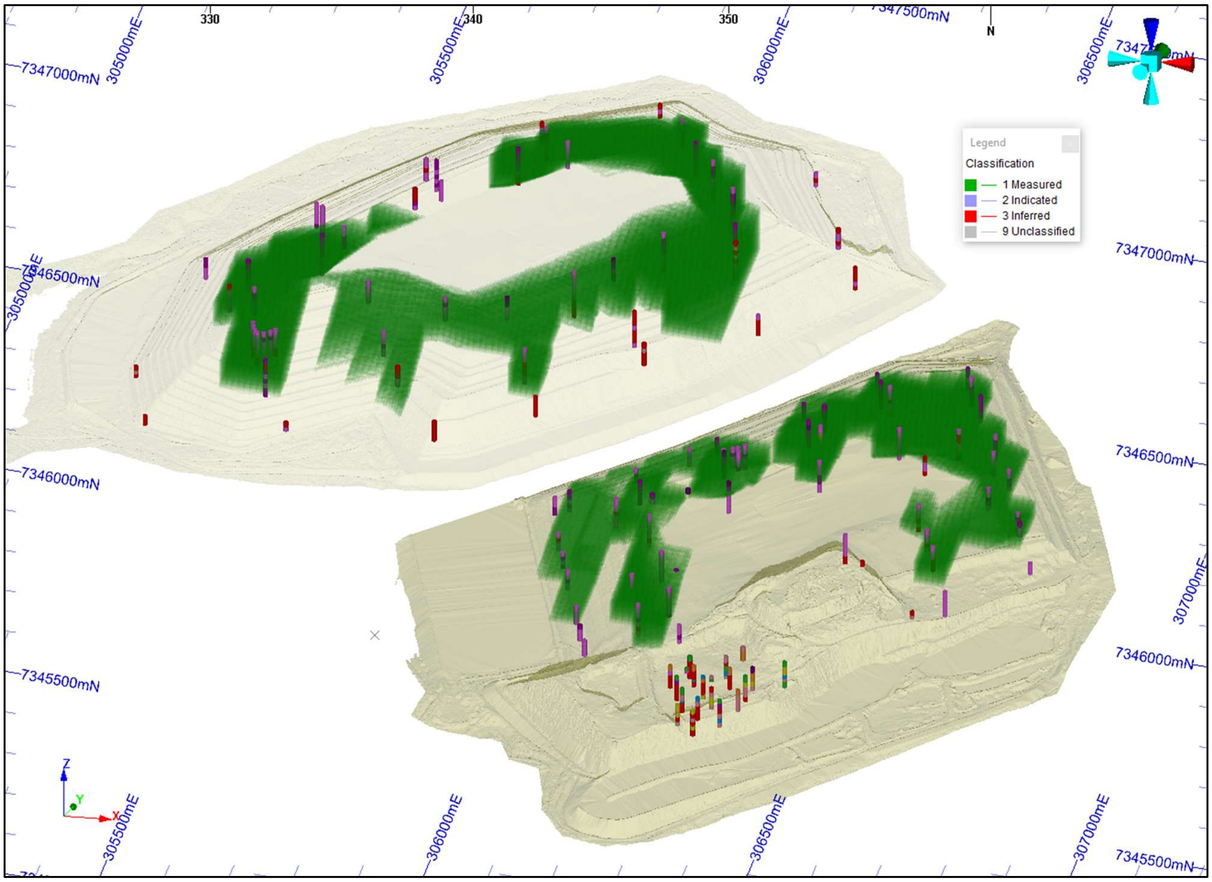


Figure 9.15 3D view (3x vertical exaggeration) of volume classified as Measured Mineral Resources

The MRE was classified as Indicated in areas with adequate drilling coverage – nominally better than 300 m spacing, with adequate continuity in the OK statistics to define a suitable contiguous volume of medium confidence mineralisation. Figure 9.16 presents a 3D view of the volume defined as Indicated.

All remaining mineralisation was classified as Inferred. Figure 9.17 presents a 3D view of the volume defined as Inferred.

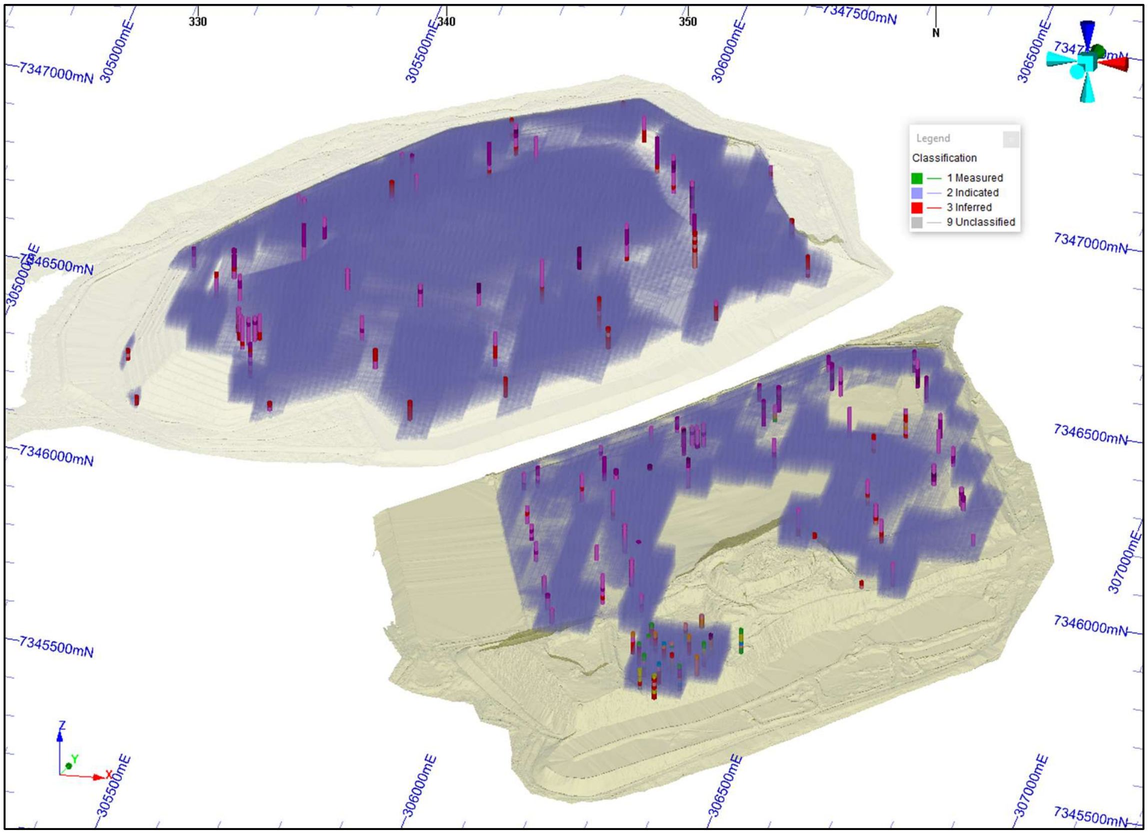


Figure 9.16 3D view (3x vertical exaggeration) of volume classified as Indicated Mineral Resources

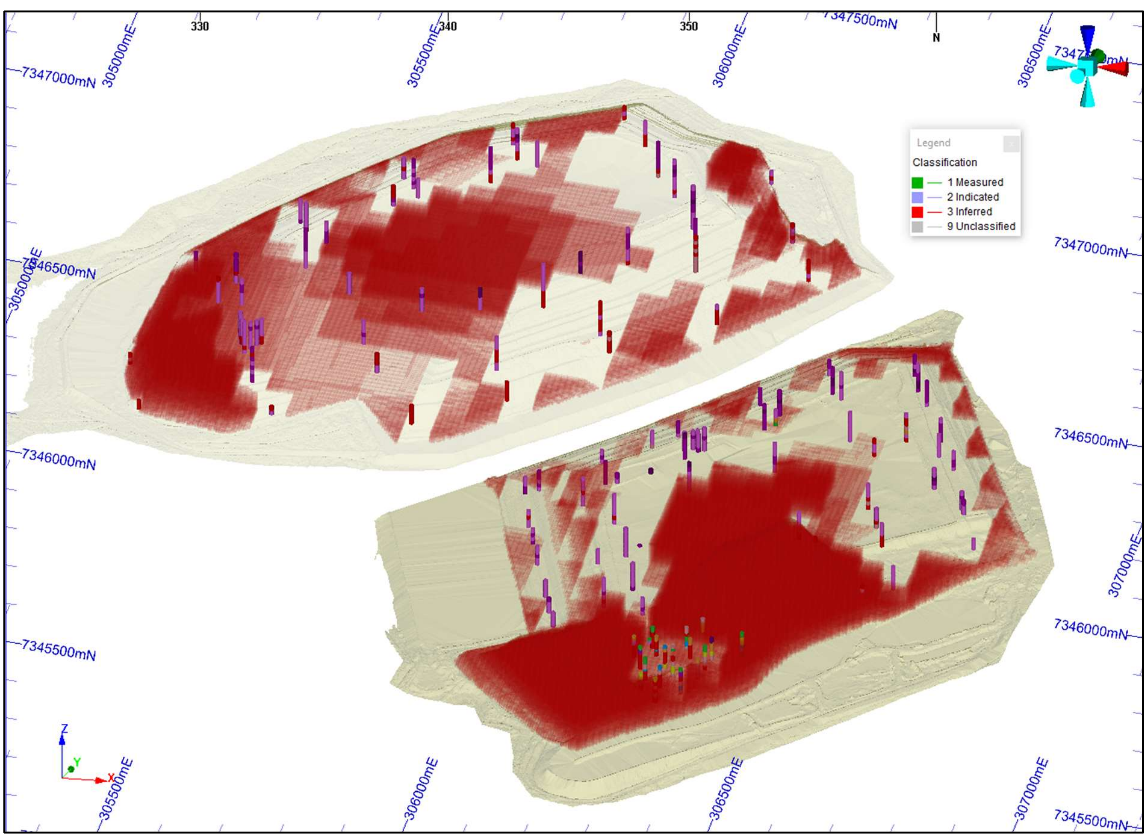


Figure 9.17 3D view (3x vertical exaggeration) of volume classified as Inferred Mineral Resources

9.4 Competent Person JORC Compliance Statement

The information in this report that relates to the Mineral Resources for the Bosveld Project is based on, and fairly represents, information compiled or reviewed by Mr Malcolm Titley, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Titley is employed by Maja Mining Limited, an independent consulting company. Mr Titley has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Titley consents to the inclusion of information from this report in Rainbow public releases using his information in the form and context in which it appears.

10 INTERPRETATIONS AND CONCLUSIONS

10.1 Conclusions

The MRE for the Bosveld Phosphogypsum REE Stacks A and B is classified as Measured, Indicated and Inferred Mineral Resources based on the guidelines defined in JORC (2012) utilising available drill coverage and associated sampling. The estimated Mineral Resource is considered suitable for Mineral Resource classification for the following reasons:

- Completion of site visit by the Competent Person from 11 to 12 December 2020 for two days to review the suitability of the auger drilling program, the overall stack geometry and geology, and the bulk density surface sampling process.
- Review and remote supervision of all subsequent drilling, sampling, and bulk density programs by the Competent Person.
- Adequate definition of TREO and REE mineralisation continuity derived from the two drilling and sampling programs.
- Appropriate sample assay analysis techniques with QAQC controls to define the tenor of TREO and REE grades.
- Adequate survey control using LiDAR to define the surface topography of both Stack A and B, combined with a reasonable estimate of the pre-stacking topography at the base of the stacks using surface trends from the topography around the edge of the stacks together with results of the drilling that penetrated the basal topography, to define the volume of each stack.
- Geological mapping and sampling used to excise areas where rubbish material was dumped together with the residue, and to excise areas currently being reclaimed for agricultural uses.
- An estimate of the average in-situ dry bulk density of 1.2 t/m^3 is used to estimate the mineral resource tonnage. The Competent Person acknowledges further bulk density testwork is required to improve the bulk density estimate based on potential variability with stacking depth, surface weathering and water saturation.
- Adequate initial metallurgical testwork and financial analysis completed to satisfy the requirement for RPEEE.

10.2 Mineral Resource Estimate – Risks, Uncertainty and Opportunity

The following risks, uncertainties and opportunities are noted my Maja;

- Ardaman & Associates Inc. (phosphogypsum experts) suggest that bulk density may increase with depth below the saturated zone. Reliable estimates of tonnage below the saturated zone are a risk but should density values increase then some tonnage upside may be realised.
- Maja are reasonably confident that the drill program planned for Q3/Q4 2023 will provide sufficient additional data points to upgrade currently defined Inferred Mineral Resources to higher categories.
- There exists some potential to realise additional Mineral Resource below the rubble material if reliable drilling can be deployed to test this zone.
- Layered mineralisation within the mixed zone (between soil horizons) may exhibit a more complex boundary interface making extraction without significant dilution, impossible. This is a current risk which should be better understood and evaluated as part of further study.

11 RECOMMENDATIONS

11.1 Further Work

Rainbow plans to complete the following work during 2023:

- Metallurgical test work utilising the bulk samples collected during the Phase 2 RAB drilling phase to finalise the processing flow sheet based on utilisation of a pilot plant.
- Utilise a drilling process called 'pitcher drilling' in an effort to collect in-situ sample which more accurately represent the in-situ dry bulk density. Based on discussion with professionals with expert experience in these type of stacks, the understanding is that in-situ dry bulk density increases with stack depth.
- Update the MRE if warranted by the results from activities 1 and 2 above.

Maja consider these work programs to be valid and required to increase confidence ahead of more detailed techno-economic study. In addition, Maja recommends;

- Pumping of surface water ponds to provide access to central areas of the stacks where additional infill drilling is required to facilitate potential upgrade of Inferred Mineral Resources to higher categories, and to obtain more accurate in-situ dry bulk density below the water table. Alternative drilling methods need to be evaluated and a suitable method selected to provide infill drill coverage.
- Should additional drilling facilitate upgrade of Inferred Mineral Resources to higher categories, any updated MRE should be used as an input into more detailed techno-economic study and Mineral Reserves definition.

12 REFERENCES

Davidson, J.J - Rainbow Rare Earths – Phalaborwa Rare Earths Project, Preliminary Economic Assessment, Sept 2022

13 ABBREVIATIONS

Abbreviation	Description
°	degrees
°C	degrees Celsius
µm	micron(s)
3D	three-dimensional
bcm	bank cubic metre(s)
Ce	cerium
cm	centimetres
DSI	Drone Solutions International
DTM	digital terrain model
Dy	dysprosium
F	fluorine
Foskor	Foskor Limited
g	gram(s)
Ga	gallium
Gd	gadolinium
GPS	global positioning system
HREO	heavy rare earth oxide
kg	kilogram(s)
km	kilometres
LiDAR	light detection and ranging (survey)
LREO	light rare earth oxide
m	metre(s)
Maja	Maja Mining Limited
mm	millimetres
MRE	Mineral Resource estimate
Mt	million tonnes
Nd	neodymium
NPV	net present value
OK	ordinary kriging
PA	phosphoric acid
PDC	Phosphate Development Company
PEA	preliminary economic assessment
PIC	Phalaborwa Igneous Complex
ppm	parts per million
Pr	praseodymium
QAQC	quality assurance and quality control
RAB	rotary air blast
Rainbow	Rainbow Rare Earths Limited
REE	rare earth element
RPEEE	reasonable prospects for eventual economic extraction
SGS	SGS South Africa
t/m^3	tonnes per cubic metre
Tb	terbium
Th	thorium
tpd	tonnes per day
TREO	total rare earth oxide
U	uranium

Appendix A JORC (2012) Table 1

JORC Table 1 is set out below. Table 1 commentary is provided in compliance with the principles of the JORC Code and is a required element of public reporting under the cope.

Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling, 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.*	Auger drilling – rotating spiral within a core barrel, minimising contamination. 50 mm bore rod producing 3.5–7.0 kg of sample per 1.5 m increment. Material recovered is extruded on to half pipe to ensure total sample collection. 1.5 m samples sent to SGS Randfontein for chemical analysis. Rotary percussion drilling (RAB) – 8.5" drill bit diameter producing around 40 kg of sample per 1 m. Assay samples were selected by using a spear to extract around 2 to 3 kg of representative sub-sample. The remaining sample was kept in plastic sample bags and stored in sealed drums for further metallurgical testwork. All assay samples were submitted SGS, Randfontein for F & REE, U, Th and F analysis using Exploration Grade ISE and Sodium Peroxide fusion/ICP-MS package. A sonic drilling trial resulted in poor penetration rates and poor recovery and as a result was abandoned and samples were not used for Mineral Resource estimate ("MRE") work. Some bulk density samples were collected from sonic drilling. Phosphogypsum material present in the tailings stacks is the material of interest. Relatively uniform in colour and grain size.
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).*	Two campaigns of auger and rotary air blast ("RAB") drilling (2020 and 2022). Auger drilling used a 5 cm bore rod within a core barrel. RAB drilling using an 8.5" face sampling bit.
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.*	Auger core barrel encasing spiral minimises contamination and maximises sample recovery. Sample mass was recorded. Dry to moist samples achieved good recovery with 80 to 100% yield. Wet samples experienced poor recovery, with drilling terminated once recovery was below 50%. Due to the homogeneous and fine nature of the material, no relationship between recovery and grade is expected.
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 studies.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*	All drill samples were geologically logged by Rainbow rare earth technical staff. The Competent Person has reviewed logging data and geological information and considers the level of detail appropriate to Mineral Resource evaluation. The deposit is a secondary (tailings) deposit.

Criteria	JORC Code explanation	Commentary
	The total length and percentage of the relevant intersections logged.	Geological logging used a standardised logging system.
Subsampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all cores 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.*	1.5 m auger samples and 1.0 m RAB samples were collected. Whole material sampling of auger holes and roughly 10% (2 to 3kg) of RAB samples. A quality assurance and quality control (“QAQC”) program was implemented during drilling campaigns, including the insertion of certified standards, blanks, and field duplicates into the sample stream at a ratio of 1:18. This is considered appropriate. Umpire analysis (5%) was completed during Phase 1 drilling. Due to the complexity of the digestion methods used to extract rare earth elements (“REEs”), there is some variance between standards, duplicates, and umpire analyses. Further sample preparation was undertaken at the SGS laboratory in Ranfond by SGS laboratory staff. At the laboratory, samples were weighed, dried and crushed to 80% <2 mm (<2 kg). pulverised and split to 85% <75 µm (<250 g). REE’s, U and Th assayed using Sodium Peroxide Fusion with ICP-MS finish. F by Sodium Hydroxide / Potassium Nitrate Fusion with Ion Selective Electrode.
Quality of assay data and laboratory tests	*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.*	ICP is considered a “total” assay technique. No field non-assay analysis instruments were used in the analyses reported. A review of certified reference material and sample blanks inserted by the Company indicated no significant analytical bias or preparation errors in the reported analyses. Results of analyses for field sample duplicates are consistent with the style of mineralisation evaluated. Internal laboratory QAQC checks are reported by the laboratory and a review of the QAQC reports suggests the laboratory is performing within acceptable limits.
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.*	All drillhole data is paper logged at the drill site and then digitally entered by site geologists at the office. All digital data is verified and validated by the site geologist before loading into the drillhole database. No specific twinning of holes was undertaken in this program although 2 close spaced (5 to 10 m spacing “L’s”) were drill to check close spaced grade variability. No adjustments to assay data were made.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (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.*	Stack A and Stack B deposits were surveyed by Drone Solutions International (“DSI”). The survey was conducted at a height of 75 m and 8 m/s flight speed generating 80–10 survey points per square metre employing a light detection and ranging (“LiDAR”) scanner attached to a multi-copter drone. The survey grid is WGS84/36S.

Criteria	JORC Code explanation	Commentary
		Auger and RAB hole collars are positioned and picked up using GPS. Collar elevation was determine from the Lidar topography surface. Accuracy of the GPS +/- 3m in Easting and Northing is considered appropriate for this type of deposit. The survey grid is WGS84/36S.
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.*	Stack A and Stack B have been drill tested with Phase 1 auger drilling on a nominal 200 m x 150 m grid where accessible. Phase 2 RAB drilling provided infill data coverage, variable in nature rather than a grid, to ~100 m x 75 m. The Competent Person considers the data coverage to be sufficient to establish an appropriate level of grade continuity. Stack A and Stack B are secondary deposits (residue precipitates) comprised of thinly bedded, white, fine-grained, friable phosphogypsum. Geological confidence has limited relevance to the deposits under evaluation. Drill sample field compositing has not been undertaken.
Orientation of data in relation to geological 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 nature of the deposit type (residue precipitates) renders the consideration of orientation in relation to geological structure of limited importance. Auger and RAB drilling was vertical (-90) drilling perpendicular to the horizontal layering of the tailings. The Competent Person considers the orientation of sampling achieves unbiased sampling.
Sample security	*The measures taken to ensure sample security.*	Samples were stored in a site warehouse after each days drilling. Once sample processing was completed the samples were placed in 200l sealed drums for transport by road to the laboratory.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	There has been no external audit of the Company's sampling techniques or data. Quality control procedures and quality assurance data were managed by Maja Mining Limited "Maja") and were deemed to be suitable for use within a resource estimate.

Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/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 the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The project is covered by three licences; – Certain Surface Right No 175/1976 on the farm Wegsteek 30, Registration Division L.U., Northern Province, RMT No O 240/74, t 316.4085 hectares in extent held under Surface Right No 175/1976 and Diagram RMT No O 240/1974 held by Bosveld under a Deed of Transfer 09/2013. – Certain Surface Right No F5/1964 on the farm Wegsteek 30, Registration Division L.U., Northern Province, RMT No 364, 145.6104 hectares in extent held under Surface Right No F5/1964 and Diagram RMT No 354 held by Bosveld under Deed of Transfer 10/2013.

Criteria	JORC Code explanation	Commentary
		– Certain Surface Right No 92/1969 on the farm Wegsteek 30, Registration Division L.U., Northern Province, RMT No 364, 3.4261 hectares in extent held under Surface Right No 92/1969 and Diagram RMT No 0211/1968 held by Bosveld under Deed of Transfer 05/2013. The project is 85% owned by Rainbow and 15% owned by Bosveld Phosphates Pty Ltd (in whose name the licences are in) following an agreement dated 27 June 2023. Rainbow has a right to acquire the remaining 15%, subject to certain conditions being met. These conditions are not known. These surface rights were registered with the Mineral and Petroleum Titles Registration Office when the Mining Rights Act, 1967, was replaced by the Minerals Act, 1991, and therefore are rights to the surface in perpetuity granted to Bosveld. The fact that they were originally granted under the Mining Act and that the gypsum stacks that sit on them contain a defined Mineral Resource do not mean that the rights or the Mineral Resource are considered minerals under SA legislation. The gypsum stacks are considered moveable property under SA legislation and are therefore outside mining legislation. Bosveld has an obligation to grant Rainbow a long-term notarial lease over the surface area required for the Project and to transfer ownership of the gypsum stacks to an SPV at a time of Rainbow's choosing, with a long stop date of 31 December 2025.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	There has been no other exploration completed over Stack A and Stack B prior to Rainbow Rare Earths Limited ("Rainbow") ownership.
Geology	*Deposit type, geological setting and style of mineralisation.*	The deposit is a secondary deposit (residue precipitate) from an earlier mine processing operation, comprising two tailings stacks, Stack A and Stack B. The stacks comprise thinly bedded, white, fine-grained, and friable phosphogypsum laid down as horizontal layers.
Drillhole information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* • *easting and northing of the drillhole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* • *dip and azimuth of the hole* • *downhole length and interception depth* • *hole length.* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	The report to which this table applies is not disclosing Exploration Results. Resource development auger and RAB drilling over Stack A and Stack B comprised vertical holes. A table of drill hole collar information is contained in Appendix B.

Criteria	JORC Code explanation	Commentary
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.*	Not applicable. Drilling results have not been aggregated.
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 drillhole 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').*	Auger and RAB drilling is vertical, perpendicular to horizontal layering of the tailings stacks.
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 drillhole collar locations and appropriate sectional views.*	Contained in the report.
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 Exploration Results.*	Not applicable. Exploration results are not being disclosed. The report contains enough commentary and visuals to avoid misleading.
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.*	Aside from drilling and the chemical analysis of samples collected, other data has been collected over Stack A and Stack B. Drone mounted LiDAR survey used to create an accurate digital terrain model ("DTM") for use in Mineral Resource estimation. Bathymetric survey of the acid water ponds using a floating sonar depth sensor. This data was used to create a basal surface of the ponds. High resolution ortho-mosaic photographic imagery completed via a drone-mounted Sony A600 camera. Surface mapping to identify rubble zones to be excised from the MRE. Surface pitting aided the boundary definition of these zones.
Further work	*The nature and scale of planned further work (egg 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.*	A program of drilling using the 'pitcher' sampling technique is planned to extract in-situ 'core' for use in more accurate in-situ dry bulk density determination. There is a possibility that bulk density increases with stack height.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
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 was provided to Maja on a daily basis during the drilling and sampling phases. Maja plotted the data against the drill plan and together with the site geologist ensure hole locations, downhole sample intervals and sampling number was correct.
	Data validation procedures used.	Data validations were performed upon import of database files to Datamine software.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person, Mr Malcolm Titley of Maja, visited the Bosveld Stacks during the period 11 to 12 December 2020 for two days to review the suitability of the auger drilling program, the overall stack geometry and geology, and the bulk density surface sampling process. The Competent Person also visited the SGS Roodepoort laboratory on 14 January 2021 to review the sample preparation, QAQC and analysis process. No issues were detected.
	If no site visits have been undertaken indicate why this is the case.	Not applicable.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The geology of the stacks is relatively simple, being residue precipitate from historical mining for phosphoric acid production. The volumes comprised thinly bedded layers of phosphogypsum. The Competent Person considers confidence to be adequate to estimate Mineral Resources.
	Nature of the data used and of any assumptions made.	Downhole geological logging data collected, and surface mapping data used to aid interpretation of residue/rubble boundaries.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Understanding the composition and residue stacks and the manner in which they were built results in a relatively simple interpretation. The Competent Person considers the effect of any alternative interpretations to be small.
	The use of geology in guiding and controlling Mineral Resource estimation.	Mineral Resource estimation has used grade continuity and grade data to estimate Mineral Resources within the largely uniform phosphogypsum layered stacks whose volume is limited by the extent of the stacks.
	The factors affecting continuity both of grade and geology.	Grade continuity is affected by the historical head grade of the feed to the processing plant. The precipitate was delivered to the stacks using tailings spigots resulting in spreading and mixing of the material effectively blending the grades towards the average. The fineness of the precipitate also increases homogeneity and reduces variability.
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.*	The extent of Mineral Resources for Stack A and Stack B are provided in the table below.

	Easting	Northing	Elevation
Stack A	1,200 m	1,050 m	80 m
Stack B	1,000 m	1,300 m	60 m

Criteria	JORC Code explanation	Commentary
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.*	DTM surface and wireframe development and estimation was completed in Datamine Studio software. A block model was created and constrained by the limits of each stack, excising areas of current and historical reclaim activity and rubble material. The block model was coded by DTM surfaces and interpreted water table. Statistical analysis of assay data and of drill campaigns was completed. Estimation domains interpreted. Stack B was divided into five domains: clean phosphogypsum, un-mineable rubble and three mixed domains. Top cutting was applied to all individual REEs prior to the conversion to oxide and the calculation of total rare earth oxide ("TREO"), heavy rare earth oxide ("HREO"), light rare earth oxide ("LREO") and Nd/Pr ratio. Geostatistical analysis (variography) was undertaken for TREO in each stack. Grade estimation of TREO, thorium, uranium, ratios of individual REEs to TREO were run via the use of ordinary kriging. A minimum of 15 samples and a maximum of 21 samples were used to estimate each kriging panel (50 m x 50 m x 3 m) of the model. A maximum of three samples per hole. Search passes were run on 1x, 2x and 3x search ranges of 300 m x 200 m x 10 m (Stack A) and 225 m x 150 m x 7 m (Stack B).
	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 estimate of Mineral Resources over Stack A and Stack B are similar to a previous estimate (2021). The 2023 estimate of 30.4 Mt at 0.44% TREO compares favourably to the 2021 estimate of 30.7 Mt at 0.43% TREO.
	The assumptions made regarding recovery of by-products.	Phosphogypsum is planned to be processed to produce three saleable separated rare earth oxide products (neodymium/praseodymium oxide, dysprosium oxide and terbium oxide). The remainder of the rare earth basket is to be stored for future consideration as an intermediate salt.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g., sulphur for acid mine drainage characterisation).	Fluorine, uranium and thorium are estimated as non-grade variables.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	OK panel estimation of 50 m x 50 m x 3 m panels with discretisation to 5.0 m x 5.0 m x 1.5 m. Panel estimation dimensions are between one-third and one-quarter of the average sample spacing.
	Any assumptions behind modelling of selective mining units.	Not required as the material will be bulk mined with no internal selectivity.
	Any assumptions about correlation between variables.	Grade estimation of individual REE variables, with grouping into reportable TREO, Nd/Pr proportions, LREO, HREO and CREO. The REE elements tend to correlate with TREO. F, U and Th are relatively independent.

Criteria	JORC Code explanation	Commentary
	Description of how the geological interpretation was used to control the resource estimates.	Given the nature of the deposit (secondary), geological interpretations are of limited use. The limits of the MRE are constrained by the physical boundary of the stacks. The estimate was controlled via use of defined variography parameters.
	Discussion of basis for using or not using grade cutting or capping.	Histograms, probability plots and percentile plots were reviewed with top cut grade for each domain being selected as the 97.5th percentile.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	Validation checks included volume validation via visual checks of the block model against LiDAR surfaces, comparison of average composite grades with estimated block grades through the use of swath plots and visual validations. The Competent Person concludes that the tonnage and grade estimates appropriately represent the volume, tonnage and grade of the input data used.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated on a dry basis. Moisture content was measured but not modelled.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The Mineral Resource is quoted using a TREO cut-off grade of 0.2%. This is the lower grade limit of the bulk TREO grade of the stacks. Only material contaminated with co-deposited rubble or mixed with the material at the base of the stacks is below 0.2%. Given mining selectivity is not an option, and that bulk material will be processed, and that the current PEA concludes a conceptually economic outcome based on the average grade of the stacks based on this curt-off, the cut-off is considered reasonable.
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.*	As contained in the 2022 PEA study, material movement is expected to be dominated by sluicing and pumping, with limited load and haul activities.
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.*	As set out in the 2022 PEA, Mineral processing using a continuous ion exchange (to remove impurities) followed by REE leach and REE refining to produce three saleable products: neodymium/praseodymium oxide, dysprosium oxide, and terbium oxide. It must be noted that various intermediate product options may be possible depending on final economics. All processing will be on-site at the Phalaborwa Mining Complex adjacent to the phosphogypsum stacks.

Criteria	JORC Code explanation	Commentary
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.*	The Project will be constructed on an existing industrialised site without impacting land use. No new infrastructure is required outside of the existing property. Rehabilitation of some previously disturbed land will be accelerated during the Project. The Project will play a crucial role in environmental remediation and improvement as well as providing economic and social benefits: • Polluted water on the existing stacks, in the existing ponds and in the groundwater will be neutralised and used as process water. • Seepage of polluted water from the unlined existing stacks will be eliminated and the residue phosphogypsum from the process will be placed on new lined stacks. It is anticipated that a significant proportion of the residual phosphogypsum will be sold for agricultural and industrial use and removed from site. The beneficial economic impact of this has not been included in the PEA.
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.*	During the Phase 1 drilling campaign samples were collected for bulk density estimation from the surfaces of the two stacks: • 234 samples were collected using a one litre volume steel mould hammered into selected surfaces of the stacks (e.g., access cuts and mining faces) • 33 were specimen lumps weighing in average 364 g of reasonably competent gypsum found at the surface on the stacks. The 234 samples yielded bulk density values ranging from 0.60 t/m^3 to 1.45 t/m^3 with an average of 1.00 t/m^3. The 33 hand specimen lumps samples were dried, and the bulk density analysed using the wax coated water immersion method. 14 had an average bulk density of 1.27 t/m3, the remaining 19 samples floated (bulk density <1.0). The potential issue with these two sample types is that they represent the weathered top 10–50 cm of the stacks, where weathering processes have affected the porosity of the original precipitate, making these samples unrepresentative of the bulk density of the entire stacks. A literature review of phosphogypsum tails deposits indicated a bulk density of around 1.1 t/m^3 to 1.3 t/m^3, which also correlates with the estimated stack volumes and stated historical production of around 35 Mt of tailings. This information justified further work to obtain a representative set of samples from the stacks to estimate the bulk density. A bulk density drilling program was initiated in April 2021. The program included a sonic drilling method as an attempt to recover competent sections of core at depth.

Criteria	JORC Code explanation	Commentary
		The recovery of intact, unbroken core from the Phase 2 sonic drilling was below expectation, with only 19 pieces of core recovered from the drilling which were competent enough to determine bulk density using the measured volume of the core cylinder divided by dry mass of core method. Five of the samples were cross-checked using the wax immersion method with identical results (within ±1% to 3%). The bulk density values were plotted in 3D and reviewed spatially to determine if there were any obvious depth trends and statistically to review the data distribution. The results show a normal distribution of values with a mean and median of 1.66 t/m^3 and 1.67 t/m^3, respectively. The RAB drilling had good production rates and good sample recovery. Sample intervals with recovery greater than 70% and moisture recorded as dry, or damp were considered suitable for dry bulk density determination. A total of 216 samples were available. Dry mass was calculated by application of the laboratory determined moisture content and volume estimated from the drillhole volume multiplied by the recovery. The resulting average dry bulk density was 1.2 t/m^3. Correlation of bulk density with drilling depth was reviewed. There is a possible positive correlation with a regression coefficient of 0.36, with average bulk density around 0.9 to 1.1 at the surface increasing to 1.2 to 1.6 at depths greater than 20 m. The moisture content of the stacks is variable. Near-surface moisture content averages around 10–15%, increasing with depth below 10 m to 20–30%, with some areas being saturated near the base of the dumps and proximal to the central solution ponds. In 2022, DSI completed a LiDAR survey of the southeast sector of Stack B. Mining of the dump as a gypsum source for local farmers continued throughout the period from the previous LiDAR survey in April 2021 to the current survey. DSI estimated the volume difference in the area of mining as 50,081 bcm. Maja verified the result using a block modelling method with a volume estimate of 51,110 bcm. All material mined was weighed over a weigh bridge with a moist weight of 65,793 tonnes. Moisture sample of the dump (10 samples) gave an average moisture content of 13.8%. Using this information the near surface bulk density of the mined material ranges from 1.11 t/m^3 to 1.13 t/m^3, which supports the results from the RAB drilling program. In conclusion the Competent Person is satisfied that an average bulk density of 1.2 t/m^3 is suitable for the Bosveld gypsum stacks tonnage estimate. Further work is required to determine if the indicative increase in bulk denstiy with depth is correct and should be applied to future MRE updates.

Criteria	JORC Code explanation	Commentary
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	See above.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk density estimates are based on average results obtained from data collection activities.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Mineral Resource estimation of Stack A and Stack B has been classified via consideration of the following: • Completion of site visit by the Competent Person from 11 to 12 December 2020 for two days to review the suitability of the auger drilling program, the overall stack geometry and geology, and the bulk density surface sampling process. • Review and remote supervision of all subsequent drilling, sampling, and bulk density programs by the Competent Person. • Adequate definition of TREO and REE mineralisation continuity derived from the two drilling and sampling programs. • Appropriate sample assay analysis techniques with QAQC controls to define the tenor of TREO and REE grades. • Adequate survey control using LiDAR to define the surface topography of both Stack A and B, combined with a reasonable estimate of the pre-stacking topography at the base of the stacks using surface trends from the topography around the edge of the stacks together with results of the drilling that penetrated the basal topography, to define the volume of each stack. • Geological mapping and sampling used to excise areas where rubbish material was dumped together with the residue, and to excise areas currently being reclaimed for agricultural uses. • An estimate of the average in-situ dry bulk density of 1.2 t/m^3 is used to estimate the mineral resource tonnage. The Competent Person acknowledges further bulk density testwork is required to improve the bulk density estimate based on potential variability with stacking depth, surface weathering and water saturation. • Adequate initial metallurgical testwork and financial analysis completed to satisfy the requirement for potential eventual economic extraction (“RPEEE”). • Measured Mineral Resources over areas of closed spaced (<100 m) drilling with high confidence in kriging statistics to define suitable contiguous volume of higher confidence material. • Indicated Mineral Resources over areas of 100–300 m spacing with adequate confidence in kriging statistics to define suitable zones of contiguous volume of moderate confidence material.

Criteria	JORC Code explanation	Commentary
		• Inferred Mineral Resources – all remaining volume not classified as Measured or Indicated Mineral Resources, within the constrained block model volume.
	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).	The Competent Person has taken appropriate account of all relevant factors (including reference to the 2022 PEA outcomes) to conclude that appropriate levels of confidence are demonstrated to underpin the Mineral Resource classifications adopted.
	Whether the result appropriately reflects the Competent Person's view of the deposit	The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	No external audits or reviews have been completed.
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 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.*	Industry standard modelling techniques were used, including but not limited to: • Classical statistical analysis, cut-offs selection • Interpretation and wireframing • Top cutting and interval compositing • Geostatistical analysis • Block modelling and grade interpolation techniques • Model classification, validation, and reporting. The relative accuracy of the estimate is reflected in the classification of the deposit. The relative accuracy of the MRE is reflected in the reporting of the Mineral Resource to a Measured, Indicated, and Inferred classification as per the guidelines of the 2012 JORC Code.
	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.	The statement refers to global estimation of tonnes and grade and is suitable for use in a subsequent techno-economic study.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical production records from the processing plant support the total volume estimates of the stacks.

Appendix B Drill Hole Collar Table

Hole ID	Easting (X)	Northing (Y)	Elevation (Z)	Stack	Depth (m)	Hole Type	Base (Yes/No)	Water Table (m)	Met Samples (Yes/no)
PAH01	305937.7	7346227	374.1546	B	12	AG	Yes	-	0
PAH02	306044.4	7346330	374.2197	B	9	AG	Yes	-	0
PAH03	306150.4	7346436	374.7039	B	10.5	AG	Yes	-	0
PAH04	306262.2	7346558	374.6449	B	12	AG	Yes	-	0
PAH05	306357.1	7346658	375.5509	B	10.5	AG	Yes	-	0
PAH06	305965.6	7346141	374.0469	B	12	AG	Yes	-	0
PAH07	306072	7346251	388.4507	B	16.5	AG	0	-	0
PAH08	306182	7346360	387.5917	B	18	AG	Yes	-	0
PAH09	306296.7	7346454	392.2424	B	18	AG	Yes	-	0
PAH10	306401.1	7346568	393.0228	B	19.5	AG	Yes	-	0
PAH11	306504.3	7346668	386.8796	B	15	AG	Yes	-	0
PAH12	306005.3	7346051	374.3992	B	13.5	AG	Yes	-	0
PAH13	306111	7346161	390.4527	B	21	AG	Yes	-	0
PAH14	306210.9	7346279	389.7492	B	21	AG	Yes	-	0
PAH15	306337	7346370	389.0474	B	21	AG	Yes	-	0
PAH16	306441	7346477	390.6823	B	21	AG	Yes	-	0
PAH17	306547.3	7346582	393.1134	B	18	AG	Yes	-	0
PAH18	306042.2	7345964	374.5554	B	12	AG	Yes	-	0
PAH19	306153	7346078	390.641	B	21	AG	0	-	0
PAH22	306498	7346421	389.4812	B	12	AG	0	-	0
PAH23	306596	7346491	392.9849	B	16.5	AG	Yes	-	0
PAH24	306077	7345883	374.7795	B	10.5	AG	Yes	-	0
PAH25	306189	7345987	391.0512	B	19.5	AG	0	-	0
PAH27	306426.5	7346193	390.6094	B	19.5	AG	0	-	0
PAH28	306519	7346300	389.78	B	18	AG	0	-	0
PAH29	306640	7346408	393.6812	B	13.5	AG	Yes	-	0
PAH31	306230	7345895	392.1966	B	12	AG	Yes	-	0
PAH33	306453	7346098	406.1131	B	7	AG	0	-	0
PAH34	306571	7346193	392.2453	B	17	AG	Yes	-	0
PAH35	306682	7346305	394.3088	B	13.5	AG	Yes	-	0
PAH36	306393.5	7345893	399.0033	B	4.5	AG	Yes	-	0
PAH38	306618	7346091	390.8935	B	16.5	AG	Yes	-	0
PAH39	306731	7346197	391.0964	B	7.6	AG	Yes	-	0
PAH40	305244.5	7346667	375.9686	A	13.5	AG	Yes	-	0
PAH41	305390	7346810	386.8779	A	16.5	AG	Yes	-	0
PAH42	305533.3	7346954	389.8996	A	15	AG	0	-	0
PAH43	305688.8	7347090	389.8599	A	15.1	AG	Yes	-	0
PAH44	305852.6	7347208	382.8231	A	9	AG	0	-	0
PAH45	305199.6	7346399	368.8314	A	7.5	AG	Yes	-	0
PAH46	305316	7346544	394.7062	A	18	AG	0	-	0
PAH47	305470.5	7346675	411.1429	A	15	AG	0	-	0
PAH48	305592.1	7346827	411.5587	A	13.5	AG	0	-	0
PAH49	305761.9	7346974	411.8678	A	18	AG	0	-	0

PAH50	305913.2	7347117	399.8945	A	18	AG	Yes	-	0
PAH51	305246	7346280	368.9584	A	6	AG	0	-	0
PAH52	305398	7346408	403.1482	A	22.5	AG	0	-	0
PAH53	305544	7346550	411.7556	A	15	AG	0	-	0
PAH56	305999.7	7346984	412.3392	A	27	AG	0	-	0
PAH57	306137	7347109	381.0618	A	9.1	AG	Yes	-	0
PAH58	305476.1	7346290	377.8054	A	6	AG	Yes	-	0
PAH59	305624.9	7346427	390.6129	A	13.5	AG	0	-	0
PAH60	305769.7	7346564	412.234	A	15	AG	0	-	0
PAH61	305908.8	7346704	411.4706	A	15	AG	0	-	0
PAH62	306072	7346849	409.1317	A	16.5	AG	0	-	0
PAH63	306207.1	7346981	380.7006	A	13.5	AG	Yes	-	0
PAH64	305712	7346326	385.3053	A	13.5	AG	0	-	0
PAH65	305852.4	7346427	385.4586	A	13.5	AG	0	-	0
PAH66	305991.6	7346581	391.5766	A	15	AG	Yes	-	0
PAH67	306143.8	7346718	385.4528	A	13.5	AG	0	-	0
PAH68	306263.7	7346874	385.8716	A	15	AG	Yes	-	0
PAH72	306473	7346122	393.9172	B	3	AG	0	-	0
PAH73	306583	7346018	393.6568	B	4.5	AG	0	-	0
PAH74	306178	7346373	385.2786	B	13.5	AG	0	-	0
PAH77	306195	7346366	389.1807	B	13.5	AG	0	-	0
PAH78	306202	7346370	389.3476	B	15	AG	Yes	-	0
PAH79	306212	7346377	389.6415	B	16.5	AG	0	-	0
PAH80	305392	7346415	403.0007	A	18	AG	0	-	0
PAH81	305387	7346425	402.8772	A	21	AG	0	-	0
PAH82	305384	7346433	402.7599	A	18	AG	0	-	0
PAH83	305408	7346410	403.0558	A	19.5	AG	0	-	0
PAH84	305417	7346417	403.0827	A	18	AG	0	-	0
PAH85	305424	7346423	403.0907	A	18	AG	0	-	0
PSH01	305455	7346518	411.0887	A	18	SD	0	-	0
PSH02	305720	7346528	411.7949	A	11	SD	0	-	0
PSH03	306120	7346875	407.0559	A	0	SD	0	-	0
PSH04	306007	7346993	413.0288	A	12	SD	0	-	0
PSH05	305602	7347029	390.3383	A	9	SD	0	-	0
PSH06	306086	7346137	392.262	B	20.5	SD	Yes	-	0
PSH07	306164	7345953	392.274	B	17.6	SD	0	-	0
PSH08	306350	7346473	391.9773	B	20.4	SD	0	-	0
PSH09	306704	7346262	394.7526	B	9	SD	0	-	0
P001	306407	7346070	405.5553	B	5	PIT	0	-	Yes
P002	306391	7346041	405.6648	B	5	PIT	0	-	0
P003	306418	7346029	406.9552	B	5	PIT	0	-	Yes
P004	306454	7346019	406.4873	B	5	PIT	0	-	0
P005	306470	7346039	407.2523	B	3	PIT	0	-	Yes
P006	306473	7346072	407.0304	B	5	PIT	0	-	0
P007	306425	7346093	405.3586	B	3	PIT	0	-	Yes
P008	306362	7346024	406.179	B	5	PIT	0	-	0
P009	306384	7345958	405.5984	B	5	PIT	0	-	0
P010	306391	7345921	405.8169	B	5	PIT	0	-	0

P011	306312	7345786	390.8961	B	3	PIT	0	-	0
P012	306268	7345797	390.7148	B	3	PIT	0	-	0
P013	306231	7345640	394.8904	B	5	PIT	0	-	0
P014	306231	7345601	395.3048	B	5	PIT	0	-	Yes
STABH001	305331.2	7346605	397.04	A	22	RAB	0	21	Yes
STABH002	305364.1	7346519	402.71	A	19	RAB	0	18	Yes
STABH003	305423.2	7346364	397.65	A	26	RAB	0	25	Yes
STABH004	305406.2	7346786	392.09	A	21	RAB	Yes	16	Yes
STABH005	305442.1	7346647	411.37	A	40	RAB	Yes	28	Yes
STABH006	305556.9	7346795	412.05	A	15	RAB	0	15	Yes
STABH007	305558.1	7346924	398.19	A	22	RAB	Yes	21	Yes
STABH008	305587.9	7346479	398.7	A	18	RAB	0	17	Yes
STABH009	305673.8	7346541	411.55	A	16	RAB	0	15	Yes
STABH010	305689.8	7346937	412.22	A	26	RAB	0	25	Yes
STABH011	305707.6	7347045	398.98	A	22	RAB	Yes	19	Yes
STABH012	305817.9	7346491	399.35	A	25	RAB	0	23	Yes
STABH013	305857.1	7346652	412.72	A	32	RAB	Yes	16	Yes
STABH014	305963.3	7346627	399.35	A	26	RAB	0	25	Yes
STABH015	305969.5	7346787	411.66	A	28	RAB	0	26	Yes
STABH016	305958.2	7347033	409.66	A	26	RAB	0	26	Yes
STABH017	306048	7346925	412.07	A	33	RAB	Yes	31	Yes
STABH018	306079.9	7346820	404.96	A	27	RAB	0	24	Yes
STBBH019	305985.2	7346095	374.3	B	16	RAB	0	11	Yes
STBBH020	306060.1	7345919	374.75	B	12	RAB	0	11	Yes
STBBH021	306101.6	7346214	391.24	B	8	RAB	0	8	Yes
STBBH022	306187.7	7346038	390.78	B	6	RAB	0	6	Yes
STBBH023	306208.6	7346349	392.6	B	15	RAB	0	13	Yes
STBBH026	306305.4	7346521	385.77	B	21	RAB	0	18	Yes
STBBH027	306318.6	7346446	391.97	B	23	RAB	0	23	Yes
STBBH028	306377	7346602	386.17	B	19	RAB	Yes	-	Yes
STBBH031	306536.3	7346489	393.03	B	22	RAB	0	19	Yes
STBBH032	306521.2	7346623	393.32	B	20	RAB	Yes	-	Yes
STBBH033	306551.5	7346231	392.12	B	15	RAB	0	14	Yes
STBBH034	306603.9	7346449	392.99	B	19	RAB	Yes	16	Yes
STBBH036	306691.4	7346281	394.39	B	10	RAB	Yes	-	Yes
STBBH037	306153.8	7346241	390.93	B	8	RAB	0	8	Yes
STBBH038	305956.3	7346248	374.4	B	16	RAB	0	16	Yes
STBBH039	306114.3	7346400	374.52	B	13	RAB	0	13	Yes
STBBH040	306152.8	7345931	392.04	B	23	RAB	0	23	Yes
STBBH041	306049.9	7346186	391.62	B	23	RAB	0	23	Yes
STBBH042	306620.6	7346354	394.25	B	16	RAB	Yes	16	Yes
STBBH043	306123.7	7346003	392.14	B	24	RAB	0	24	Yes
STBBH044	306189	7346036	390.4079	B	12	RAB	0	4	Yes
STBBH045	306265	7345830	390.3253	B	15	RAB	0	14	Yes
STBBH046	306278	7345805	391.0146	B	18	RAB	0	14	Yes
STBBH047	306299	7345783	390.8829	B	18	RAB	0	12	Yes
STBBH048	306319	7345760	390.4486	B	18	RAB	0	12	Yes
STBBH049	306362	7345762	391.1909	B	17	RAB	Yes	12	Yes

STBBH050	306343	7345868	391.9132	B	10	RAB	Yes	-	Yes
STBBH051	306321	7345843	390.7579	B	20	RAB	Yes	12	Yes
STBBH052	306372	7345816	393.3154	B	21	RAB	Yes	15	Yes
STBBH053	306366	7345795	392.7058	B	20	RAB	Yes	15	Yes
STBBH054	306336	7345810	391.928	B	21	RAB	Yes	13	Yes
STBBH055	306304	7345729	390.6801	B	18	RAB	Yes	14	Yes
STBBH056	306241	7345797	390.7028	B	22	RAB	Yes	13	Yes
STBBH057	306258	7345774	390.3789	B	21	RAB	Yes	14	Yes
STBBH058	306274	7345746	390.4995	B	21	RAB	Yes	14	Yes
STBBH059	306277	7345707	389.7292	B	19	RAB	Yes	12	Yes
STBBH060	306306	7345692	391.625	B	18	RAB	Yes	16	Yes
STBBH061	306341	7345727	391.9879	B	18	RAB	Yes	17	Yes
STBBH062	306421	7345832	396.3255	B	22	RAB	Yes	17	Yes
PAH01	305937.7	7346227	374.1546	B	12	AG	Yes	-	0
PAH02	306044.4	7346330	374.2197	B	9	AG	Yes	-	0
PAH03	306150.4	7346436	374.7039	B	10.5	AG	Yes	-	0
PAH04	306262.2	7346558	374.6449	B	12	AG	Yes	-	0
PAH05	306357.1	7346658	375.5509	B	10.5	AG	Yes	-	0
PAH06	305965.6	7346141	374.0469	B	12	AG	Yes	-	0
PAH07	306072	7346251	388.4507	B	16.5	AG	0	-	0
PAH08	306182	7346360	387.5917	B	18	AG	Yes	-	0
PAH09	306296.7	7346454	392.2424	B	18	AG	Yes	-	0
PAH10	306401.1	7346568	393.0228	B	19.5	AG	Yes	-	0
PAH11	306504.3	7346668	386.8796	B	15	AG	Yes	-	0
PAH12	306005.3	7346051	374.3992	B	13.5	AG	Yes	-	0
PAH13	306111	7346161	390.4527	B	21	AG	Yes	-	0
PAH14	306210.9	7346279	389.7492	B	21	AG	Yes	-	0
PAH15	306337	7346370	389.0474	B	21	AG	Yes	-	0
PAH16	306441	7346477	390.6823	B	21	AG	Yes	-	0
PAH17	306547.3	7346582	393.1134	B	18	AG	Yes	-	0
PAH18	306042.2	7345964	374.5554	B	12	AG	Yes	-	0
PAH19	306153	7346078	390.641	B	21	AG	0	-	0
PAH22	306498	7346421	389.4812	B	12	AG	0	-	0

Note: Auger (AG), Sonic (SD), Open-hole rotary (RAB), Rubble surface pit (PIT)