For personal use only

18 September 2023

Outstanding Results for Area 4 of the VHM Leases

Key Highlights:

- Area 4, situated 8km to the north of the proposed Goschen Rare Earths and Mineral Sands process plant (Figure 1)
    - Additional 11.5 million tonnes (Mt) @ 5.6% Total Heavy Mineral (THM) Probable Ore Reserve (Table 1)
- Within this area a high-grade minable horizon of 2.6 Mt @ 9.6% THM exists at the top of the ore body (Table 2). This horizon contains:
    - 245,500 tonnes of mineable THM
    - 67,700 tonnes of zircon at an in-situ grade of 2.6% (representing 27.6% of the economic mineral assemblage of ore in this upper horizon)
    - Average in-situ grade of the upper horizon is a standout 2300ppm Total Rare Earth Oxide (TREO)
    - Significantly higher rutile and leucoxene grades than previous seen within the Goschen Project Ore Reserve
- A preliminary feasibility has begun that will examine whether Area 4 could be mined with a simplified process flowsheet in a shorter timeframe than the main deposit. This would enable faster cash generation for the overall project.

Commenting on the results, Managing Director of VHM, Mr Graham Howard said:

"These are fantastic results for VHM in combination with high-grade deposits recently announced for both Cannie and Nowie Projects. Having multiple high-grade areas defined introduces optionality for both our mining plan and downstream processing and we are following up to assess these options.

Beyond the high-grade areas of Area 4 Orion Strandline, Cannie, and Nowie, similar investigations are underway to re-analyse previously identified deposits within the regional exploration that VHM has already conducted. This investigation has already indicated that similar high-grade potential exists at the Cygnus Prospect to the east of Goschen."

For personal use only

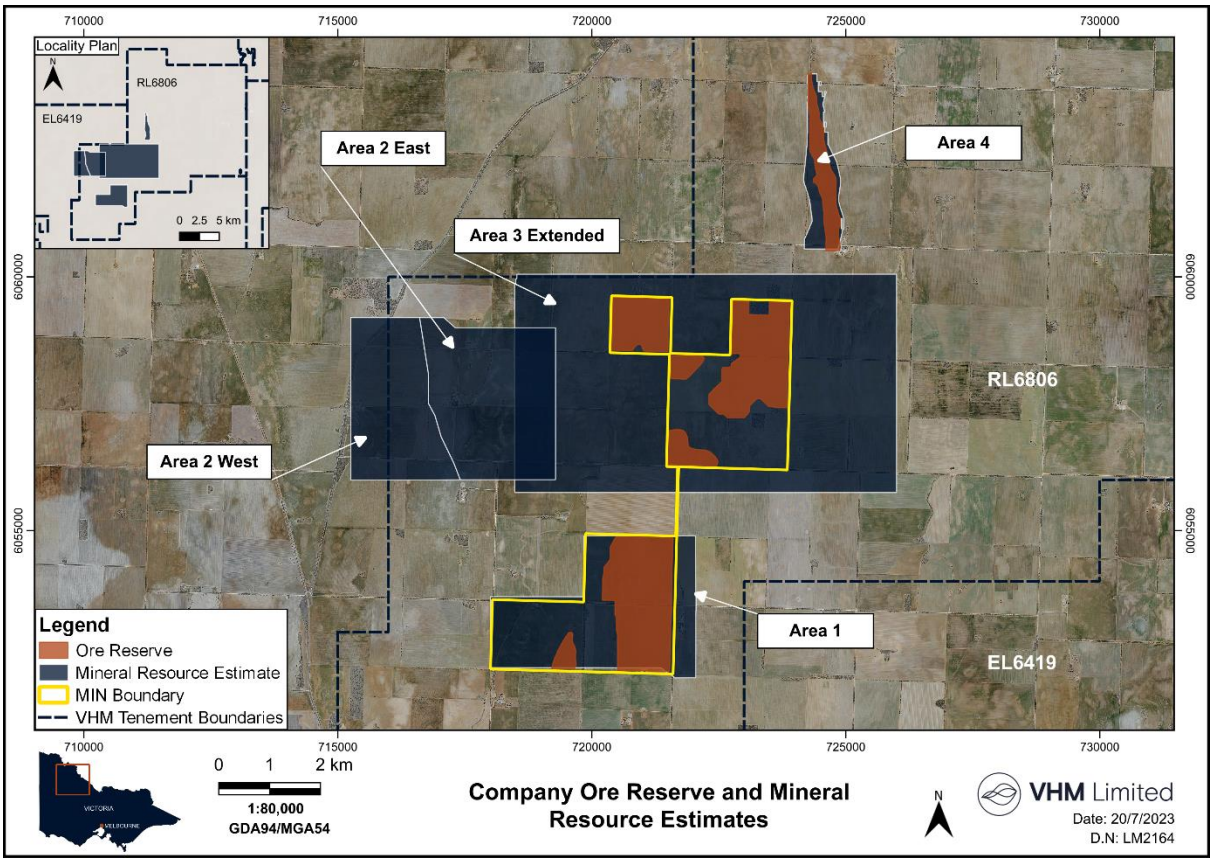


Figure 1: Goschen Rare Earths and Mineral Sands Project Ore Reserve and Mineral Resource Estimate

A high-grade strandline deposit within Area 4 was previously defined by resource definition drilling in 2018 and 2019. At this time, 1.6 tonnes of material was collected from four geological domains of interest. This material was characterized by Mineral Technologies and then treated though the Goschen Project mineral sands process flowsheet (ASX release 25 January 2023). This process confirmed the Area 4 material is amenable to processing through the flowsheet proposed for the Goschen Project. This is in addition to the previous global Company Ore Reserves of 198.7Mt. Total Company Ore Reserves now stand at 210.2 Mt @ 3.8% THM (Table 3).

Adding Area 4 (11.5Mt) to the proposed mining and processing of the Goschen Project (5Mtpa) enables the high-grade Zone 5 located at the top of the orebody (Figure 2) to be preferentially mined if determined to be optimal for the project methodology.

For personal use only

Table 1: Goschen Area 4 Ore Reserve

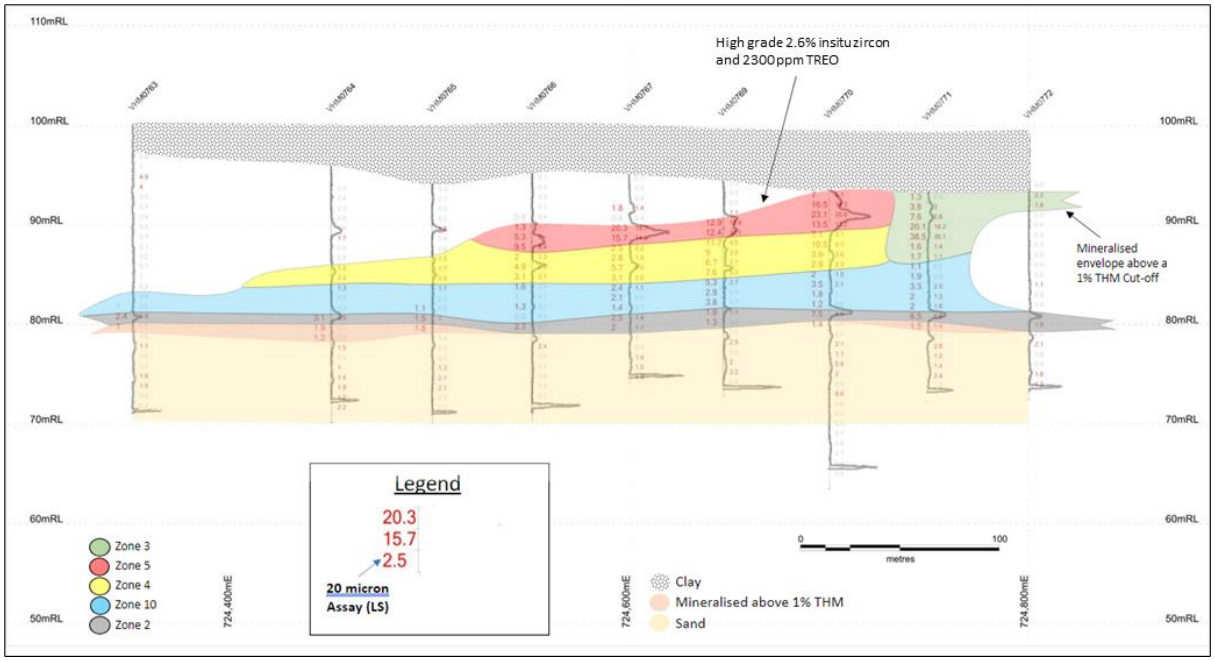
Reserve Classification	Ore[1] (Mt)	THM[1] (%)	Valuable Heavy Mineral Grade[2] (%)						TREO[3] (%)
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime	
Probable	11.5	5.6	19.6	12.2	10.1	24.6	3.0	0.7	1.88

Within this Probable Ore Reserve, several zones were categorised (Zones 2 – 11) and Zone 5 delivered the highest mineral sands and rare earth grades (Table 2).

Table 2: Goschen Area 4 (Zone 5 subsection) Ore Reserve

Reserve Classification	Ore[1] (Mt)	THM[1] (%)	Valuable Heavy Mineral Grade[2] (%)						TREO[3] (%)
			Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime	
Probable	2.6	9.6	27.6	14.2	11.9	29.1	3.6	1.0	2.40

Figure 2: Area 4 Cross Section illustrating the location of Zone 5 (pink) at the top of the mineralised zone



[1] *Ore Tonnes and THM grades are reported as mined.*
[2] *Valuable Heavy Mineral (VHM) grades are reported as a percentage of THM.*
[3] *Total Rare Earth Oxides + Yttrium (TREO) reported as a percentage of THM.*

Table 3: Company Ore Reserves

					Valuable Heavy Mineral Grade					
Area	Date	Classification	Ore	THM	Zircon	Rutile	Leucoxene	Ilmenite	Monazite	Xenotime
			(Mt)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Area 1	Mar-21	Proven	24.5	5.4	29.9	10.8	9.0	24.7	4.3	0.8
Area 1	Mar 21	Probable	14.6	3.2	29.2	11.7	9.2	25.5	4.5	0.9
Area 3	Feb 21	Probable	159.6	3.5	20.3	9.4	8.1	25.8	3.4	0.6
Area 4	Jul 23	Probable	11.5	5.6	19.6	12.2	10.1	24.6	3.0	0.7
TOTAL		**Proven**	24.5	5.4	29.9	10.8	9.0	24.7	4.3	0.8
		Probable	185.7	3.6	21.0	9.8	8.3	25.7	3.5	0.6
GRAND TOTAL			210.2	3.8	22.0	9.9	8.4	25.6	3.6	0.6

Note: Valuable Heavy Mineral grades are reported as a percentage of THM.

The matters required by ASX LR 5.9.1 are set out as follows.

Material Assumptions and Outcomes

Goschen Area 4 Pit Optimisation	
Ore Reserve (LoM)	2.5 years
Average Ore Grade (THM)	5.6%
Mining costs	A$3.08/t
Average Processing Costs	A$15.16/t
Product Freight Costs	A$60.28/t
Reference Zircon Price	US$1,418/t
Reference Rutile Price	US$1,267/t
Reference Leucoxene Price	US$294/t
Reference Ilmenite Price	US$237/t
Reference REMC Price	US$17.33/kg

Adamas Intelligence (rare earths) and TZMI (zircon and titania minerals) completed independent market reviews and provided long term reference prices in real USD. The pit optimisation process used commodity prices based on 2030 reference pricing. Commodity prices used for this study made allowances for transport costs, taxes, and quality adjustments with input from both Adamas Intelligence and TZMI regarding the quality of Goschen products.

For personal use only

For personal use only

Criteria for Classification

This Ore Reserve estimate was prepared by Auralia Mining Consulting Pty Ltd, a mining engineering consultancy with appropriate technical experience suited to this project. This work was undertaken at Pre-Feasibility Study level, the Ore Reserve portion of which was carried out on supplied Mineral Resource models. This analysis used information predominately from the March 2023 DFS Refresh in combination with work based on the metallurgical results announced on 25 January 2023. Some specific metallurgical validation work for Area 4 requires completion prior to assigning DFS level confidence.

The Ore Reserve is based on the Goschen Project Area 4 Mineral Resource Estimate, September 2019 which was generated for the Company by IHC Robbins. This data was referenced in the Company Prospectus, released on 5 January 2023. The new Ore Reserve is classified as Probable, in accordance with Pre-Feasibility Study (PFS) (JORC 2012) level of detail.

The process flow sheet including the Mining Unit Plant (MUP), Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Rare Earth Flotation Circuit (REFC) (Phase 1) was used as the basis for OPEX, process recovery and product sell price inputs which informed the Ore Reserve estimation process.

Any material classified as an Inferred Mineral Resource was not included in the Ore Reserve calculations. The Goschen Area 4 Mineral Resource is reported above a cut-off grade of 1% TVHM and is summarised in Table 4.

Table 4: Mineral Resource estimate - Goschen Area 4 deposit: THM assemblage

Area	Resource Category	Material (Mt)	In situ THM (Mt)	Density (g/cm^3)	THM (%)	Slimes (%)	OS (%)	Zir (%)	Rut (%)	LX (%)	Ilm (%)	Mon (%)	Xeno (%)
4	Indicated	18.0	0.8	1.74	4.60	20	5	19.0	11.0	10.0	24.0	3.0	1.0

Notes:
Mineral Resources reported at a cut-off grade of 1.0% TVHM (THM x VHM)
Mineral assemblage is reported as a percentage of in situ THM content

Mining Method Considerations

Pit optimisations were completed using Whittle software. Complete extraction of ore within pit designs is planned and ore will be trucked to an MUP ROM on the surface close to the mining face. The MUP will be relocated at as required to optimise truck haulage and slurry pumping. No drill and blast operations will be required, cross ripping of cemented sand horizons by dozers may be required.

Mining will be undertaken in as a strip/block-mining operation. Each block will be approximately 500m x 200m. An overall wall angle of 30° has been proposed based on

For personal use only

completed geotechnical studies. A batter angle of 40° was applied to the uppermost bench (in the topsoil / clayey-sand material), with a 6 m wide berm created at the 92mRL (between 5 and 12m below surface). Beneath this berm, a single slope of 32° was designed to the pit floor.

Waste material (topsoil, clay, and overburden) may be stockpiled on surface from the start of mining operations until such time as there is sufficient capacity and suitable conditions in the mined void to allow direct deposition into the mined areas. Stockpiled material on the surface will ultimately be backfilled into the final mine void to remove the visual effects of mining upon closure and help return the area to its original use.

The Resource model was regularised to a 25m x 25m x 1m block size. This resulted in an approximate mining dilution factor of 8% and a mining recovery factor of 98%. No further mining dilution or recovery was applied.

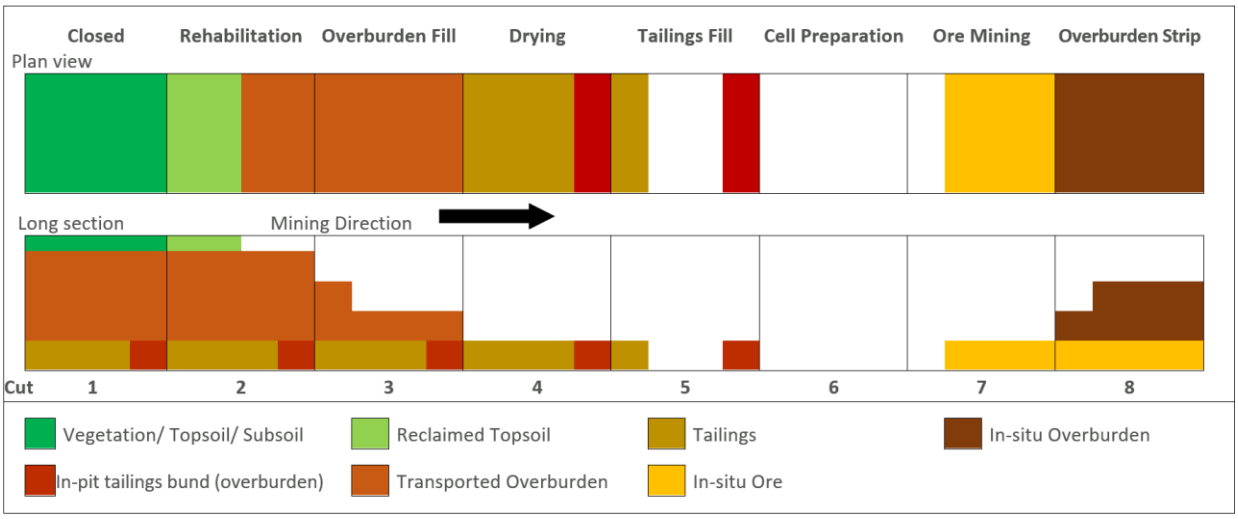


Figure 3: Schematic illustration of mining sequence including progressive backfill and rehabilitation

Excavator and truck (rigid and articulated), scraper, in-pit conveyor and dredging methods were initially assessed. Potential operational issues with in-pit conveyors (high capital costs, inflexibility in scheduling) and dredging (material properties and expected dry mining conditions) resulted in both methods being discarded. Operating costs for scraper production were found to be generally higher than for excavator and truck operations and therefore discarded as the primary production method. Ultimately, excavator and truck operation was considered the best fit for this project due to flexibility and costs.

Equipment Selection

Truck and excavator production will be the primary means of mining at the Goschen Project. The truck fleet will be used to transport the majority of overburden from its in-situ location to the waste dumps and for transporting ore to the mining unit plant (MUP). Two hundred tonne-class excavators (Caterpillar 6020, Komatsu PC2000 or similar) for waste mining, 110-tonne-class excavators (Caterpillar 6015, Komatsu PC1250 or similar) for ore

mining and 130-tonne rigid-body trucks (Caterpillar 785, Komatsu HD1500 or similar) for all material are the major equipment types intended for use at the Project.

Current knowledge indicates that in-pit road conditions will provide good trafficability for large, rigid-body dump trucks. If future test work indicates that trafficability conditions are poorer than indicated, alternatives such as articulated dump trucks or a heavier reliance on track mounted equipment could be utilised.

Primary mining operations will be supported by dozers and front-end loaders (FELs). A combination of Caterpillar D9 and D10 dozers (or similar) will be used for cross-ripping, pushing up bunds for in-pit tailings cells and contouring waste dumps (both in-pit and ex-pit). Dozers may also be used to accurately remove overburden immediately above ore zones to minimise dilution. FELs and dozers may be used for feeding the MUP and help clean the pit floor to improve mining recovery. Graders and water carts will be used to maintain suitable operating conditions across the site.

Processing Method Assumed

Optimisation of Area 4 was completed under the “Phase 1” processing scenario which includes multi-step processing through the MUP, FPP, WCP and REFC at a feed rate of 5Mtpa to the MUP. Industry standard metallurgical processes and equipment are proposed for the Project.

The details related to metallurgical test work, process selection and process infrastructure that were reported in the March 2023 DFS Refresh are the most recent and deemed valid for this study. Processing recoveries used in this study were provided by Mineral Technologies, based on Area 4 Orion strandline metallurgical test work and evaluation of results of the 2018 FS recoveries and 2023 DFS recoveries. Geometallurgical test work completed by the Company confirm that Goschen Area 1 and Area 4 Orion Strandline have many similar physical characteristics, where both deposits differ is the location of a high-grade horizon in the upper portion of the Area 4 Orion Strandline.

Area 4 Orion Strandline processing flow sheet has been split into the following four distinct areas:

1. ***Mining Unit Plant* (MUP)**
   ROM ore is delivered for primary deagglomeration through scrubbing and removal of large oversize to allow long-distance pumping.

2. ***Feed Preparation Plant* (FPP)**
   The sand fraction containing the valuable minerals (nominal -0.35+0.020mm) is separated from slimes (-20µm) and oversize waste (+1.0mm and +0.35mm).

3. ***Wet Concentration Plant* (WCP)**

For personal use only

The valuable minerals contained in the sand fraction are recovered in a wet concentration plant (WCP) using a conventional multi-stage gravity separation circuit. Intermediate size classification is included to reject other oversize waste. The recovered valuable minerals constitute the gravity Heavy Mineral Concentrate (gravity HMC). Gangue minerals are collected together with oversize and slimes from the FPP and then co-disposed as tailings.

4. ***Rare Earth Floatation Circuit*** **(REFC)**
   The gravity HMC is subjected to mechanical attrition and conditioned with specific reagents in readiness for processing by froth flotation and further gravity concentration. Products are a Rare Earth Mineral Concentrate (REMC) and a titania/zirconia concentrate (TiZr HMC) low in naturally occurring uranium and thorium (NORM Unat +Thnat)

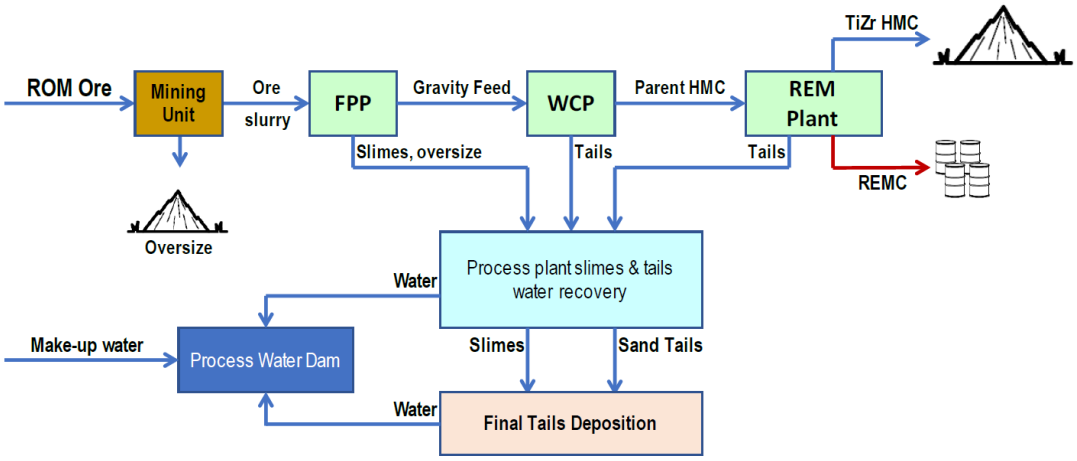


Figure 4: Schematic illustration of mining sequence including progressive backfill and rehabilitation

The commercial value of the final mineral concentrate is dependent on purity which may be defined by mineralogy, chemical composition and / or particle size specification. The target specifications also have a significant effect on the potential for recovery of each mineral product.

The recovery estimates based on Area 4 Orion test work have been based upon producing final mineral concentrate with assay outcomes like those achieved from processing Goschen Area 1 ore sample.

Metallurgical Test work on Area 4 Orion Strandline ore has demonstrated product specifications comparable to Area 1 study was achieved (Table 5). Improved recovery parameters and higher purity mineral concentrates are also considered to be achievable, however will require further metallurgical variability test work to completed.

For personal use only

Table 5: Process recoveries

Mineral	Final Product	Area 1 2023 DFS	Area 4 Orion PFS
Zircon	Ti/Zr Concentrate	90.5%	89.6%
Rutile	Ti/Zr Concentrate	87.5%	82.9%
Leucoxene	Ti/Zr Concentrate	65.3%	61.7%
Ilmenite	Ti/Zr Concentrate	87.1%	77.9%
Monazite	REMC	87.9%	88.7%
Xenotime	REMC	80.3%	80.3%

Cut-off Parameters

A single cut-off grade (using THM or TVHM) was found to not accurately reflect the optimisation results, as such a calculation was undertaken to classify each block as ore or waste. The ore/waste classification was performed in three steps: calculating the revenue of each block, calculating the processing cost of each block and ultimately the cashflow of each block. If the block revenue was greater than the processing cost, the block was treated as ore, otherwise the block was treated as waste.

Inferred material was treated as waste during optimisations, designs, and scheduling.

Estimation Methodology

Capital costs for processing infrastructure was completed by Mineral Technologies Pty Ltd (MTPL) based on test work undertaken by them for the Company. Non-process infrastructure capital costs were provided by TZMI and MTPL inhouse data and using Company DFS level data. Processing operating costs were estimated by MTPL based on test work. Mining operating costs were sourced from mining contractors by way of a Request For Quotation.

A long-term exchange rate of US$0.70: A$1 was selected and provided by the Company, all capital and operating costs were estimated in A$. The Company undertook a study to estimate freight and logistics costs for both land and sea transport.

A state royalty of 2.75% of product revenue was applied to the Project.

Material Modifying Factors

The material from Area 4 is not currently included in the Goschen Project mining plan but is currently under investigation to be included as a source of future feedstock.

The Project is in an agricultural area of northern Victoria and is well serviced by road, rail, power, and water, with nearby communities able to provide labour and accommodation. Substantial consultation with the community and regulatory agencies in relation to the

For personal use only

Goschen Project has commenced, involving consultation activities with identified key stakeholders.

Preliminary discussions with customers have indicated that up to 100% of products from Goschen will be subject to off take agreements.

ENDS

This announcement has been approved by the Board of VHM.

For Further Information Contact:

Carly O'Regan
Executive General Manager
M: +61 (0)431 068 814
E: carly.oregan@vhmltd.com.au

Ian Hobson
Company Secretary
M: +61 (0)407 421 185
E: ian.hobson@vhmltd.com.au

Media
James Strong
Citadel-MAGNUS
M: +61 448 881 174
E: jstrong@citadelmagnus.com

For personal use only

For personal use only

About VHM Limited (ASX: VHM)

https://www.vhmltd.com.au/

VHM Limited holds a premium position in an emerging rare earth province located in North West Victoria that includes the Goschen Rare Earth and Mineral Sands Project and the nearby Cannie and Nowie Projects.

VHM's assets include rare earth elements Neodymium, Praesidium, Dysprosium, and Terbium which are essential components of permanent magnets used in products such as electric vehicles and wind turbines as well as mineral sands containing zircon and titania-rutile.

Detailed engineering design is underway and pilot scale hydrometallurgical test work has demonstrated exceptional recoveries and production of a high quality Mixed Rare Earth Carbonate product.

Areas 1 & 3 of the Goschen DFS demonstrated a pre-tax NPV of A$1.5B with pre-tax IRR of 44% and Life of Mine over 20 years (see ASX release dated 28 March 2023[4]).

Competent Persons Statement

Mr. Anthony Keers, a full-time employee of Auralia Mining Consulting Pty Ltd, completed the Ore Reserve estimate for Areas 1, 3 and 4. Mr Anthony Keers is a Member and Chartered Professional (Mining) of the Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify him as a Competent Person as defined in accordance with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Keers consents to the inclusion in the document of the information in the form and context in which it appears.

[4] The information in this announcement regarding the Areas 1 & 3 Production Target, and forecast financial information derived from that Production Target, was set out in the ASX release dated 28 March 2023. The Company confirms that all material assumptions underpinning the Production Target and the forecast financial information derived from that Production Target continue to apply and have not materially changed.

For personal use only

Appendix 1: Geology

This study was based on a resource generated for the Company by IHC Robbins in the *Goschen Area 4 Mineral Resource Estimate* (2019).

The Goschen Area 4 Mineral Resource is reported above a cut-off grade of 1% TVHM and is summarised in Table 1.1.

Additional Mineral Resources have been estimated for the Goschen Project, these have been reported separately and are not included in this analysis.

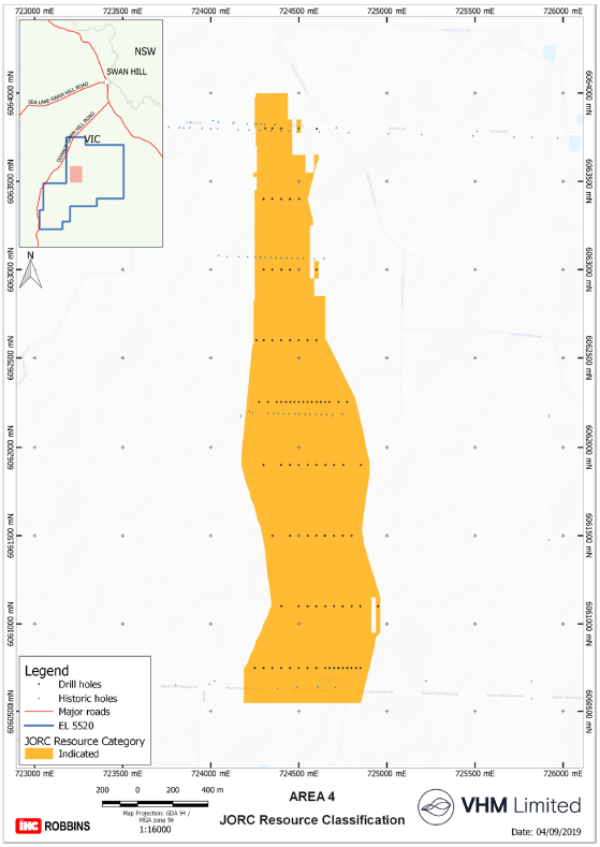
The Mineral Resource outline for the Goschen Area 4 deposit and the JORC classification outlines are presented in Figure 1.1.

Table 1.1: Mineral Resource estimate - Goschen Area 4 deposit: THM assemblage

Area	Resource Category	Material (Mt)	In situ THM (Mt)	Density (g/cm^3)	THM (%)	Slimes (%)	OS (%)	Zir (%)	Rut (%)	LX (%)	Ilm (%)	Mon (%)	Xeno (%)
4	Indicated	18.0	0.8	1.74	4.60	20	5	19.0	11.0	10.0	24.0	3.0	1.0

Notes:
Mineral Resources reported at a cut-off grade of 1.0% TVHM (THM x VHM)
Mineral assemblage is reported as a percentage of in situ THM content

Figure 1.1: JORC Mineral Resource classification for Goschen Area 4 (>1% TVHM)



For personal use only

Appendix 2: Processing

The processing stream for the Goschen Area 4 Ore Reserve Estimate assumed a multi-step flow sheet, with ore progressing sequentially through a Mining Unit Plant (MUP), Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Rare Earth Flotation circuit.

Processing recoveries used in this study were determined by Mineral Technologies following a substantial metallurgical test work programme using a 1.6 tonne bulk sample.

Four samples of material representing four separate geological zones in Area 4 were subjected to a conventional mineral sands processing as follows:

- Processing though the feed preparation stage (FPP) involving screening and desliming.
- Processing through the wet concentration stage (WCP) using shaking tables and targeting a final HM grade of 90% HM.
- Rare earth flotation to isolate the rare earth minerals.
- Isolation of final mineral sands products via conventional mineral separation plant processing (MSP) techniques including attritioning, flotation, magnetic, electrostatic and gravity separation techniques.

Material from each zone was individually processed through the feed preparation stage comprising a scrubber / trommel, coarse / fine screening and desliming stages. The test work demonstrated that material from Area 4 could successfully be processed through the Goschen process flowsheet.

These processing recoveries are summarised in Table 2.1 and represent the cumulative recoveries across multiple processing steps to final products of Ti/Zr concentrate and REMC.

Table 2.1: Process recoveries

Mineral	Final Product	Recovery
Zircon	Ti/Zr Concentrate	89.6%
Rutile	Ti/Zr Concentrate	82.9%
Leucoxene	Ti/Zr Concentrate	61.7%
Ilmenite	Ti/Zr Concentrate	77.9%
Monazite	REMC	88.7%
Xenotime	REMC	80.3%

Appendix 3: Mining

Complete extraction of ore is planned; waste material will be used to create in-pit bunds to contain tailings. Minor additional earthworks may be required in each 'tailings cell' to assist in water recovery and drying/consolidation time.

Mining will be undertaken by a contract miner as a surface mining operation. Each cut will be approximately 500m along-strike and vary in width to suit the deposit. Waste material (overburden and tailings) will be deposited into previously mined areas and/or stockpiled on-surface at the commencement of mining operations until such time as there is sufficient capacity and suitable conditions in the mined void to allow direct deposition into the Area 4 mined areas.

Truck and excavator production will be the primary means of mining at the Goschen Project. This fleet will be used to transport the majority of overburden and for transporting ore to the MUP.

Slope angles used in the pit design were for an overall wall angle of 30 degrees. Detailed soil strata information and associated slope angles for each stratum will be determined during planned trial mining.

For personal use only

For personal use only

Appendix 4: JORC, 2012 Edition Table 1 for Area 4 Ore Reserve July 2023

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
This Area 4 Ore Reserve is based entirely on previously released Mineral Resources for Area 4 which can be found in the Company Prospectus released on 5 January 2023. No new Mineral Resources or exploration results have been released.		

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
This Area 4 Ore Reserve is based entirely on previously released Mineral Resources for Area 4 which can be found in the Company Prospectus released on 5 January 2023. No new Mineral Resources or exploration results have been released.		

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
This Area 4 Reserve is based entirely on previously released Mineral Resources for Area 4 which can be found in the Company Prospectus released on 5 January 2023. No new Mineral Resources or exploration results have been released.		

For personal use only

Section 4: Area 4 Ore Reserve July 2023

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources of the Goschen Project were estimated by Mr Greg Jones of IHC Robbins. The following comprises the Mineral Resources for Area 4 as at September 2019:

Area	Resource Category	Material (Mt)	In situ THM (Mt)	Density (g/cm^3)	THM (%)	Slimes (%)	OS (%)	Zir (%)	Rut (%)	LX (%)	Ilm (%)	Mon (%)	Xeno (%)
4	Indicated	18.0	0.8	1.74	4.60	20	5	19.0	11.0	10.0	24.0	3.0	1.0

Area	Class.	Ore (Mt)	THM (Mt)	CeO_2 %	Dy_2O_3 %	Er_2O_3 %	Eu_2O_3 %	Gd_2O_3 %	La_2O_3 %	Nd_2O_3 %	Pr_6O_{11} %	Sm_2O_3 %	Tb_4O_7 %	Tm_2O_3 %	Y_2O_3 %	Yb_2O_3 %	TREO %
4	Ind	18.0	0.8	0.67	0.05	0.06	0.002	0.047	0.32	0.28	0.07	0.05	0.01	0.01	0.33	0.04	1.91

Additional Mineral Resources have been estimated for the Goschen Project, these have been reported separately and not included in this analysis.

The following table comprises the Ore Reserves for the Goschen Project Area 4 as 15 September 2023.

Area	Class.	Ore (Mt)	THM (Mt)	THM %	ZIR %	RUT %	LX%	ILM %	MON %	XEN %
4	Prob	11.5	0.6	5.6	19.6	12.2	10.1	24.6	3.0	0.7

Area	Class.	Ore (Mt)	THM (Mt)	CeO_2 %	Dy_2O_3 %	Er_2O_3 %	Eu_2O_3 %	Gd_2O_3 %	La_2O_3 %	Nd_2O_3 %	Pr_6O_{11} %	Sm_2O_3 %	Tb_4O_7 %	Tm_2O_3 %	Y_2O_3 %	Yb_2O_3 %	TREO %
4	Prob	11.5	5.6	0.655	0.049	0.035	0.002	0.046	0.310	0.277	0.073	0.050	0.008	0.006	0.335	0.037	1.88

Notes: Figures in Tables may not sum due to rounding.

The Mineral Resources are reported as wholly inclusive of the Ore Reserves.

For personal use only

Site visits	A site visit is to be carried out by the competent person(s) signing off on the Ore Reserve.	Mr Anthony Keers carried out a site visit in August 2019.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	This work was undertaken at Pre-Feasibility Study level, the Ore Reserve portion of which was carried out on supplied Mineral Resource models. This analysis used information predominately from the March 2023 DFS Refresh, however some specific validation work for Area 4 requires completion prior to assigning DFS level confidence. The process flow sheet including the MUP, FPP, WCP and rare earth flotation circuit (Phase 1) was used as the basis for OPEX, process recovery and product sell price inputs which informed the Ore Reserve estimation process. Any material classified as an Inferred Mineral Resource was not included in the Ore Reserve calculations.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A single cut-off grade (using thm or tvhm) was found to not accurately reflect the optimisation results, as such a calculation was undertaken to classify each block as ore or waste. The ore/waste classification was performed in three steps: calculating the revenue of each block, calculating the processing cost of each block and ultimately the cashflow of each block. If the block revenue was greater than the processing cost, the block was treated as ore, otherwise the block was treated as waste.

For personal use only

Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes, etc), grade control and pre-production drilling. The major assumptions made, and Mineral Resource model used for pit and stope optimisation (if appropriate). The mining dilution factors used. The mining recovery factors used. Any minimum mining widths used. The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. The infrastructure requirements of the selected mining methods.	Pit optimisations were completed using Whittle software. Complete extraction of ore within pit designs is planned. Ore will be trucked to an MUP ROM on the surface close to the mining face. The MUP will be relocated at as required to optimise truck haulage and slurry pumping. Waste material will be used to create in-pit bunds to contain tailings or dump to fill mined voids. No drill and blast operations will be required, cross ripping of cemented sand horizons by dozers may be required. Mining will be undertaken in as a strip/block-mining operation. Each block will be approximately 500m x 200m. An overall wall angle of 30° has been proposed based on completed geotechnical studies. A batter angle of 40° was applied to the uppermost bench (in the topsoil / clayey-sand material), with a 6 m wide berm created at the 92mRL (between 5 and 12m below surface). Beneath this berm, a single slope of 32° was designed to the pit floor. The Resource model was regularised to a 25m x 25m x 1m block size. This resulted in an approximate mining dilution factor of 8% and a mining recovery factor of 98%. No further mining dilution or recovery was applied. Inferred material was treated as waste during optimisations, designs and scheduling. External temporary waste dumps and tailings storage facilities may be required during early operations until sufficient mined voids are available to commence backfilling.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well-tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Ore material will undergo processing through a Mining Unit Plant (MUP), Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP) and Rare Earth Flotation circuit. Industry standard metallurgical processes and equipment are proposed for the Project. The development of the MUP, FPP, WCP and Rare Earth Plant are based on information derived from extensive, full flowsheet processing test work conducted by Mineral Technologies using sample from Area 1. Metallurgical test work and detailed characterisation has also been completed on ore samples from Area 4. Thanks to similar size, density and mineralogical characteristics and the close geographical location of Area 1 and Area 4, it is reasonable to assume that the recovery performance for Area 4 will be comparable to the recovery performance for Area 1. The work completed for Area 4 to date is considered suitable to support a PFS level estimate, with a nominal +/- 15% level of accuracy. These results would need to be confirmed by full, stage by stage flowsheet test work on a representative sample of the ore

For personal use only

	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	before they could be used to predict the grade and recovery of commercially acceptable products more accurately from a production plant.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	These products will be taken off site following appropriate regulations. Waste material remaining on site are not considered to pose any environmental risk. Ongoing consultation between the Company and the State of Victoria is required to determine land clearing allowances/requirements.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	The Project is located in an agricultural area of northern Victoria and is well serviced by road, rail, power and water, with nearby communities able to provide labour and accommodation. Additional infrastructure or upgrades may be required for the Project. The Company has engaged with landowners as required to secure access for drilling, environmental surveys, and ultimately project footprints.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study. The methodology used to estimate operating costs. Allowances made for the content of deleterious elements. The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products. The source of exchange rates used in the study. Derivation of transportation charges. The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. The allowances made for royalties payable, both Government and private.	Capital costs for processing infrastructure was completed by Mineral Technologies Pty Ltd (MTPL) based on test work undertaken by them for the Company. Non-process infrastructure capital costs were provided by TZMI based on existing, similar projects. Processing operating costs were estimated by MTPL based on test work. Mining operating costs were sourced from mining contractors by way of a Request For Quotation. A long-term exchange rate of US$0.70: A$1 was selected and provided by the Company, only commodity reference prices were provided in US$, all capital and operating costs were estimated in A$. The Company undertook a study to estimate freight and logistics costs for both land and sea transport. A state royalty of 2.75% of product revenue was applied to the Project.

For personal use only

<table>
<tr><td>Revenue factors</td><td>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</td><td>Adamas Intelligence (rare earths) and TZMI (zircon and titania minerals) completed independent market reviews and provided long term reference prices in real USD:
<table>
<tr><th>Material</th><th>2030 Reference Product Price</th></tr>
<tr><td>Zircon</td><td>US$1,418/t</td></tr>
<tr><td>Rutile</td><td>US$1,267/t</td></tr>
<tr><td>Leucoxene</td><td>US$294/t</td></tr>
<tr><td>Ilmenite</td><td>US$237/t</td></tr>
<tr><td>REMC</td><td>US$17.33/kg</td></tr>
</table>
Commodity prices used for the study made allowances for transport costs and quality adjustments with input from TZMI regarding the quality of Goschen products.
Pit optimisations used commodity prices based on the 2030 reference prices.</td></tr>
<tr><td>Market assessment</td><td>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.
A customer and competitor analysis along with the identification of likely market windows for the product.
Price and volume forecasts and the basis for these forecasts.
For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</td><td>A market analysis was conducted by TZMI, which indicated that demand would outweigh supply in the short to medium term and should be at least neutral in the long term.
TZMI has endorsed that all products generated from Goschen are potentially marketable subject to successful conclusion of FS test work and off take agreements.
Preliminary discussions with customers have indicated that 100% of products from Goschen will be subject to off take agreements.
Further product testing is scheduled to confirm product specifications and realised product prices.</td></tr>
<tr><td>Economic</td><td>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.
NPV ranges and sensitivity to variations in the significant assumptions and inputs.</td><td>A discount rate of 8% was applied to the optimisation works and financial analysis for this study.
Inputs to the economic analysis include Modifying Factors as described above.
Sensitivity studies were carried out. Standard linear deviations were observed for all tested variables.</td></tr>
</table>

For personal use only

Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Substantial consultation with the community and regulatory agencies in relation to the Goschen Project has commenced, involving consultation activities with identified key stakeholders. Regular meetings have been held with a Technical Reference Group and a Stakeholder Reference Group.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: Any identified material naturally occurring risks. The status of material legal agreements and marketing arrangements. The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	There are no known significant naturally occurring risks to the project. In January 2015, Exploration Licence (EL) 5520 was granted to VHM Exploration Pty Ltd for a period of five years. In January 2020, Retention Licence 6806 was granted to the Company for a period of seven years to replace the expired EL5520.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Indicated Resources have been converted to Probable Reserves, there are no Measured Resources classified for Area 4. The estimated Ore Reserves are, in the opinion of the Competent Person, appropriate for this style of deposit.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	Auralia Mining Consulting Pty Ltd has completed an internal review of the Ore Reserve estimate resulting from this study.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors	The level of study carried out as part of the June 2023 Ore Reserve is to a Preliminary Feasibility Study level. The relative accuracy of the estimate is reflected in the reporting of the Ore Reserves as per the guidelines re: modifying factors, study levels and Competent Persons contained in the JORC 2012 Code. This statement relates to global estimates of tonnes and grade. Sensitivity studies were carried out. Standard linear deviations were observed. Globally, the project is susceptible to fluctuations in commodity price.

	which could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Further product testing is scheduled to confirm product specifications, this information will be relayed to potential customers to determine realised product prices.

For personal use only