



**BEOWULF MINING plc**

# Delivering Raw Materials Critical for the Transition to a Green Economy

June 2022



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# Our Purpose

To be a responsible and innovative company that creates value for our shareholders, wider society and the environment, through sustainably producing the raw materials critical for the transition to a Green Economy and to addressing the Climate Emergency.



- Showing respect to all our stakeholders
- Becoming a local partner
- Delivering responsible development



- Kunnioittaa kaikkia sidosryhmiä
- Toimia yhteistyössä paikallisten kanssa
- Vastuullisuus



- Visar respekt för alla intressenter
- Vill samverka lokalt
- Står för ansvarsfull utveckling





# Three Business Areas

## Primary Raw Materials needed to address the Climate Emergency

An asset portfolio diversified by commodity, geography and the development stage of its various projects, focused on the metals required to facilitate the transition to a Green Economy



1

**High-quality iron ore – One of Europe's largest undeveloped iron ore deposits**

Kallak is ideally located as a future supplier of sustainably produced high-quality iron ore to both Swedish fossil-free steelmakers and European export markets; providing much needed supply chain security. Beowulf's goal is to have Kallak in production in 3-4 years.



2

**Sustainable and secure supply of anode materials to Europe's rapidly growing lithium-ion battery sector**

Grafintec's objective is to be a European leader in the sustainable supply of anode materials for lithium-ion batteries. The Company has taken a significant step forwards through its collaboration with Epsilon Advanced Materials and joint plans to develop the production facility GVA10/50 in the GigaVaasa area.



3

**New supply of base metals for Europe's Green Transition**

Vardar could be a new supplier of base metals for the European transition to a Green Economy, offering a shortened supply chain and reducing the CO<sub>2</sub>-footprint of metals consumed in the manufacturing of electric vehicles and building green infrastructure.

Beowulf has made a strong start to 2022 with the Kallak Concession awarded, progress with GVA10/50 and drilling underway in Kosovo.



# Why these Metals are Critical

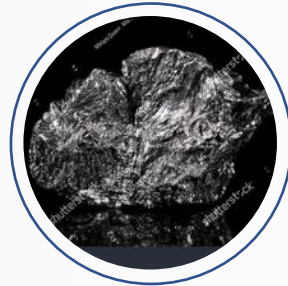
## Sustainable, transparent and secure supply chains

The Climate Emergency demands immediate action. Society needs more raw materials from primary sources to enable its transition to a Green Economy. The EU is intending to tackle the Climate Emergency through its policies to achieve net zero carbon emissions by 2050, and the metals in Beowulf's portfolio are essential to having any chance of winning the fight.



### Iron Ore

Fossil free steel production using both high-quality iron ore and leveraging renewable power



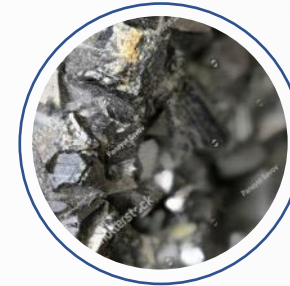
### Graphite

Regional supply of anode material supporting strategic lithium-ion battery manufacturing capability



### Copper

Essential metal required in the electrification of society, including infrastructure and e-mobility solutions



### Zinc

Metal used for galvanizing steel, increasing its life and extending the duration of replacement cycles



### Gold

A safe-haven asset for investors; a valuable risk management addition to any portfolio



# ESG

## Sustainability and Innovation

In its structure and systems, the Company is focused on four pillars in the construction of a sustainable organisation:

1. Corporate Governance;
2. Stakeholder Engagement;
3. Having a Long-term Time Horizon; and
4. Transparency and Accountability in our actions and communications to stakeholders.

The Company has adopted the following Disclosure Topics listed by the Sustainability Accounting Standards Board for the Metals and Mining sector (<https://www.sasb.org/standards/>) as material to the Company's stakeholders:



Energy  
Management



Water  
Management



Biodiversity  
Impacts



Security,  
Human Right,  
& Rights of  
Indigenous  
Peoples



Community  
Relations



Business  
Ethics &  
Transparency

- The Company wants to be recognised for living its values of Respect, Partnership and Responsibility.
- Our recent ESG work has identified Sustainable Development Goals which the Company will be focusing on, and our plans take into consideration our future compliance with The Equator Principles.
- The Company has published its ESG Policy which can be viewed on the Company's website following the link: <https://beowulfmining.com/about-us/esg-policy/>







# High-grade Iron Ore for Fossil-Free Steelmaking





# High-Grade Iron Ore

## Increasing demand and the elimination of CO<sub>2</sub> emissions from steelmaking

- High-grade iron ores of over 65 per cent iron are expected to significantly outperform lower grade ores as the transition to green steel production is ramped up in Europe and China.
- A 68 per cent iron content product produces 30 per cent less emissions than most commonly used 62 per cent iron hematite fines.
- The anticipated and widespread adoption of Electric Arc Furnaces and a rising demand for direct reduction pellets will bolster demand for ores with fewer impurities. This demand increase will drive the premiums paid for higher grade ores.
- Sweden wants to be a leader in fossil-free steelmaking. Downstream investments are being made:
  - HYBRIT – a collaboration between SSAB, LKAB and Vattenfall; and
  - H2 Green Steel.
- Norrbotten County in northern Sweden is becoming a fossil-free powerhouse of renewable energy, iron ore mining and steelmaking – the ‘bread basket’ of Europe.
- Kallak is ideally situated in this fossil-free steelmaking ecosystem.





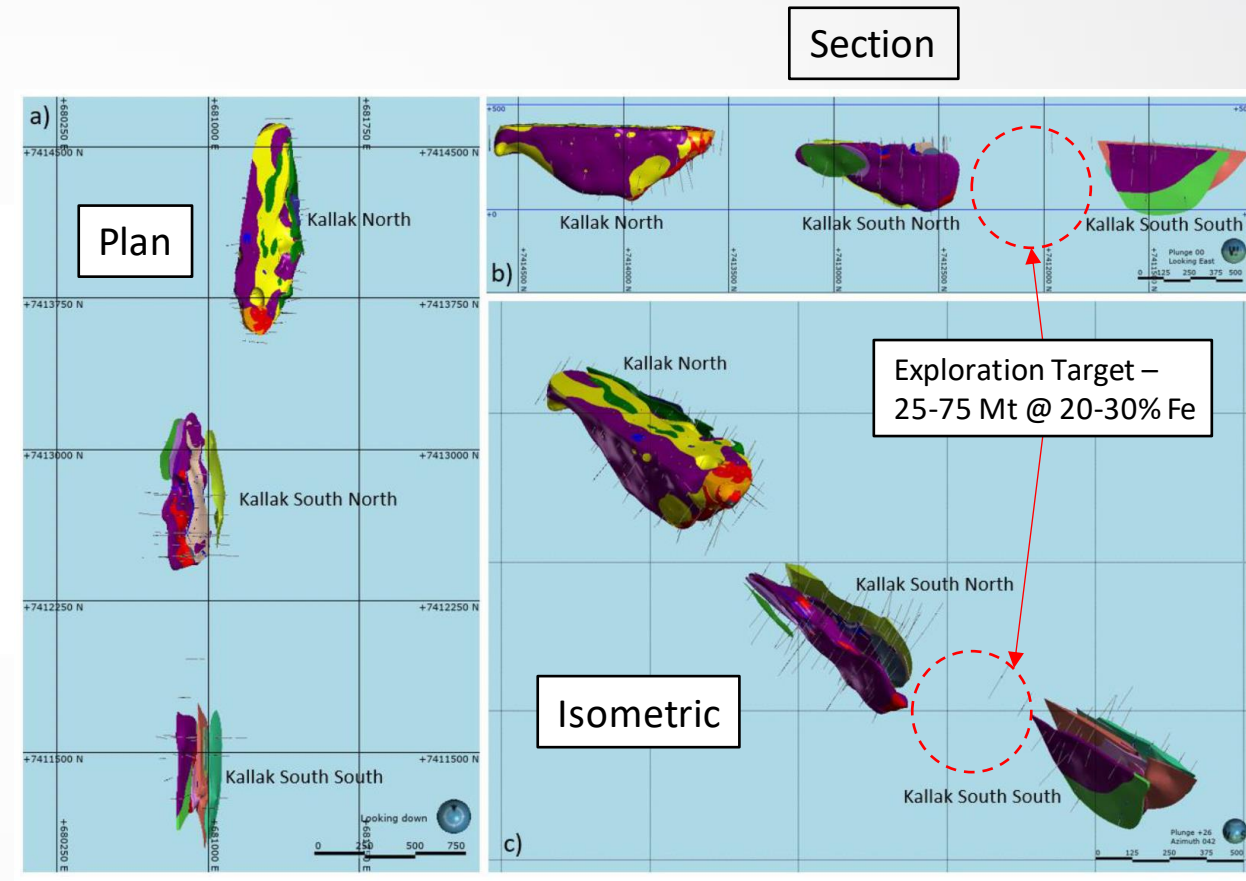
# Kallak Iron Ore Project

Future sustainable producer of high-grade iron concentrate to Swedish and European customers

- Discovered by the SGU in the 1940s
- First Exploration Permit awarded in 2006
- Designated an Area of National Interest by SGU in February 2013
- Drilling at Kallak North and South between 2010-2014, a total of 131 holes and 27,895 metres
- Mineral Resource and Exploration Target Upgrade in May 2021<sup>(1)</sup>
- Kallak North Exploitation Concession awarded by the Government in March 2022

Mineral  
Resource  
Estimate

Deposit	Classification	Million Tonnes	Density (g/cm <sup>3</sup> )	Fe (%)	FeO (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	P (%)	S (%)
Kallak North	Measured	16	3.5	33.6	10.5	43.4	2.9	0.04	0.002
	Indicated	95	3.3	27.0	7.1	49.8	4.5	0.03	0.002
	<b>Sub-Total</b>	<b>111</b>	<b>3.3</b>	<b>28.0</b>	<b>7.6</b>	<b>48.9</b>	<b>4.3</b>	<b>0.03</b>	<b>0.002</b>
	Inferred	25	3.4	28.3	7.8	48.1	4.2	0.04	0.002
Kallak South North	Measured								
	Indicated	21	3.3	26.9	7.2	49.3	4.9	0.04	0.003
	<b>Sub-Total</b>	<b>21</b>	<b>3.3</b>	<b>26.9</b>	<b>7.2</b>	<b>49.3</b>	<b>4.9</b>	<b>0.04</b>	<b>0.003</b>
	Inferred	6	3.2	23.4	6.5	50.1	6.6	0.05	0.004
Kallak South South	Measured								
	Indicated								
	<b>Sub-Total</b>								
	Inferred	8	3.3	26.1	12.0	50.1	5.2	0.05	0.009
Total	Measured	16	3.5	33.6	10.5	43.4	2.9	0.04	0.002
	Indicated	116	3.3	27.0	7.1	49.7	4.6	0.03	0.002
	<b>Sub-Total</b>	<b>132</b>	<b>3.3</b>	<b>27.8</b>	<b>7.5</b>	<b>48.9</b>	<b>4.4</b>	<b>0.03</b>	<b>0.002</b>
	Inferred	39	3.3	27.1	8.5	48.8	4.8	0.04	0.004



(1) [https://polaris.brighterir.com/public/beowulf\\_mining\\_plc/news/rns/story/x8q5k9x](https://polaris.brighterir.com/public/beowulf_mining_plc/news/rns/story/x8q5k9x)



# Kallak: 3-4 years from production (2026)

The road ahead - Providing fossil-free iron concentrate into a growing market



## Market Leading

- Market Leading 71.5 per cent iron magnetite concentrate with low levels of impurities.
- Next best magnetite product on the market is LKAB's, which produces magnetite fines ("MAF") with a target specification of 70.7 per cent iron and is regarded as unique, until now, due to its exceptionally high iron content.



## 2.7 million tonnes per annum (Mtpa)

- Within 3-4 years, the mine could be producing approximately 2.7 Mtpa of concentrate based on the existing resource for Kallak North 'Only' and modelled over an initial 15 years.
- In the Kallak area, 389 Mt of iron mineralisation has been defined, which could support a much longer life mining operation.



## Ideal Location

- Inlandsbanan railway is ~ 40km to the east
- Excellent transport and renewable power infrastructure
- Regional fossil-free steelmaking projects are already being developed

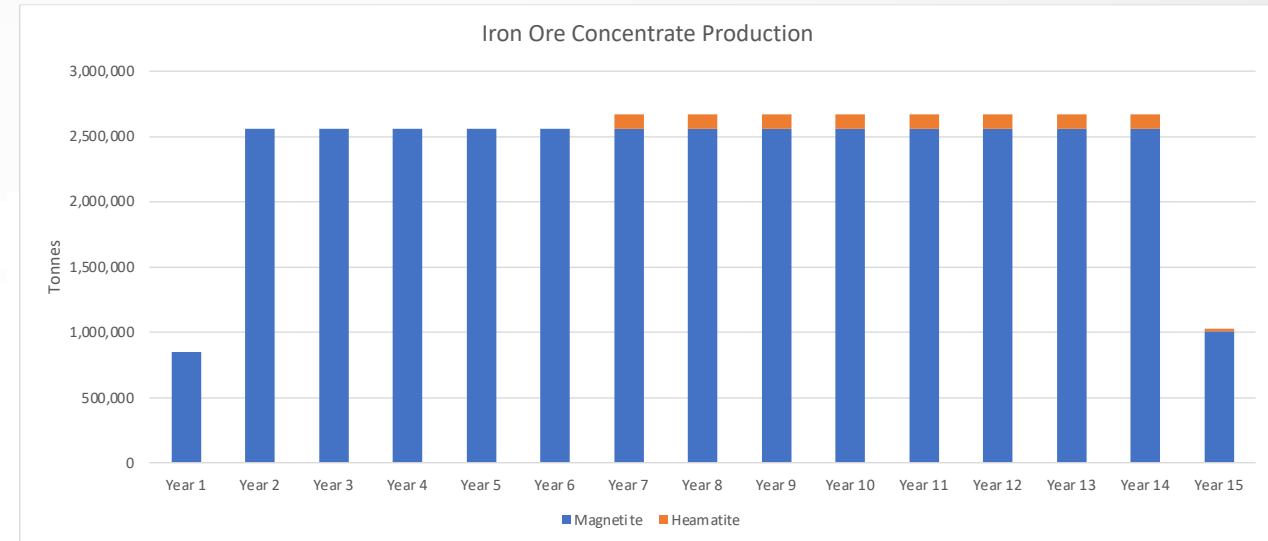
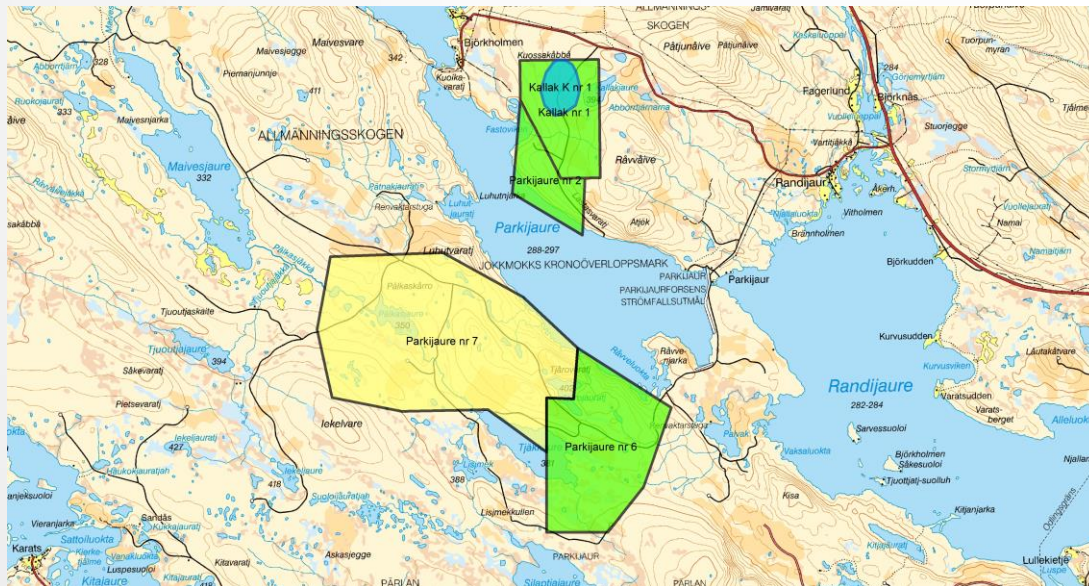




# Kallak North 'Only'

Upside - 389 million tonnes of iron mineralisation defined in the Kallak area

- In 2021, the Company completed a concept Mining Study for Kallak North showing that the mine could produce approximately 2.7 Mtpa of concentrate (predominantly magnetite) based on the existing resource for Kallak North only and modelled over an initial 15 years.
- This production rate is one scenario and given the forecast demand for high quality iron ore being created by Swedish projects such as HYBRIT and more specifically H2 Green Steel, as well as European export markets, the requirement for a higher production rate is likely.



- Iron mineralisation in the Kallak area supports the possibility for a much longer life mining operation beyond Kallak North 'Only'.
- The global tonnage defined in the Kallak area includes Kallak North, Kallak South, and exploration targets across the Company's Parkijaure nr 2, 6 and 7 licences.
- The Company also has the Agåsjiegge nr 3 licence, which the SGU has previously estimated contains 75 million tonnes of magnetite iron mineralisation (not classified).



# Kallak: Environment and Society

## Partnership and Collaboration

### Environment

- Sweden is a leader in sustainable mining.
- Primary raw material production from mines is critical to ensuring secure supply chains, and the metals needed for the transition to a Green Economy.
- Kallak is in the right place at the right time, future high quality iron ore production in proximity to fossil-free steel manufacturing, leveraging renewable power and innovation to design, engineer and operate a mine that sits in harmony with nature and meets society's needs.

### Society

- Beowulf acknowledges the traditional owners of the lands at Kallak, past elders, present and emerging leaders, and now that the Concession decision has been made, the Company looks forward to re-engaging with them and together building a framework for ongoing good-faith dialogue.
- Kallak will bring SEK billions in investment and create hundreds of jobs in Jokkmokk Municipality, which needs both, benefiting all stakeholders.
- Discussions have started with the responsible local agency in Jokkmokk about conducting surveys to map the current workforce and future workforce, school leavers and university students in the region, to determine what initiatives need to be started to ensure sufficient locally based skilled persons are available for work at the mine or in other businesses established by the economic stimulus created by the mine.





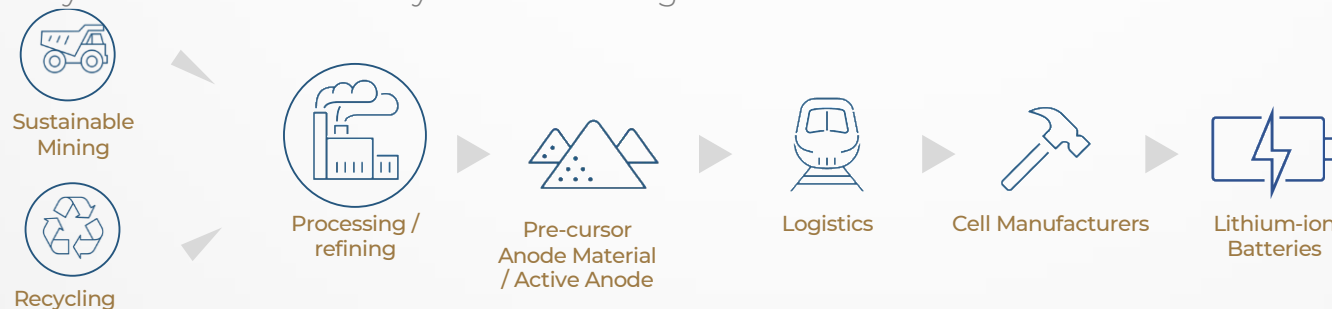


# One of Europe's first Anode Materials Projects

# Lithium-ion Batteries

## Regional, sustainable and secure supply chains, coupled with strategic manufacturing capability

- Grafintec's objective is to be a European leader in the sustainable supply of anode material for lithium-ion battery manufacturing.
- 100 per cent owned by Beowulf, Grafintec has taken a significant step forwards through its collaboration with Epsilon Advanced Materials.
- For the next decade graphite will remain the material of choice for anodes in lithium-ion batteries. As the demand for electric vehicles and the need for greater renewables storage surges, so too will the demand for graphite.
- The World Bank says graphite demand will increase by 500 per cent between 2018 and 2050, while the global graphite market is expected to reach US\$21.7bn by 2027.
- Geopolitical tensions, the European Green Transition, and a focus on sustainable and secure supply chains, as well as self-sufficiency, has led countries to re-assess their overreliance on Chinese supply of strategic materials including graphite.
- In 2021, the US Geological Survey estimated global graphite production of 1 Mt, with China accounting for 82 per cent, and Norway, the only listed producer in proximity to Europe, accounting for 1.3 per cent. Graphite is also on the EU's Critical Raw Materials' list.
- Grafintec is developing a resource and production base of graphite that can provide security of supply and contribute to Finland's ambitions of achieving self-sufficiency in lithium-ion battery manufacturing.





# Grafintec

To be a European leader in the sustainable supply of anode material



## Anode Materials Production GVA10/50

- Heads of Terms for a Joint Venture signed with Epsilon Advanced Materials.
- Joint plans to establish anode materials production in the GigaVassa area. Built in two phases, phase 1; “GVA10” (with a production of capacity of 10,000 tonnes per annum of anode material) and phase 2; “GVA50” (adding a further 40,000 tonnes per annum).
- MoU signed with the City of Vaasa securing a plot in the GigaVaasa area, next to Freyr Battery’s project.



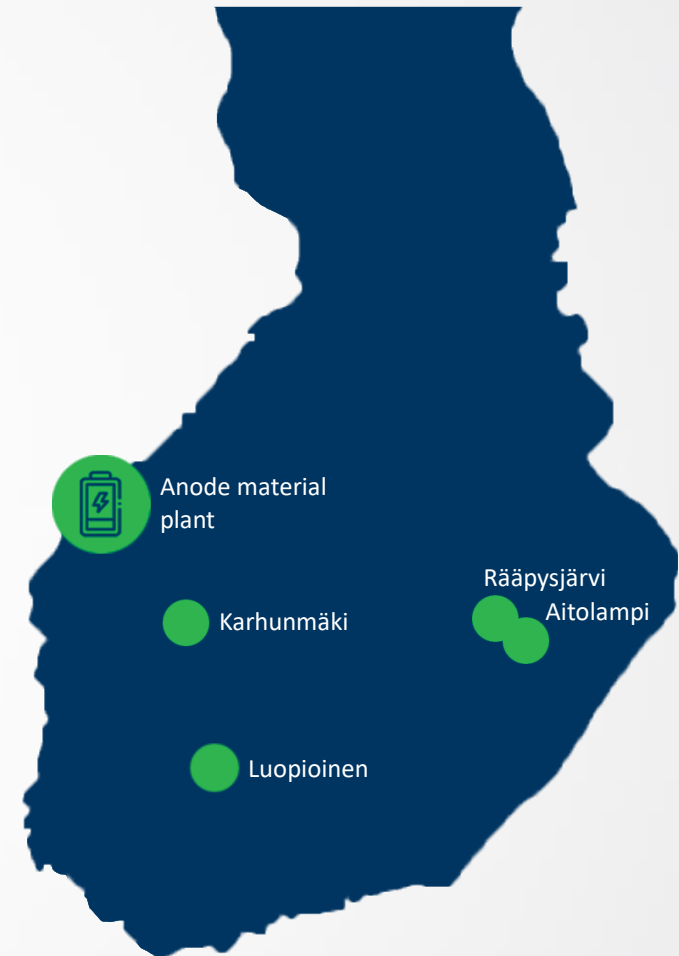
## Primary Raw Material

- Grafintec is developing the Aitolampi graphite project as an option for providing security of supply of high-grade concentrate to GVA10/50.
- Total Indicated and Inferred Mineral Resource of 26.7 Mt at 4.8 per cent Total Graphitic Carbon (“TGC”) for 1,275,000 t of contained graphite.



## Sustainability, Transparency and Security

- Sustainability focus
- Local/optimised/seamless/ESG certified supply chain
- Powered by renewable electricity
- Key role in the Finnish battery cluster



Source: Grafintec



# Batteries from Finland

## Supported by Finnish and European Funding

Grafintec is a recipient of Business Finland funding, which supports the development of anode material production within the Finnish battery cluster



### BATCircle

- The development of a Finland-based Circular Ecosystem of Battery Metals.
- Part of battery supply chain development and recycling in Finland.
- Part of the EU Strategic Energy Technology Programme, where Finland, under the leadership of Aalto University and Outotec, will coordinate research into battery applications and recycling.



### BATTrace

- Aims to improve traceability along the battery raw materials value chain, to validate responsible and sustainable sourcing of cobalt, nickel, lithium and graphite.





# Potential Regional Supplier of Metals for the European transition to a Green Economy

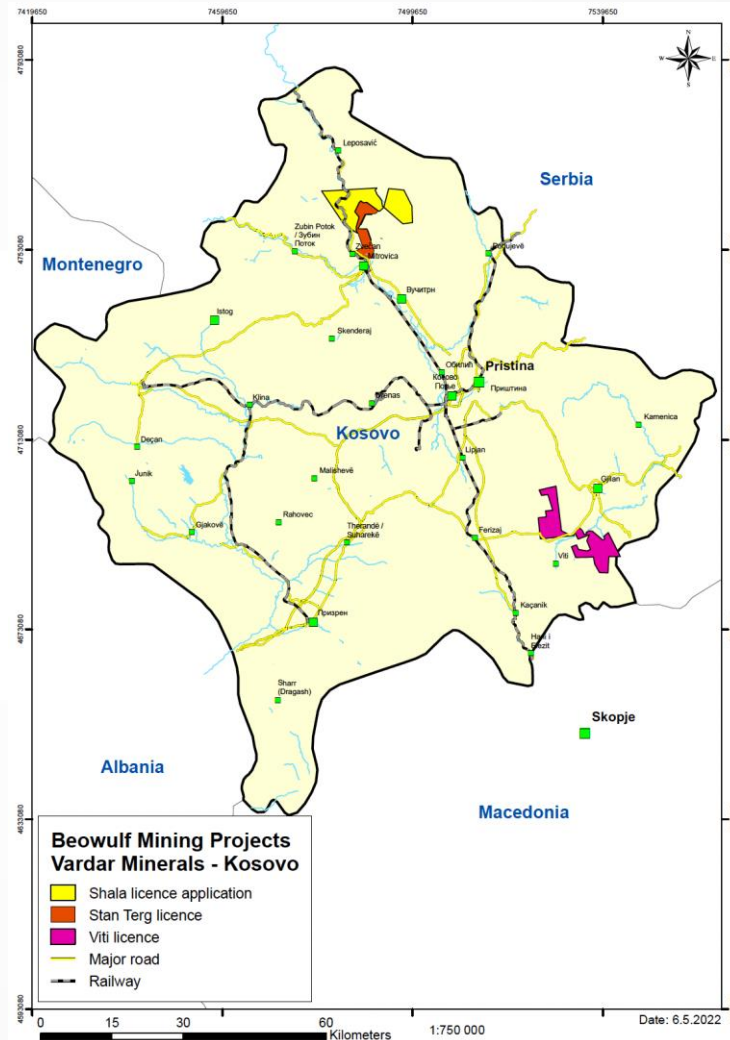


# State-of-the Art Exploration in the Tethyan Belt

## Sustainable, transparent and secure base metals supply

- The Tethyan Belt of south-east Europe can be regarded as the region's chief copper-gold (lead-zinc-silver) province.
- Beowulf has invested approximately £3.1 million and owns 59.5 per cent of Vardar Minerals.
- Vardar has two exploration projects:
  - Mitrovica: lead, zinc, silver, copper, gold; and
  - Viti: copper, gold, lithium.
- Highly experienced and technically competent team.
- With Beowulf's investment, Vardar has identified and delineated multiple compelling exploration targets.

3D Induced Polarisation (“IP”) surveys and high-resolution drone based magnetic data surveys has provided exploration targets being drilled in Q2 2022.





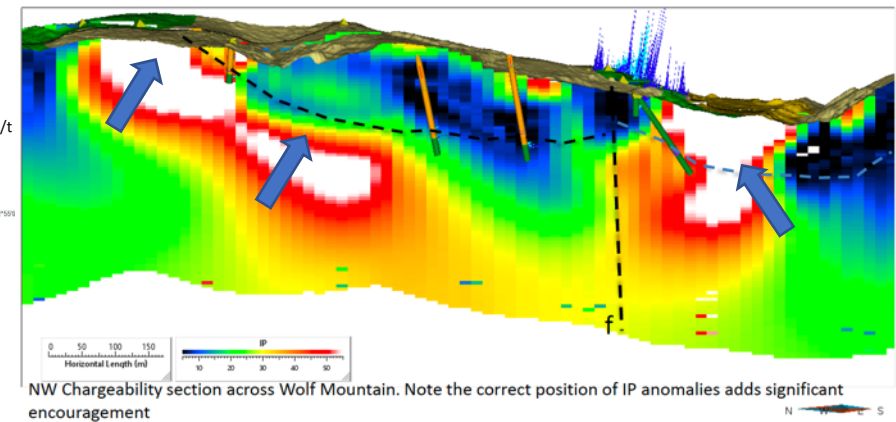
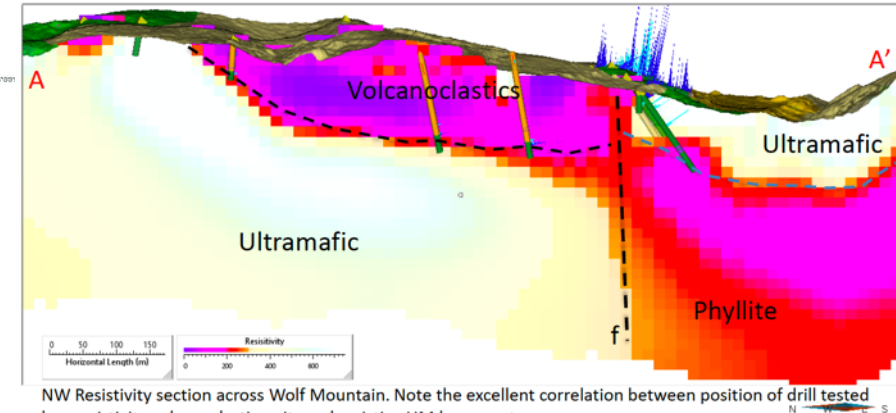
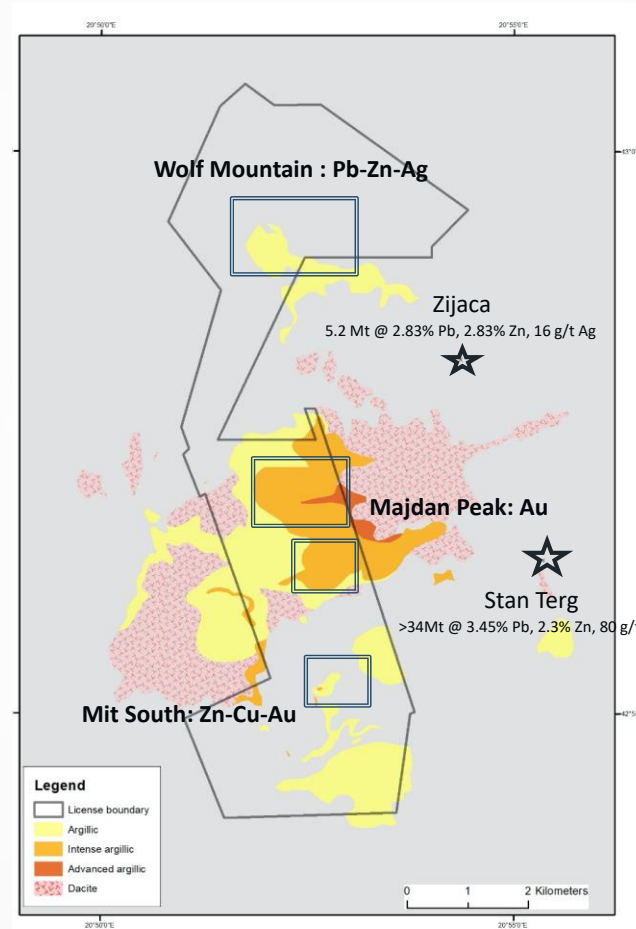
# Mitrovica Project

## Building the picture – A large porphyry style mineralised system

- Immediately west and northwest of the world-class Stan Terg lead-zinc-silver mine
- Licence includes numerous base and precious metal soil sampling anomalies, gossans and extensive alteration typical in porphyry related systems

### Priority targets include:

- **Wolf Mountain** • low-sulphidation lead-zinc-silver target
- **Majdan Peak** • high-sulphidation epithermal gold and base metal target
- **Mitrovica South** • base/precious metal target
- Potential also exists for primary underlying porphyry copper mineralisation



# What Vardar gives Beowulf

## Base and precious metals exposure at the right address

- In 2018, Beowulf invested in a highly experienced and technically competent team, which has gone on to deliver multiple compelling exploration targets for drilling at both Mitrovica and Viti projects.
- Objective is to make a discovery.
- Europe needs shorter supply chains to reduce the CO<sub>2</sub>-footprint of metals consumed in the manufacturing of electric vehicles and building green infrastructure.
- Vardar has the potential to be a new supplier of base metals needed in Europe for the transition to a Green Economy.
- Kosovo is ideally located to contribute to a sustainable, transparent and secure supply for the region.





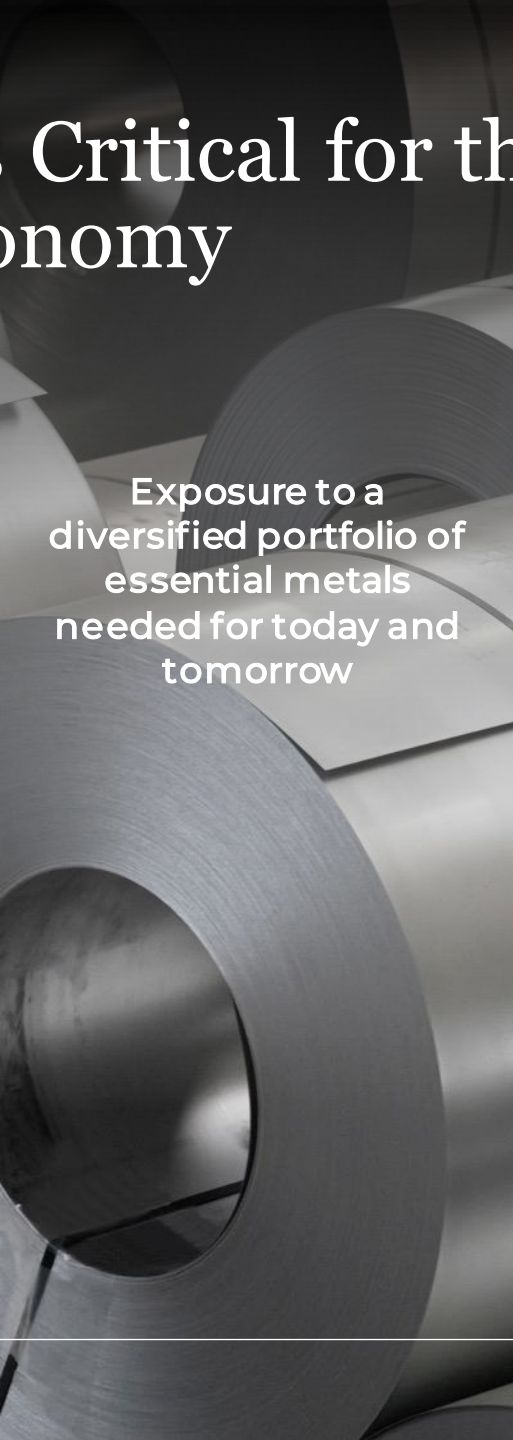
# Delivering Raw Materials Critical for the Transition to a Green Economy




Commitment to ESG, sustainability, innovation, and developing projects in partnership with communities



Building an offer of sustainable, transparent and secure supply of the raw materials critical for the transition to a Green Economy and addressing the Climate Emergency



Exposure to a diversified portfolio of essential metals needed for today and tomorrow



Focus on collaboration to move downstream and create sustainable, seamless, transparent and secure supply chains



Experienced management team



# Contacts



**Kurt Budge**  
Chief Executive Officer



[kurt.budge@beowulfmining.com](mailto:kurt.budge@beowulfmining.com)



<https://beowulfmining.com>





# Appendices





# Corporate Overview (3 June 2022)



Share price	Market cap	Ticker	Shares in issue/SDR's
5.5p / 0.619 SEK	£45.7 m/ SEK 514.8 million	BEM/BEO	831,710,636 / 636,028,706*

\*31 March 2022





# Board and Management



**Sven Otto Littorin**  
BSc in Economics and Business  
Non-Executive Chairman

Former politician and Sweden's Minister for Employment from 2006 to 2010. Since leaving government, he co-founded his own real estate development company and has held a number of advisory positions across Europe, North America and the Middle East. Most recent positions include serving as a member of the Advisory Board of Gravitas in Austria, a Partner with The Labyrinth Public Affairs in Sweden, and an Advisor to the Human Resources Development Fund in Saudi Arabia. Mr Littorin holds a BSc in Economics and Business from Lund University.



**Kurt Budge**  
MBA MEng in Mining Engineering ARSM  
Chief Executive Officer

Over 20 years' experience in the mining sector, during which he spent five years as a Business Development Executive in Rio Tinto's Business Evaluation Department. He has also been an independent advisor to junior mining companies on acquisitions and project development as well as a General Manager of Business Development for an AIM listed mining company. Kurt was Vice President of Pala Investments AG, a mining focused private equity firm based in Switzerland and has worked as a mining analyst in investment research.



**Christopher Davies**  
MSc DIC in Mineral Exploration FAusIMM  
Non-Executive Director

Fellow of the Australasian Institute of Mining and Metallurgy, Chris is an exploration/ economic geologist with more than 30 years' experience in the mining sector with substantial knowledge of graphite and base metals. Chris has worked as a geologist in Africa, Australia, Yemen, Indonesia and Eastern Europe. His most recent role was as a Consultant to an Australian Group seeking copper-gold assets in Africa where he carried out technical due diligence and negotiated commercial terms for joint venture partnerships. Chris was Operations Director of African Eagle until March 2012 and Country Manager for SAMAX Resources in Tanzania, which was acquired by Ashanti Goldfields in 1998 for US\$135m.



**Rasmus Blomqvist**  
MSc in Geology and Mineralogy MAusIMM  
Exploration Manager

Rasmus, Founder of Fennoscandian, has been working in exploration and mining geology for over 11 years and holds a MSc in Geology and Mineralogy from Åbo Akademi University, Turku Finland. Prior to Fennoscandian, Rasmus was Chief Geologist for Nussir ASA, managing its exploration team and achieving significant exploration success for the company. Prior to Nussir, he worked as an independent consultant for several international mining companies including Mawson Resources, Tasman Metals and Agnico Eagle. Mr Blomqvist is a member of the Australasian Institute of Mining and Metallurgy ("AusIMM").





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