

6 November 2023

# High Grade Nickel Targets at Quicksilver

The recent excellent metallurgical results<sup>1</sup> (released Monday 30/10/23) at **Golden Mile Resources Limited's** ("Golden Mile"; "the Company"; ASX: "**G88**") 100% owned Quicksilver Nickel-Cobalt Project ("Quicksilver"; "the Project") continue to increase the Company's confidence of **producing multiple saleable products at low cost without the dependence on high pressure acid leach (HPAL) processing**. These results also provided **a very positive development for near surface high grade nickel as well as gold**.

These ongoing positive developments regarding the metallurgical properties of the Quicksilver deposit demonstrate why the Company believes it is one of the most exciting undeveloped nickel–cobalt resources in Western Australia.

**Key Points:** 

- Excellent Metallurgical results demonstrate the ability to easily separate out high grade nickel up to 4.5% Ni<sup>1</sup>
- High grade nickel is interpreted to be structurally controlled and widespread throughout the deposit
- **B**est results to date include <sup>2 to 5</sup>:
  - 23QDD0081: 49m @ 1.74% nickel from 30m (including 28m @ 2.34% nickel from 32m)
  - o QDD00012: 36.6m @ 1.01% nickel from 49.4m
  - QAC00103: 21m @ 1.69% nickel from 35m (including 13m @ 2.24% nickel from 37m)
  - QRC00404: **31m @ 1.38%** nickel from 31m (**including 10m @ 2.08%** nickel from 55m)
  - QRC00414: 28m @ 1.04% nickel from 52m (including 12m @ 1.30% nickel from 56m)
- The delineation of high grade nickel zones could provide the Company with an opportunity to initially extract those high grade zones within the deposit to increase margins and accelerate payback, or even transform the project into a niche high grade nickel mine
- Discovery of easily recoverable gold provides a further potential revenue stream<sup>1</sup>

Golden Mile's Managing Director Damon Dormer said: "The geology and metallurgy keep delivering upside on Quicksilver. The key for us now is to maximise the amount of high grade at the drill bit, update the Mineral Resource Estimate (MRE) and then complete the Scoping Study on the new MRE."



Following the latest excellent metallurgical and petrography results announced last week<sup>1</sup> the Company has further evolved its understanding of the Quicksilver Project in general and the high grade nickel component specifically. The Company has classified the Project as a **nickel–cobalt clay-silicate deposit with significant high grade supergene nickel overprinting.** 

Clay silicate nickel deposits do not contain any significant amounts of limonite or goethite oxide ("laterite"), with the deposit consisting mainly of smectite clay and silicate. A feature of this type of deposit is that the nickel grade can be easily upgradeable by simple screening and scrubbing to remove the silicate. This is also the case at Quicksilver where metallurgical testwork shows the nickel grades can be upgraded between 111% and 226%.<sup>6</sup>

While clay silicate deposits themselves are not that common, representing about 8% of world's nickel laterite resources<sup>7</sup>, what really differentiates Quicksilver is the mixture of potential ore types as well as the high grade scandium. The recent work has identified 5 potential ore types and one industrial type that can be mined using low cost free digging (soft rock mining), and separated using low cost mechanical methods as follows:

- Nickel–cobalt clay ore: Screening and scrubbing separation
- High grade nickel mica ore: gravity separation
- Iron-chromium-nickel-cobalt ore: Magnetic separation (SIMMS) and regrinding
- High grade cobalt ore: Byproduct of scrubbing (scrub oversize)
- Gold: Gravity table concentrate
- Silica aggregate: Screening separation and sizing (industrial product)

These variabilities and characteristics of the Quicksilver nickel-cobalt deposit were not previously known, and the Company believes these new developments can be exploited to make the project viable at its current scale.

## **Geological Model**

Nickel clay silicate deposits form from the weathering of ultramafic rock underlying them. Typically, in Western Australia the ultramafic is recognisable and reasonably homogenous and that is reflected in the laterite nickel deposit that forms above it.

However, at Quicksilver the underlying ultramafic rock has been subjected to high grade metamorphism and is unrecognisable from its original form. To accommodate the associated extreme changes in pressure and temperature, new minerals have formed and therefore the rock may breakdown differently to that of typical ultramafic in the weathering process. The Company is not aware of any nickel laterite deposits in WA where the source rock has undergone such high grade metamorphism. This also indicates a long structural history which is evident by the presence of felsic intrusions, stockwork veining, shearing, schists and locally intense biotite hydrothermal alteration which is also not typical.



It is the Company's opinion that it is this geological setting that explains both the specific characteristics and the variability in the Quicksilver nickel clay silicate deposit which the Company is looking to exploit.

### **High Grade Nickel**

At Quicksilver a rare phenomenon is occurring where there is high grade nickel mica overprinting the nickel clay resource. Drilling has intersected wide zones of near surface high grade nickel within the clay–silicate nickel resource with results that include:

- 23QDD0081: 49m @ 1.74% nickel from 30m (including 28m @ 2.34% nickel from 32m)
- QDD00012: 36.6m @ 1.01% nickel from 49.4m
- QAC00103: 21m @ 1.69% nickel from 35m (including 13m @ 2.24% nickel from 37m)
- QRC00404: 31m @ 1.38% nickel from 31m (including 10m @ 2.08% nickel from 55m)
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The mica associated with high grade nickel is vermiculite, which is a hydrothermal alteration mineral. Initially the Company thought the nickel mineralisation might be associated with a hydrothermal event and the high grade zones might be controlled by a series of cross cutting structures interpreted from detailed aeromagnetic data.

However, it appears from the recent petrography results that something with the potential to be more substantial is occurring. The recent work discovered that the high grade nickel:

- Is associated with vermiculite, a micaceous mineral that is formed from the weathering of biotite ("high grade nickel mica"); and that
- Scanning Electron Microscopy ("SEM") revealed nickel and iron bearing precipitate both along grain boundaries and within the mica (vermiculite) sheets
- This indicates secondary supergene processes are forming high grade nickel which is separate to the formation of nickel clay that it is overprinting.

Supergene process is where there is secondary metal enrichment within oxide zones and can produce large near surface metal deposits. The most common and best known supergene deposits in WA are gold deposits. Such high-grade nickel supergene enrichment is rare and is occurring at Quicksilver most likely because of the special properties of vermiculite that makes it the preferred depositional site for secondary mineralisation.

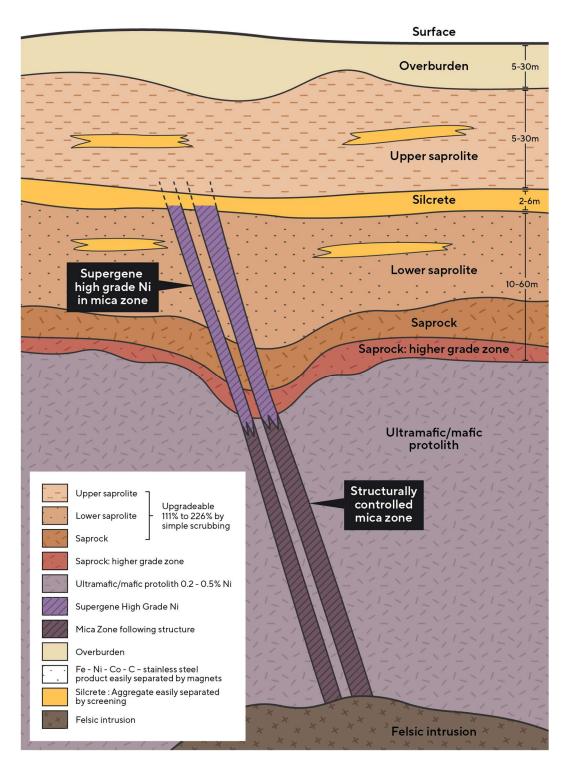
A further development from the recent metallurgical results which makes the discovery of high grade nickel mica even more exciting is that:

- The high grade nickel mica can be easily separated using simple low cost gravity technique
- The grade of the resulting nickel mica concentrates is up to an impressive 4.5% nickel

The other consideration is what controls the formation of vermiculite, as that will be ultimately controlling the quantity and distribution of the high grade nickel mica in the oxide. The Company believes that the vermiculite is formed by the alteration of biotite within the oxide zone. The recent



RC drilling has shown there is significant biotite in the underlying primary rocks, so by assumption the Company believes there is significant potential for high grade nickel mica in the oxide.



**Figure 1.** Schematic showing the concept of structural control of the high grade supergene nickel mica forming in the oxide zone due to the weathering of the underlying biotite rich units interlayered with ultramafic rock. These biotite rich layers formed either by hydrothermal alteration along faults and/or highly metamorphosed interflow sediments.



Furthermore, it appears that the distribution of at least some of the high grade nickel is (Figure 1):

- Controlled by the structure of the underlying rocks where there are biotite rich units; and
- These units were initially formed by hydrothermal alteration along faults and/or highly metamorphosed rock units
- The predictor of locally greater concentrations of high grade nickel mica in the oxide zone is the presence of biotite rich units directly below in the primary at depth
- The main biotite unit of most interest intersected in drilling to date, appears to have variable thickness and is steeply dipping
- The Company believes there is potential for several parallel biotite rich units that could also be the source of further high grade nickel mica in the oxide
- There is also potential for biotite alteration along cross cutting structures which may also be a source of high grade nickel mica in the oxide

The significance of this means:

- The distribution of at least some of the high grade nickel will take on the geometry of the underlying biotite unit from which it formed
- This concentration of near surface high grade nickel into discreet units allows selective mining using low cost free digging
- Selective mining also allows "high grading" to improve margins (i.e., mine the high grade zones first)
- The high grade mica can be easily separated using low cost gravity methods producing high value nickel concentrate up to 4.5% nickel

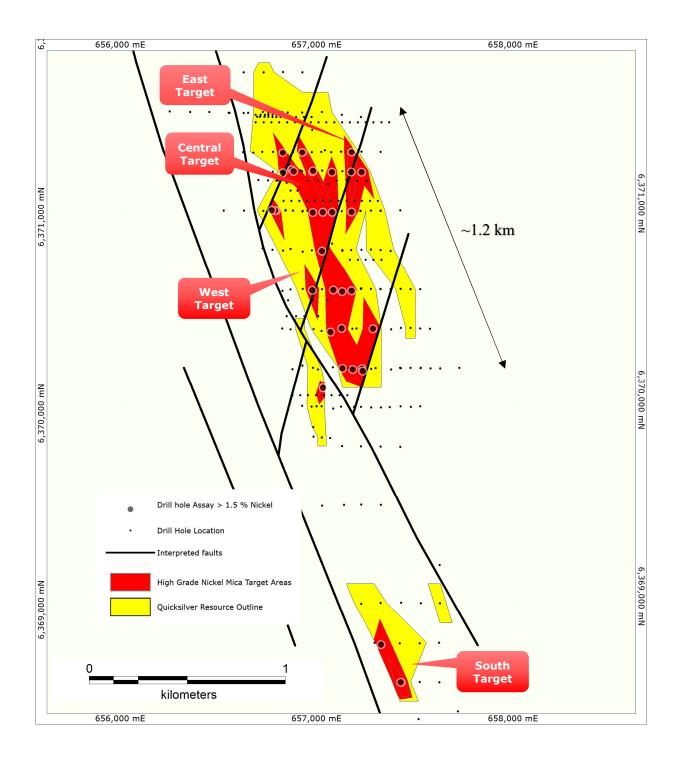
The current resource drilling has sub optimal orientation and too wide spacing to consistently intersect the interpreted high grade nickel mica zones, and therefore further exploration is required. However, there are some broad trends evident in the resource drilling and in conjunction with the recently completed deeper RC drilling and detailed geophysics, the Company has identified compelling target areas for further drilling that include (Figure 2):

- The Central nickel rich mica target area that is approximately 1.2km long, where there is consistently higher grade in the resource drilling, and is also co-incident with the interpreted strike of the underlying biotite rich layers intersected in the recent deeper exploration RC drilling
- The East and West target areas are interpreted as parallel biotite units to the central trend
- The Southern area of high grade nickel which remains open in the resource and appears to be following a similar trend as the main area

**This is an exciting development for the Quicksilver project** because the discovery of high grade nickel mica zones has the potential to substantially improve the economics of the project or even transform the project into a high grade nickel mine.



The Company believes Quicksilver is one of the most exciting undeveloped nickel–cobalt resources in Western Australia and looks forward to commencing further drilling targeting high grade nickel while continuing testwork and heading towards scoping study.



**Figure 2.** Exploration target areas for high grade nickel mica within the Quicksilver resource outline. The central target area coincides with higher grade in the resource holes and the interpreted strike of the biotite rich units intersected in the recent deeper



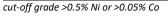
RC drilling. The Company believes there is potential for significant high grade nickel mica occurrences in these areas.

#### **About Quicksilver**

The Quicksilver Nickel–Cobalt Project is located near the town of Lake Grace, approximately 300km SE of Perth (**Fig 3**). The Project comprises of the resources summarised in Table 1 below<sup>8</sup>.

 Table 1: Quicksilver Indicated and Inferred Resource

Classification	Tonnes (Mt)	Ni Grade (%)	Co Grade (%)	Contained Ni (t)	Contained Co (t)
Indicated	4.4	0.72	0.049	31,900	2,100
Inferred	21.9	0.63	0.042	136,600	9,100
Total	26.3	0.64	0.043	168,500	11,300



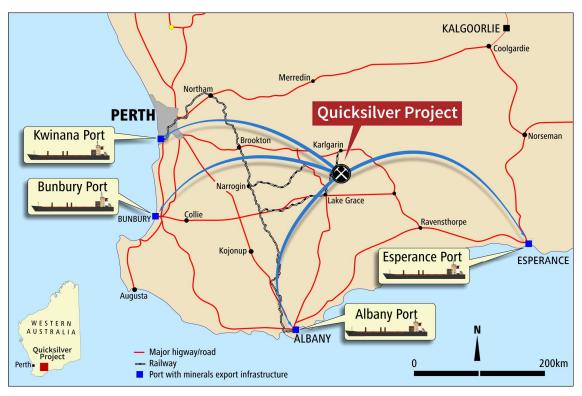


Figure 3. Location of Quicksilver Nickel – Cobalt Project

Further to the defined Resource, Quicksilver has confirmed mineralisation of Rare Earth Elements<sup>9</sup> (REE's) and significant high-grade Scandium<sup>10</sup> (Sc) within the Resource envelope.



## References

<sup>1</sup> Quicksilver Metallurgical Testwork Update	30 OCT 2023
<sup>2</sup> <u>Highest-ever Nickel Grades at Quicksilver</u>	14 JUN 2023
<sup>3</sup> <u>New Nickel Discovery</u>	06 Nov 2017
<sup>4</sup> <u>Updated – Wide Nickel Intercepts</u>	30 Nov 2017
<sup>5</sup> Results of Diamond Drilling and Exploration Update	17 Oct 2018
<sup>6</sup> Significant Nickel Upgrading of Quicksilver Mineralisation	08 AUG 2023
<sup>7</sup> Nickel Laterite Ore Deposits: Weathered Serpentinites (Butt CRM, Cluzel D <i>Elements</i> )	April 2013
<sup>8</sup> Quicksilver Nickel-Cobalt - Significant Maiden Resource	19 NOV 2018
<sup>9</sup> REE Mineralisation Confirmed at Quicksilver Ni-Co Project	18 JAN 2023
<sup>10</sup> Further REE & Scandium Mineralisation at Quicksilver Project	01 MAR 2023

This Announcement has been approved for release by the Board of Golden Mile Resources Limited.

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Note 1: Refer ASX announcement on the said date for full details of these results. Golden Mile is not aware of any new information or data that materially affects the information included in the said announcement.

## **About Golden Mile Resources Ltd**

Golden Mile Resources Ltd (Golden Mile; ASX: G88) is a Western Australian based project development and mineral exploration company with three tier strategy for delivering value. The primary focus is on the project development of its flagship, 100% owned Quicksilver Ni-Co project and the secondary value driver through its 100% owned, highly prospective Yuinmery gold project. Golden Mile Resources is also focused on tactical



#### **Competent Persons Statement- Exploration Results**

The information in this report that relates to Exploration Results is based upon and fairly represents information compiled by Mr Jordan Luckett, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Luckett is a full-time employee of the Company and owns Shares and Options in the Company as well as participating in a performance-based Share Option plan as part of his renumeration.

Mr Luckett has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Luckett consents to the inclusion in the report of the matter based on his information in the form and context in which it appears.

The Company confirms it is not aware of any new information or data that materially affects the exploration results set out in the original announcements referenced in this announcement and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original announcements.

### **Competent Persons Statement- Metallurgical Results**

The information in this announcement that relates to Metallurgical Results is based on information compiled by independent consulting metallurgist Brian McNab (FAusIMM CP. B.Sc Extractive Metallurgy). Mr McNab is a Member of the Australasian Institute of Mining and Metallurgy. He is employed by Wood Australia Pty Ltd.

Mr McNab has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is undertaken, to qualify as a Competent Person as defined in the JORC 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr McNab consents to the inclusion in the announcement of the matters based on the information made available to him, in the form and context in which it appears.

The Company confirms it is not aware of any new information or data that materially affects the exploration results set out in the original announcements referenced in this announcement and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original announcements.

#### Forward-Looking Statements

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Golden Mile Resources Ltd (ASX: G88) planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although Golden Mile Resources Ltd (ASX: G88) believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.