



MacDonald Mines Reports on ALS GoldSpot Discoveries' Findings along the Alwyn Copper-Gold Trend

Announces Plans to Drill at Alwyn Copper-Gold & Glade Gold Trends

Toronto, Ontario – May 12, 2023 - MacDonald Mines Exploration Ltd. (TSX-V: BMK, OTC: MCDMF) ("MacDonald Mines" or the "Company") is pleased to announce its upcoming plans to drill along the prospective McLaren Lake Fault Zone ("MLFZ") at the Alwyn Copper-Gold ("Cu-Au") trend ("Alwyn"), as well as the Glade Gold ("Au") trend ("Glade") located on MacDonald Mines 100% owned SPJ Project near Sudbury, Ontario. The company also reports new results received from its collaboration with ALS GoldSpot Discoveries Ltd. ("ALS GoldSpot") that have been integrated in the planning of the drilling program. Drilling is planned to begin as soon as load restrictions on the Kukagami road are lifted. This is anticipated to be at the end of May or early June 2023.

Along the McLaren Lake Fault System, the Company is planning up to 1,200 m of drilling to target copper-gold mineralization primarily in the Alwyn Cu-Au trend and potentially at the Ashigami occurrence.

In the Glade Au trend, the company is planning up to 350 m of drilling.

- Drilling in Alwyn Cu-Au trend aims to:
 - Expand the footprints laterally and at depth of the vein networks mineralized in copper and gold identified during the 2022 drilling program and indicated by historical drilling (AFRI 41110NE0158),
 - Test the association between gravity highs and hydrothermal iron enrichments that could be suggestive of the presence of iron-rich copper-gold mineralization affiliated with iron oxide copper-gold ("IOCG") mineralization.
 - Drilling will integrate new data that support the extension of copper-gold mineralization outside of the area tested in 2022 that include:
 - The results from the 2023 gravity survey and 10 new targets generated by ALS GoldSpot in the Alwyn Cu-Au trend,
 - An updated geological and structural model for copper-gold mineralization at Alwyn, built using recent and digitized historical data and the Company's collaboration with ALS GoldSpot (AFRI 41110NE0158; Figure 2).
- Contingent on positive surface exploration results in 2023, limited drilling could also test copper-gold and cobalt-gold mineralization at the Ashigami occurrence, located 4.5 km southeast of the historical Alwyn Mine:
 - Recent and historical exploration results indicate the presence of copper-gold mineralization comparable to what is observed in the Alwyn Cu-Au trend, as well as similar size potential to the Alwyn mineralized system (AFRI 41110NE0169).
- Drilling at the Glade Au trend will continue to test for the presence of gold-mineralized iron-rich chlorite alteration discovered during the drilling program of 2022 that is comparable to what is observed at the Scadding Deposit.
 - That zone of chlorite alteration contained 0.82 g/t gold over 40.5 m including 7.76 g/t gold over 2.9 m in AG-22-103 (see news release of September 19, 2022).

Jean-François Montreuil, Chief Geologist of MacDonald Mines. commented; “We are looking forward to beginning our 2023 drilling program to test our exploration targets in the Alwyn and Glade areas defined in collaboration with the holistic and geoscience-based machine learning expertise of ALS GoldSpot. With the integration of new historical drilling data in our targeting matrix, the work of ALS GoldSpot identified promising and shallow exploration targets which could considerably extend the Alwyn Cu-Au mineralized trend along the MLFZ. We also now have a much-improved understanding of the fault systems associated with Cu-Au mineralization, along which deeper gravity targets are distributed that could represent a transition of the quartz-carbonate system exposed at surface to iron-rich Cu-Au mineralization affiliated with IOCG mineralization.”

Mr. Montreuil added: “Our exploration work in 2022 along the Glade Au trend has broadened our understanding of the Au system, as we can now confirm it’s relation with Au mineralization at the Scadding deposit. We look forward to continuing exploration in this area and providing new results for the Scadding-Glade Au system.”

Highlights of the ALS GoldSpot-Macdonald Mines Collaboration:

- ALS GoldSpot has identified and ranked 10 favourable, near-surface exploration targets distributed along the prospective MLFZ and an intersecting N-S fault system. Three of these targets have been prioritized by MacDonald Mines for additional exploration in 2023 (Figure 1).
 - **Area 1 – Northwestern and southeastern extensions of the Alwyn Cu-Au trend (Targets GS_1 & GS_2)**
 - High-priority targets located in the north-west and south-east extensions of the area tested during the 2022 drill program near the historical Alwyn Mine.
 - Northwestern target overlaps with a gravity high suggesting the presence of iron-rich alteration at Alwyn (see March 3rd 2023 news release).
 - Historical drilling (AFRI 41110NE0158) indicates the presence of quartz-carbonate veining associated with chalcopyrite mineralization in the southern-eastern target with comparable descriptions to the observations made during 2022 drilling. This information has also provided critical information for building the 3D model of the Alwyn shear/vein system outside of the known area.
 - **Area 2 – Possible extension of the Alwyn Cu-Au trend 730 m south-east of the Alwyn Mine (Target GS_4)**
 - Largest exploration target generated by ALS GoldSpot along the MLFZ.
 - A breccia zone visible on the geological map M2009 overlaps with the with ALS GoldSpot’s target suggesting the presence of tectonic deformation and hydrothermal alteration associated with Cu-Au mineralization.
 - Overlaps with a strong gravity high located at depth along the MLFZ.

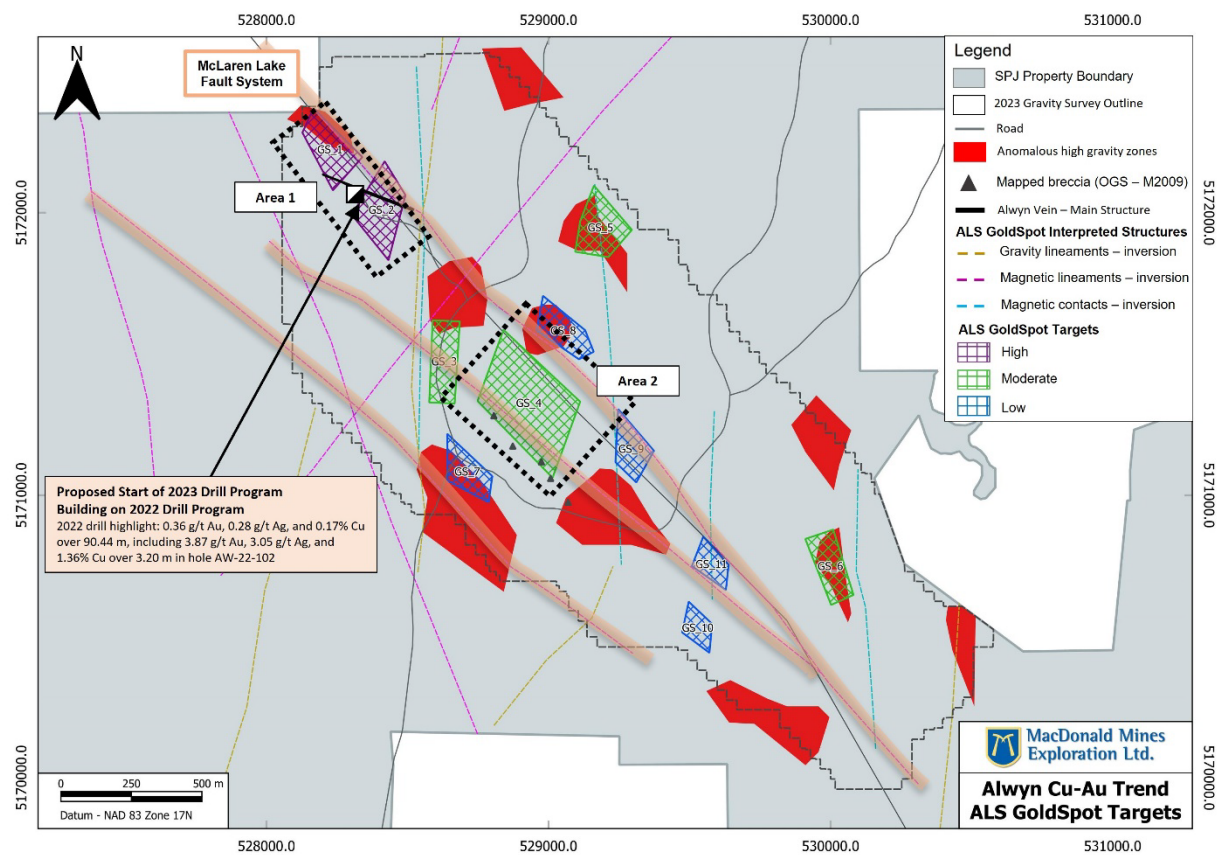


Figure 1. ALS GoldSpot AI generated targets and proposed location for 2023 drill program at Alwyn. Note that drilling will take place within Area 1, which encompasses two of the highest priority ALS GoldSpot targets. Area 2 outlines the other major area of interest highlighted by ALS GoldSpot, which will be follow up on with prospecting and mapping this summer.

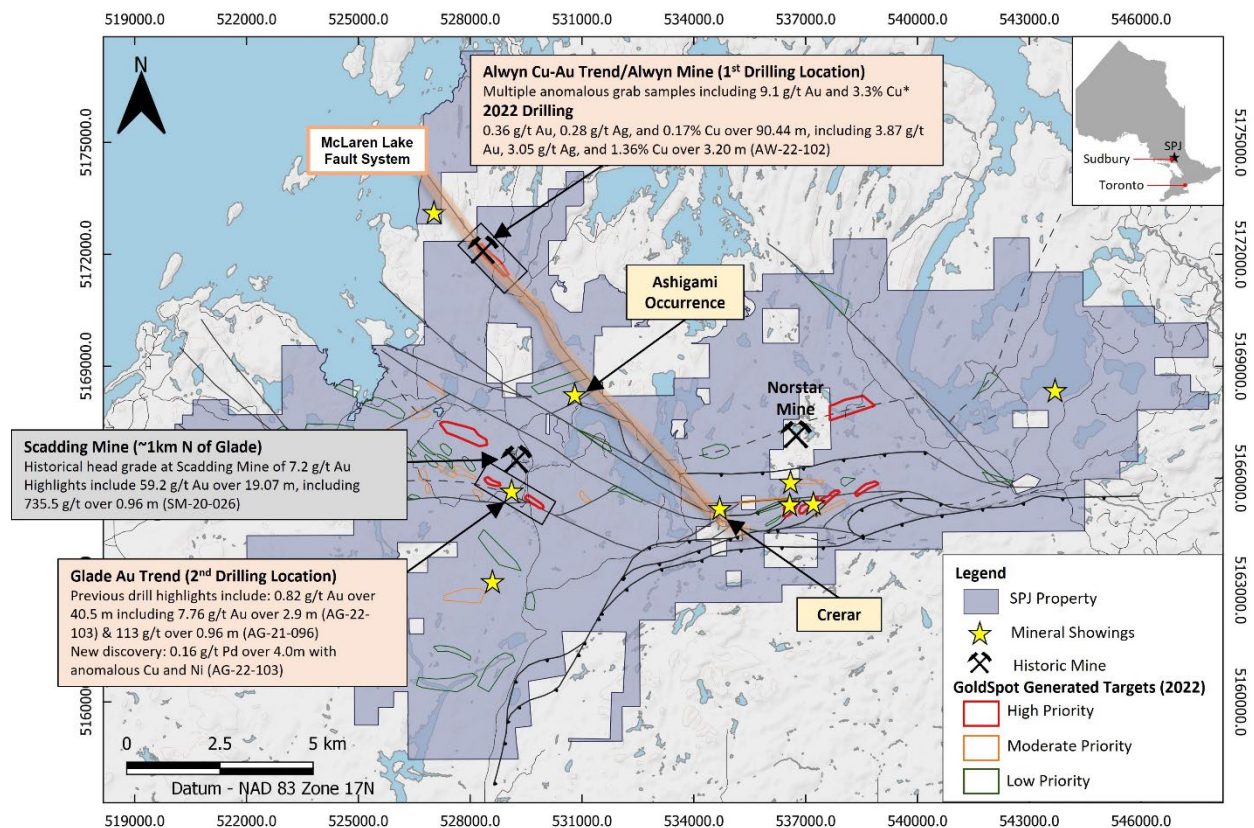


Figure 2. Locations of 2023 drilling, starting with the Alwyn Cu-Au trend and moving onto the Glade Au trend, with the possibility of pursuing the Ashigami occurrence. *The reader is cautioned that grab samples are selective by nature and do not represent the true metal content of the mineralized zone

Copper-gold mineralization along the McLaren Lake Fault Zone

The MLFZ is emerging as a compelling exploration target for copper-gold and potentially cobalt-gold mineralization. Along the 2.5 km Alwyn Cu-Au trend defined in collaboration with ALS GoldSpot, near-surface copper-gold mineralization is associated with networks of quartz-carbonate veins. The 2023 gravity survey and data from the 2022 drilling program suggest that Cu-Au mineralization associated with iron-rich alteration could be present in the deeper extensions of the systems (see Figure 1 and news release of March 3, 2023).

Regionally, the MLFZ is highly prospective for critical and precious metals mineralization. In addition to Alwyn, along the MLFZ on the SPJ Project the primary targets include the Ashigami and the Crerar showings, located respectively 4.5 km and 9.5 km southeast of the Alwyn mine (Figure 2).

New grab samples from Ashigami blast pit containing 1.00 to 6.45 g/t gold, 3.11 to 5.55 % copper and 133 to 211 ppm cobalt were obtained by MacDonald Mines in 2023 (see news release of March 21, 2023). The reader is cautioned that grab samples are selective by nature and do not necessarily represent the true metal content of the mineralized zones. Mineralization at the Ashigami showing consists primarily of chalcopyrite with pyrite within dense multidirectional networks of quartz-carbonate veins, hosted in Gowganda formation sediments. That style of Cu-Au mineralization is very comparable to veining and mineralization observed in the Alwyn Cu-Au trend.

Glade Target

Two of the three drill holes completed in the Glade Au trend in 2022 intersected broad and near surface zones of gold mineralization and confirmed that alteration and mineralization in the Glade Au trend is comparable to gold mineralization and alteration at the Scadding deposit.

The 2023 drilling program in the Glade Au trend will follow up on the successful drilling results of the 2022 and 2021 drilling programs. In 2022, hole AG-22-103 intersected three shallow zones of gold mineralization containing in core length 0.47 g/t gold over 8.5m, 0.71 g/t gold over 10.35 m and 0.82 g/t gold over 40.5 m including 7.76 g/t gold over 2.9 m (see news release of September 19, 2022). In 2021, hole AG-21-097 confirmed the presence of high-grade gold mineralization in the Glade trend with the intersection of 113 g/t gold over 0.96 m core length (see news release of May 13, 2021).

Drilling will also continue to test the PGM potential of the Nipissing intrusion hosting the Glade system identified in the 2022 drilling program with the intersection of 0.16 g/t Pd over 4.00 m in AG-22-103 with anomalous Cu and Ni at the contact(s) between individual intrusions in the Glade Nipissing intrusion.

ALS GoldSpot Copper-Gold Target Generation

ALS GoldSpot generated Cu-Au-focused targets using its in-house SmartTARGET™ AI data-driven methodology, combined with knowledge-driven expertise – geophysics and geology – to highlight eleven prioritized areas.

SmartTARGET™ algorithms are trained to predict the presence of Cu-Au mineralization using gravity and magnetic inversion layers, historic and recent (2022 drilling campaign) drillholes, as well as interpreted structures on a 25 m voxel grid datacube. The SmartTARGET™ model predicts multiple zones of potential Cu-Au mineralization with >90% probability. SmartTARGET™ predictions are integrated with interpreted gravity-derived density zones and high/low magnetic areas to refine and rank the exploration zones.

Grant of Options

The Company also announces, the grant, under the Company's stock option plan, of 1,000,000 stock options to certain directors, officers, employees, and consultants of the Company. The options entitle the holders to purchase the same number of common shares of the Company at a price of \$0.06 per share for a period of five years.

About MacDonald Mines Exploration Ltd.

MacDonald Mines is a Canadian exploration company focused on exploring for critical and precious metals in a Metasomatic Iron alkali-calcic (MIAC) mineral system on its 100%-owned, 19,720 ha (197.2 km²) SPJ Project. MIAC systems are known for hosting IOCG and affiliated deposits. The property is located 20km southeast of the prolific Sudbury Mining Camp in Northern Ontario. The Company's primary exploration focus are the polymetallic and iron-poor to possibly iron-rich Ag-Au-Cu-Co showings and prospects along the McLaren Lake Fault System that includes the Alwyn Cu-Au-(Ag-Co) trend and the Ashigami Co-Cu-Au showings, and the iron-rich to iron-poor Glade Au trend recognized to host Au mineralization comparable to the Scadding deposit. In addition, a potential for nickel, cobalt, copper, and platinum group elements in the Nipissing intrusions that are hosting the Candore, Jerome and Glade showings within the SPJ Project.

Qualified Person

Jean-François Montreuil, P.Geo., Chief Geologist of MacDonald Mines, is the qualified person as defined by National Instrument 43-101 *Standards of Disclosure for Mineral Projects*, responsible for preparing, supervising, and approving this news release's scientific and technical content.

Forward-Looking Statements

This news release may contain certain "forward looking statements." Forward-looking statements involve known and unknown risks, uncertainties, assumptions and other factors that may cause the actual results, performance or achievements of the Company to be materially different from any future

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To learn more about MacDonald Mines, please visit www.macdonaldmines.com

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