ASX: GSN

ASX Announcement – 6 February 2019

Great Southern Mining identifies large-scale porphyry system at Edinburgh Park Project

Great Southern Mining Limited (the "Company") is pleased to announce further highly encouraging exploration findings at the Company's 100%-owned Edinburgh Park Project located 25 km north of the Mount Carlton gold mine near Townsville in north-east Queensland (Figure 1 and Figure 2). Recent geological mapping and sampling has identified a large copper-gold porphyry system at the Edinburgh Park project at a prospect known as **Leichardt Creek**.

HIGHLIGHTS

- Recent geological mapping and geochemical sampling program has to date defined the extent of a large mineralised porphyry system over 6km^2.
- Extensive mineralised gossanous quartz vein stockworks and disseminations appear to host polymetallic Au-Ag-Cu-Zn-Pb mineralisation.
- Reconnaissance rock chip samples up to **0.56% Cu**, **0.12 g/t Au** and **0.45% Mo.**
- Regional mapping and geochemical programs ongoing with geophysical surveys planned for Q1 2019.

GSN's Executive Chairman, John Terpu, commented:

"The Company has always held a firm belief in the high prospectivity of the tenure at our Edinburgh Park project and to get early exploration success on multiple targets creates a range of exciting opportunities to deliver value for shareholders.

This is the first time that a Company has systematically explored the outcropping mineralisation at Leichardt Creek. Whilst the Prospect is still at an early stage of exploration it has the hallmarks of a promising large-scale gold-copper-molybdenum-rich porphyry system.

The scale of the opportunity is one of regional significance to the area. A discovery of this nature has the potential to be transformational for the Company.

The Company will continue to develop the exploration concept and these deposits require systematic exploration in order to properly map the extent of the system and identify the prospective parts of that system for targeted drilling. Our aim over 2019 is to identify multiple targets and make that company changing discovery".

For more information:
John Terpu
Executive Chairman
(08) 9240 4111

Contact Details

Registered Office and Postal Address
Suite 4, 213 Balcatta Rd
BALCATTA WA 6021
Phone: 61 8 9240 4111
Fax: 61 8 9240 4054

Website
www.gsml.com.au

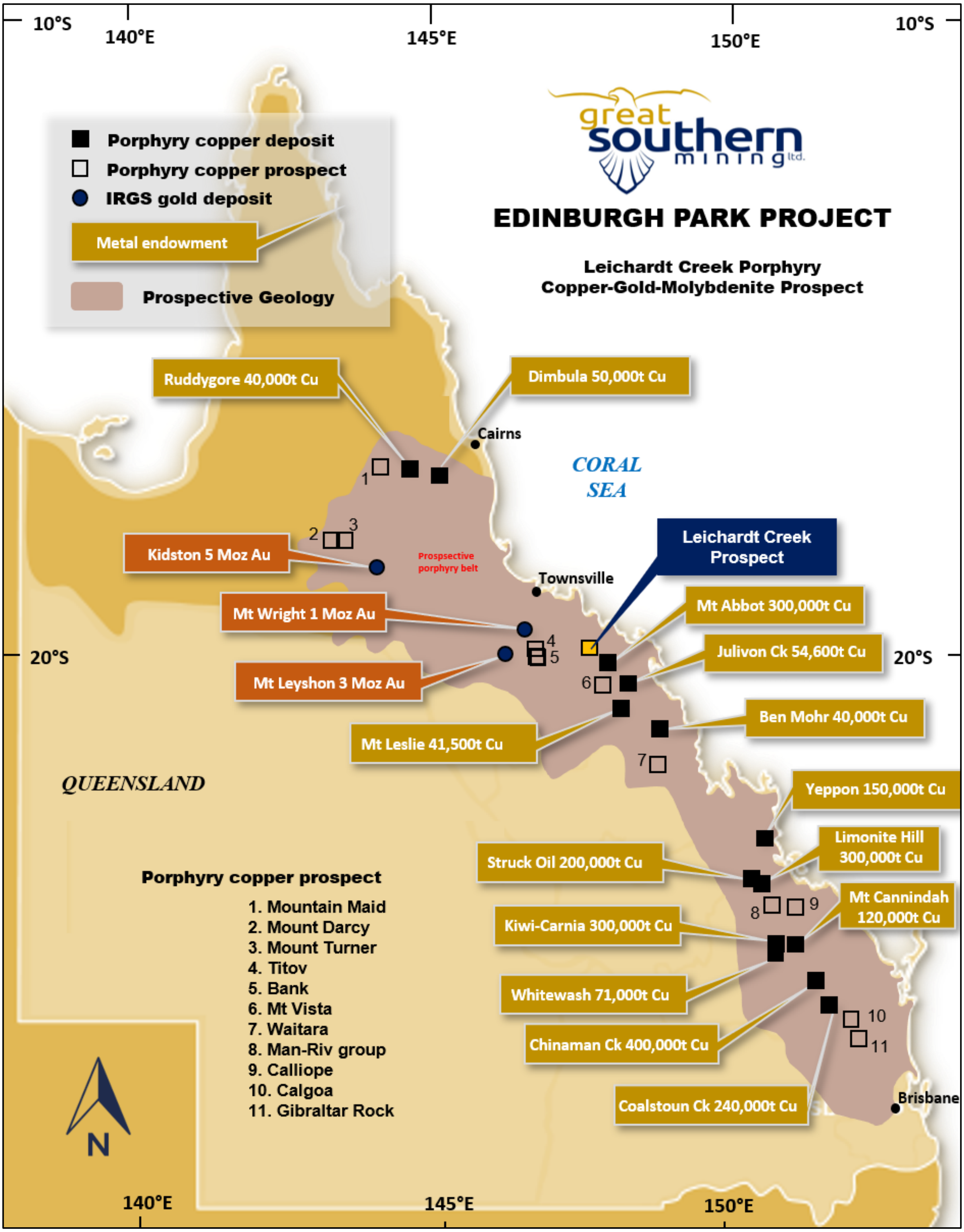


Figure 1: Location of Edinburgh Park Project, along with major Cu (±Au and Mo) porphyry discoveries.

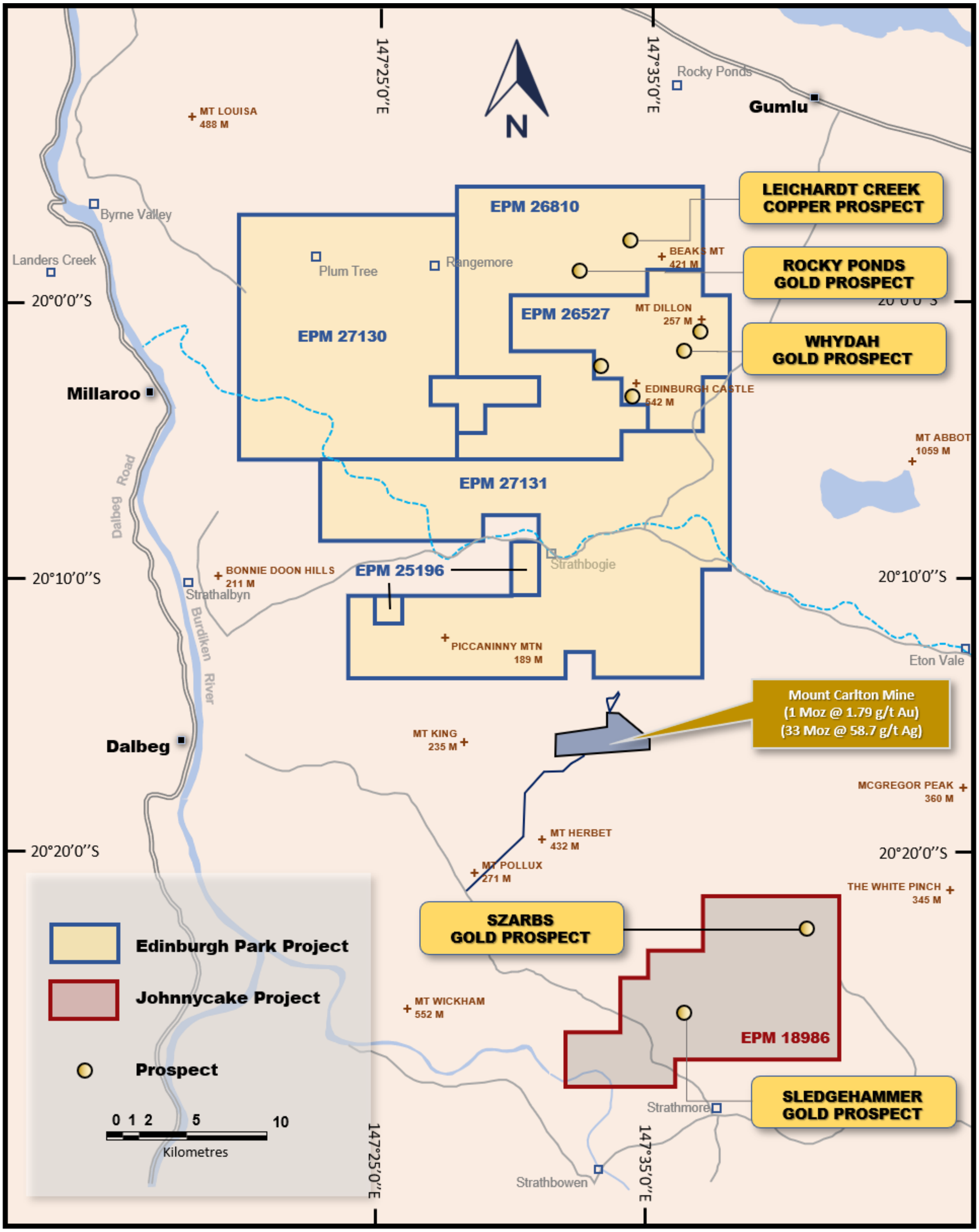


Figure 2: Location of the Edinburg Park Project and Leichardt Creek porphyry prospect.

During the period to 31 December 2018 the Company lodged applications to acquire 2 additional tenements in North Queensland. EPM 27130 and EPM 27131. The Directors are not aware of any reason that would result in the tenements not being granted to the Company.

Background and observations

Porphyry deposits are generally low-grade but often very large resources of copper and gold generating some of the largest ore deposits in the world and producing most of the worlds copper.

The Leichardt Creek Prospect identified is emerging as a large-scale Late Carboniferous to Early Permian age mineralised porphyry system. The Carboniferous to Early Permian is a major mineralising epoch in North Queensland associated with extensive felsic volcanism and intrusions responsible for the development of numerous Tier 1 intrusion related deposits (e.g.; Kidston, Mount Leyshon, Mt Wright, Ravenswood and Mt Carlton). Refer to Figure 1.

Recent reconnaissance geological mapping and sampling is beginning to define the Leichardt Creek prospect as extensive sheeted quartz-sulphide vein and stockwork zones with phyllic alteration envelopes within and around a complex of microgranite intrusives (Figure 3). Alteration and mineralization at Leichardt Creek occurs over a substantial area. The Leichardt Creek mineralised zone extends along a NE-SW trend and has been broadly mapped over a 3 km by 1.5 km area.

The textures and alteration are typical of "C" type veins that occur in the phyllic alteration zone around and above porphyry mineralisation systems. The veins are filled compact fine comb quartz and commonly have a gossanous core of goethite and manganese oxides after sulphide. Where primary sulphide mineralisation is preserved, mineralisation consists of disseminated and microveinlet pyrite, with lesser chalcopyrite (CuS), spalerite (ZnS) and galena (PbS).

The vein characteristics and geochemical association indicate a relatively high level of exposure within the porphyry system above the causative intrusion.

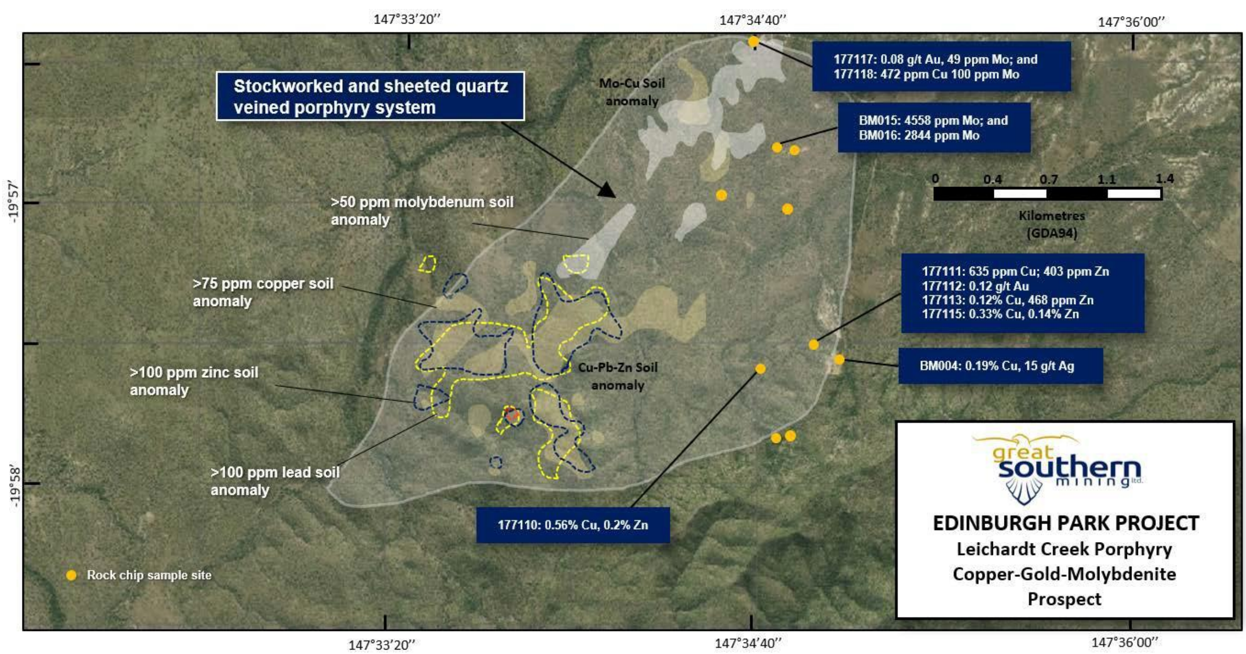


Figure 3: Stockworked quartz vein extent and previous geochemical anomalism.

The mineralised system has undergone very limited exploration. Previous historic regional soil programs undertaken in the early 1970's over parts of the stockworked zone indicate a Cu-Mo-Pb-Zn association and anomalism with indications of metal zonation (Figure 3). Importantly, gold and silver where never analysed.

Minimal previous rock chip sampling (Figure 3; Table 1) has returned:

- **0.56% copper, 0.11% lead** and **0.20% zinc** from a quartz porphyry sample;
- **0.33% copper** and **0.14% zinc** from stockworked granite;
- **0.19% copper** and **15 g/t silver** from stockworked granite and
- **0.12 g/t gold** from stockworked granite

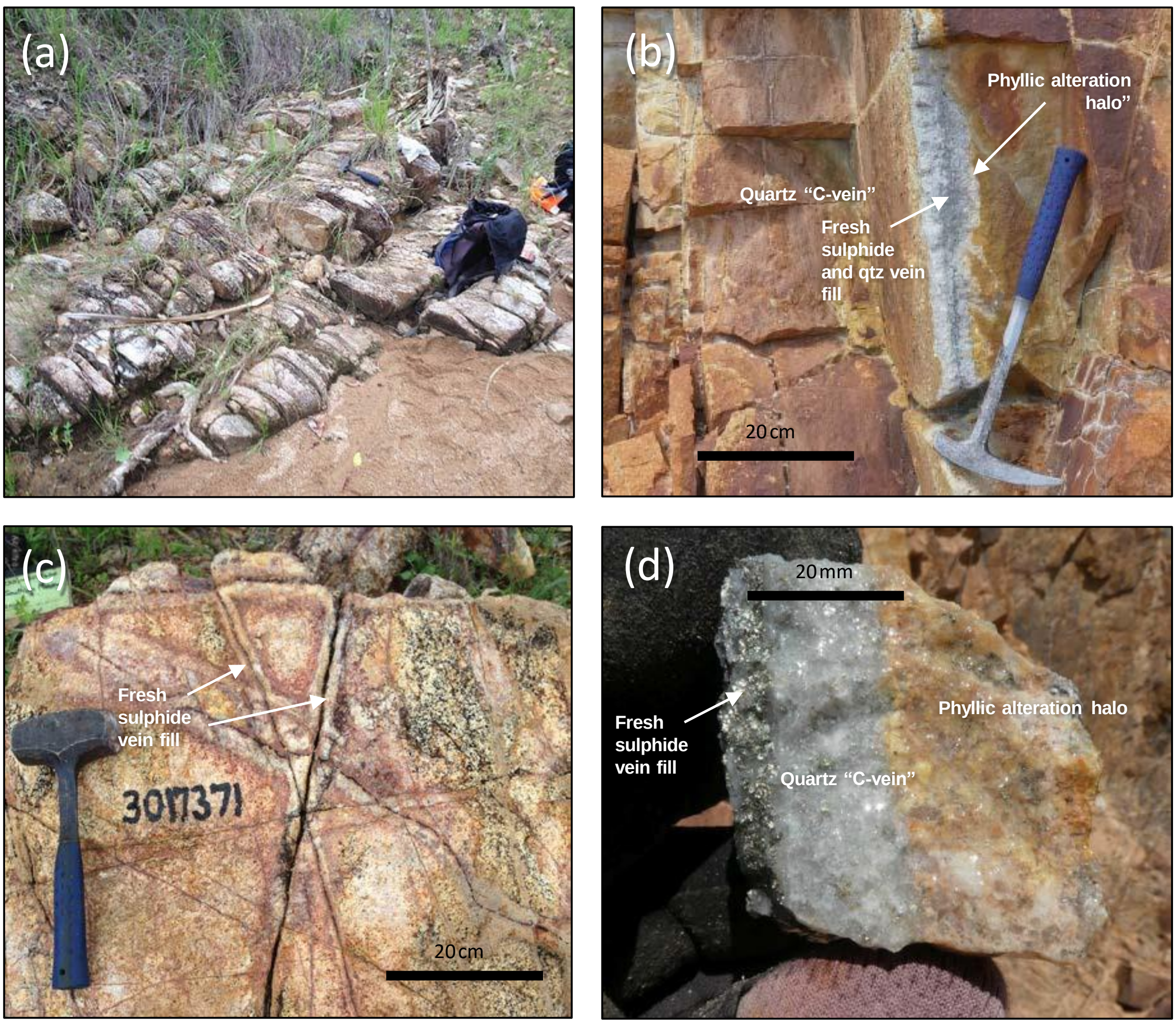


Figure 3: Outcrop and Sampling at the Leichardt Creek Prospect

(a) Streambed outcrop (15m x 100m) of mineralised granite with stockworked and sheeted quartz veins. Fresh disseminated sulphides occur in both the veins and the qtz-pyrite-sericite altered granite selvedges. This outcrop is indicative of the extensive stockworked qtz veining over >2.5km^2.
(b) Sheeted quartz-sulphide veins are typical of 'C-veins' in porphyry systems.
(c) Stockworked quartz veins with fresh pyrite-galena-chalcopyrite-sphalerite.
(d) Transition through sulphide vein fill central to the quartz vein and strong phyllic alteration halo.

Of particular interest are the discovery of a number of bodies of granophyre (up to 1,500m length) within the intrusive complex that contain abundant miarolitic cavities indicating an abundance of hydrothermal fluid exsolved from the magma during crystallisation. GSN note examples of visible molybdenite and/or chalcopyrite mineralisation within miarolitic cavities which suggest the potential for these host rocks to provide stand-alone high-grade and metallurgically simple deposits of Mo and/or Cu. Densely stockworked quartz blows with Mo and base metal mineralisation occur frequently through the broader sheeted stockworked zone with rock chip samples returning high grade assay results including:

- **0.46% Mo** and **0.28% Mo** from quartz blows in stockworked microgranites.

Abundant miarolitic and granophyric textures in the host intrusives also suggest the potential for disseminated IRGS style gold mineralization. The Company is planning additional mapping and sampling programs to identify the extent and controls on mineralization.

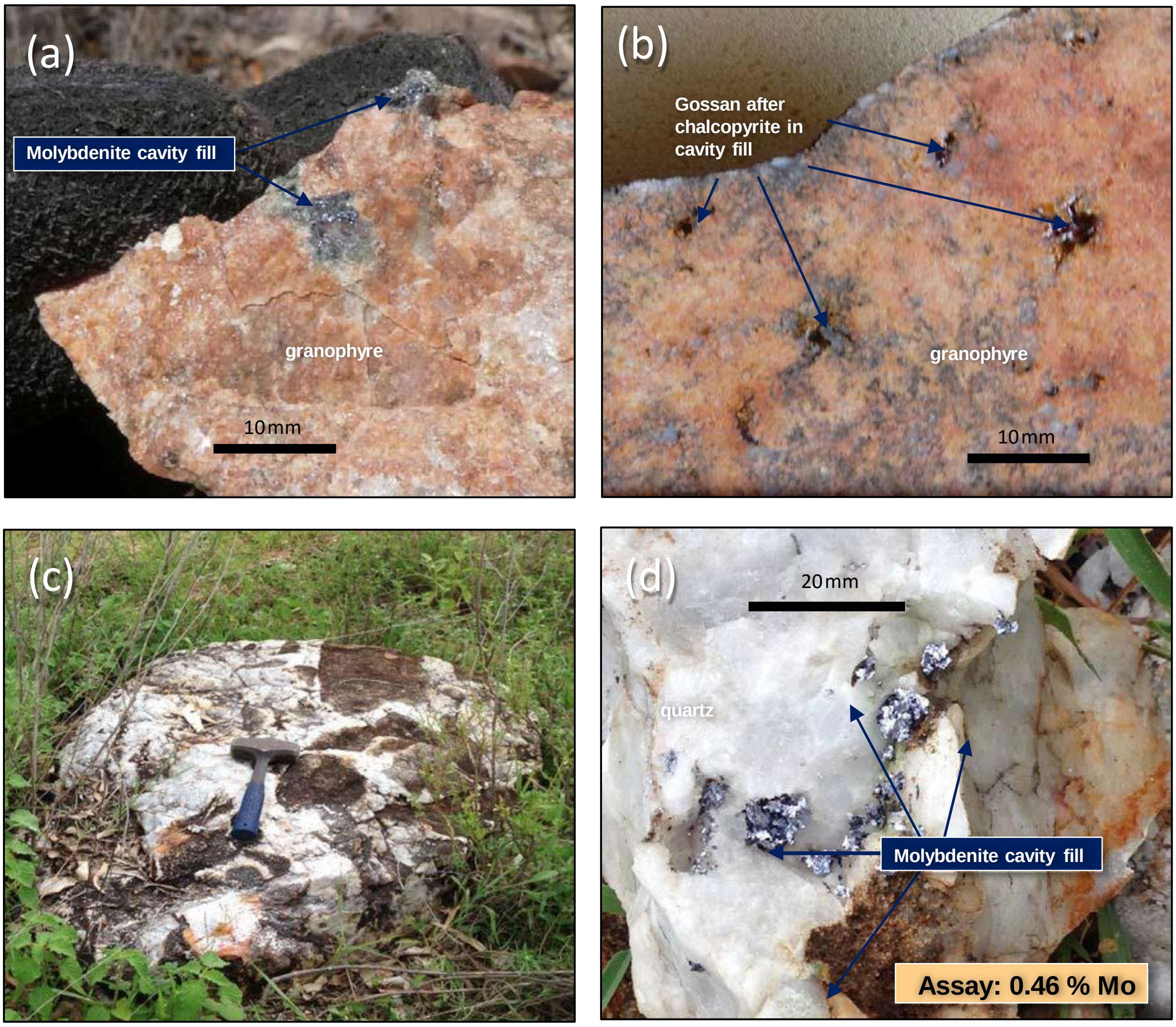


Figure 4: Outcrop and Sampling at the Leichardt Creek Prospect

(a) Miarolitic granophyres with abundant molybdenite filling cavities.
(b) Gossan after sulphide in miarolitic cavities in granophyre. Every cavity contained small amounts of chalcopyrite.
(c) Stockworked qtz veins up to 1.5m wide with coarse comb quartz with open cavities and fresh sulphides of molybdenum, galena and chalcopyrite.
(d) Fresh molybdenite rosettes in quartz blow approximately 20m diameter in outcrop within stockworked granite. (assaying 0.46% Mo).

Current Interpretation

The close associations between mineralization and intrusives with fluid rich textures at Leichardt Creek suggest that the porphyry style mineralization is probably similar in age to the host intrusives (i.e. ≈300Ma).

The presence of stockwork systems with characteristic “c-vein” development, associated phyllic alteration and the widespread polymetallic mineralization suggests the current exposure represents the margin of a mineralized porphyry system.

At the current level of exposure there is potential for economic:

- stockwork-style gold mineralisation similar in style to the multi-million ounce Sarsfield deposit currently being exploited at Ravenswood;
- Intrusive related gold system (IRGS) breccia-hosted gold deposits similar in style to the Kidston (5 Moz), Mount Leyshon (3.5 Moz), Mt Wright (1.0 Moz) and Welcome (0.21 Moz) deposits and
- Molybdenum-copper mineralization associated with miarolitic granophyres within the intrusive complex.

Importantly, the causative porphyry intrusive driving the mineralization observed in outcrop is not observed and provides discovery potential at depth into the hotter portion of the system in the theoretical zone of well-developed copper-gold mineralisation (higher temperature Cu-Mo-Au "B" veins).

The large extent of the stockwork zone and the persistent presence of gossan after sulphide in the veinlets is very encouraging for the size and fertility system and the potential to host a sizeable resource.

Further work

Ongoing detailed analysis and a systematic program of works will actively pursue the economic zones of mineralisation within this large porphyry system.

Near term the Company plans the acquisition of detailed airborne magnetic and radiometric surveys to support mapping programs and interpretations of sub-surface geology.

Regional rock chip and soil geochemical programs have commenced and are ongoing to map geochemical patterns across the complex.

Competent Person's Statement

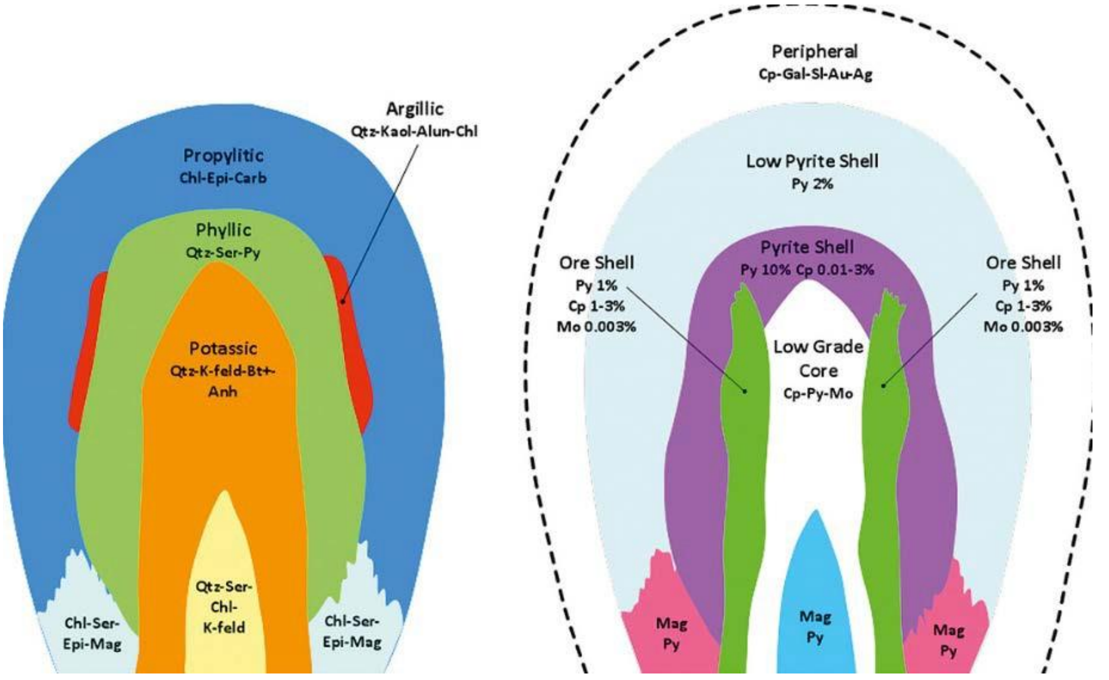
The information in this report that relates to exploration targets and exploration results on EPM 26810 is based on, and fairly represents, information and supporting documentation compiled by Dr Bryce Healy. Dr Healy is an employee of Noventum Group Pty Ltd (ACN 624 875 323) and has been engaged by Great Southern Mining Limited as Head of Exploration. He has sufficient experience relevant to the style of mineralisation and type of deposit under consideration. Dr Healy is a Member of the Australasian Institute of Geoscientists and as such, is a Competent Person for the Reporting of Exploration Results, Mineral Resources and Ore Reserves under the JORC Code (2012). Dr Healy consents to the inclusion in the report of the matters based on his information in the form and context in which they occur.

Forward Looking Statements

Forward- looking statements are only predictions and are not guaranteed. They are subject to known and unknown risks, uncertainties and assumptions, some of which are outside the control of the Company. Past performance is not necessarily a guide to future performance and no representation or warranty is made as to the likelihood of achievement or reasonableness of any forward looking statements or other forecast. The occurrence of events in the future are subject to risks, uncertainties and other factors that may cause the Company's actual results, performance or achievements to differ from those referred to in this announcement. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. Any forward- looking statements in this announcement speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law and the ASX Listing Rules, the Company, its directors, officers, employees and agents do not give any assurance or guarantee that the occurrence of the events referred to in this announcement will occur as contemplate.

Porphyry Model

Hydrothermal Alteration Zones, Minerals and Ores in a porphyry Copper Deposit (modified from Lowell and Guilbert, 1970).



a. Alteration **b. Mineralisation**

Section view: illustrated deposit model of a porphyry copper desposit (a) Scematic cross section of hydrothermal alteration zones, which comprise propylitic, phyllic, argillic, and potassic alteration zones, (b) Schematic cross section of ore composition associated with each alteration zone.

Chl – Chlorite; Epi – Epidote; Carb – Carbonate; Q – Quartz; Ser – Sericite; K-feld – Potassium feldspar; Bi – Biotie; Anh – Anhydrite; Py – Pyrite; Kaol – Kaolinite; Alun – Alunite; Cp – Chalcopyrite; Gal – Galena; Sl – Sulfide; Au – Gold; Ag – Silver; Mb – Molybdenite; Mag - Magnetite

Table 1: Rock chip assay results

Sample Number	Easting (MGA94)	Northing (MGA94)	Au (ppm)	Ag (ppm)	Cu (ppm)	Mo (ppm)	Zn (ppm)	Pb (ppm)
BM001	560960	7792950	0.08	<1	<1	<2	67	<5
BM002	560960	7792950	0.06	<1	29	<2	76	83
BM003	560960	7792950	0.04	<1	23	148	78	<5
BM004	560960	7792950	0.06	15	1922	<2	432	100
BM010	560640	7793882	0.03	<1	36	<2	35	<5
BM011	560674	7794228	0.02	<1	170	<2	42	<5
BM012	560674	7794228	0.01	<1	37	<2	72	<5
BM013	560674	7794228	0.02	<1	266	<2	100	<5
BM014	560674	7794228	0.03	<1	309	<2	60	<5
BM015	560561	7794252	0.01	<1	30	4558	39	<5
BM016	560561	7794252	0.01	<1	<1	2844	25	<5
BM017	560220	7793965	0.01	<1	23	<2	32	53
BM018	560220	7793965	0.02	<1	19	22	31	<5
177104	560651	7792485	0.02	<1	28	3	28	7
177105	560567	7792479	0.06	2	284	17	44	58
177106	560567	7792479	0.03	<1	113	<2	64	71
177110	560471	7792899	0.02	1	5600	11	1980	1170
177111	560793	7793047	0.02	<1	635	10	403	209
177112	560793	7793047	0.12	<1	156	2	26	11
177113	560793	7793047	0.02	<1	1170	13	468	260
177114	560793	7793047	0.02	1	33	82	16	9
177115	560793	7793047	0.01	<1	3290	16	1370	791
177116	560793	7793047	0.02	<1	65	5	44	164
177117	560408	7794907	0.08	<1	22	49	0	6
177118	560408	7794907	0.02	2	472	100	156	182

ANNEXURE 1 - JORC Code, 2012 Edition – Table 1

Report Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done, this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	• *Historic rock chip samples are grab samples collected from specific geological features of interest. 1-2 kg of sample was collected which was crushed, pulverized and split to produce charge for Fire assay and four acid digest.*
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	• *Not Applicable*
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• *Not Applicable*
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. • The total length and percentage of the relevant intersections logged.	• *Geological logging has primarily been quantitative and the database contains the lithological data for all rock chips*

Criteria	JORC Code explanation	Commentary
	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. • The total length and percentage of the relevant intersections logged.	
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• *1-2 kg samples were collected from exposed outcrop and transported to SGS laboratories in Townsville for preparation and assay. Samples were sorted and dried (105 degrees C) before a single stage mix and grind. A 250 gram pulp was produced with greater than 85% passing <75 micron.*
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• *Rock chip samples were submitted to ALS SGS laboratories, Townsville for the determination of Au by fire assay with AAS finish (SGS Code FAA303 1 – 10,000 ppb detection). Samples were tested for silver (1 – 50 ppm detection, arsenic (2 – 5000ppm detection), bismuth (5 – 5000 detection, cobalt (1 – 5000ppm detection), copper (1 – 5000ppm detection), iron (50 –250000 ppm detection), manganese (2 – 5000ppm detection) molybdenum (2 – 5000ppm detection), lead (5 – 5000ppm detection) antimony (5 – 2000ppm detection) tin (5 –5000ppm detection), tungsten (10 – 10000ppm detection), and zinc (1 – 5000ppm detection) using ICP-OES with a 12S digest. Elements that exceeded the upper detection limit were subjected to ICP-OES with a 23Q digest.* • *No geophysical tools were used.* • *Laboratory standards were used.*

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• *All samples and locations are digitally logged in the field.* • *No further information is provided*
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• *Rock chip samples were recorded using a hand held GPS with ±3m accuracy.*
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• *Data distribution is based on availability of relevant outcrop and the reconnaissance nature of the exploration program*
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• *Rock chip sampling is based on outcrop distribution. A link between outcrop distribution and geological structure was not established during sample selection.*

Criteria	JORC Code explanation	Commentary
Sample security	• The measures taken to ensure sample security.	• *No information is provided.*
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• *No external audits have been completed to date*

JORC Code, 2012 Edition – Table 1

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• *GSN has a 100% interest in EPM 26810. An Exploration Agreement has been signed with the relevant Native Title Claim Group.* • *The tenement is in good standing and there are no known impediments to exploration in the area.*
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• *Intermet Resources explored part of the current tenement (EPM 26810) in 2007 – 2008 under EPM 16596. During the tenure only minor reconnaissance exploration on ground was undertaken resulting in the collection of 43 rock chip samples over a broad area. The samples were subjected to gold and base metal analysis.* • *This report concerns relevant samples collected by Intermet that are relevant to the GSN exploration target (outlined in Table 1 in the body of this report) with the results interpreted by GSN.*
Geology	• Deposit type, geological setting and style of mineralisation.	• *The mineralisation at Leichardt Creek is typical of porphyry-style mineralizationhosted within a Carboniferous to Permian age intrusives near the margin of the Bowen basin. The target mineralization controls on the system is a series of extensive sheeted stockwork quartz veins and breccia.* • *A summary of the geology is outlined in the body of this report*
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes: • easting and northing of the drillhole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar • dip and azimuth of the hole • downhole length and interception depth • hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• *No drilling was undertaken*

Criteria	JORC Code explanation	
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported. • If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• *No relevant program was undertaken*
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.	• *Figures 3, show the spatial distribution in plan view of the results relevant to this report. Relevant exploration results are tabulated in Table 1.*
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• *The competent person believes this report to be a balanced representation of exploration undertaken.*
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• *No other exploration data is considered relevant.*
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• *The results will be further evaluated with a view to commencing a geophysical surveys (magnetics and radiometrics) to help map the extent of the system. Geological mapping and geochemical sampling in the form of regional soil and rock chip samples is ongoing.*