# PERENTIE DRILLING RESULTS AND FIRST HALF EXPLORATION ACTIVITIES

**24 January 2019**

**ASX Code: HMX**

## CAPITAL STRUCTURE:

| | |
|---|---|
| **Share Price (23/01/2019)** | **$0.02** |
| **Shares on Issue** | **278m** |
| **Market Cap** | **$5.6m** |
| **Options Listed** | **165m** |
| **Options Unlisted** | **21m** |

| **Significant Shareholders** | |
|---|---|
| **Deutsche Rohstoff** | **13%** |
| **Resource Capital Fund VI** | **9.3%** |
| **Management** | **8.8%** |

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**Ziggy Lubieniecki**
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**Mark Pitts**
Company Secretary

**Mark Whittle**
Chief Operating Officer

- First pass RC drilling confirms zones of high-grade copper mineralization co-incident with the Perentie targets. Intersections include:
  - 2m at 2.42% Cu from 74m including 1m at 4.21% Cu and 0.13g/t Au from 75m in HDRC012 at Paddy B and,
  - 2m at 2.36% Cu and 2g/t Au from 37m in HDRC016 at Trackside.
- Addition of the new Jubilee copper-gold resource to Hammer's expanding resource inventory in Mary Kathleen area prompts initiating mining studies on Hammer's group of deposits in the district.
- Thick zones of copper-gold mineralisation identified at the Black Rock Project, 5km west of the Jubilee and Elaine deposits.
- Reconnaissance exploration of Mount Philp Breccia projects recommences following award of CEI grant.
- Exploration in Q1 will focus on the large Mount Philp Breccia and Perentie IOCG projects with pit optimization studies planned initially for Hammer's new Jubilee copper-gold deposit near Mary Kathleen.

*Hammer's Chairman, Russell Davis said: "For a first-pass program that tested 3 of the 30 targets identified at Perentie the drilling is considered encouraging and has confirmed the exploration concept. The greater Dronfield area is a regionally significant zone of alteration and widespread copper-gold anomalism and we look forward to advancing this project area further.*

*In the meantime, assessment of the recently acquired Black Rock project near Mary Kathleen highlights its significant potential for bulk tonnage copper-gold mineralisation similar to the Elaine deposit 5km to the east.*

*The addition of the nearby higher-grade Jubilee deposit to Hammer's resource inventory brands Hammer's Mary Kathleen project area as a priority. Hammer has now built up the dominant tenement position in the Mary Kathleen district, a highly mineralised and prospective terrain for copper and gold around the Mary Kathleen uranium and rare earth deposit."*

**Drilling at Judith**

## PERENTIE

Results for the first pass RC drilling program at Perentie were received. 1329m in 15 holes were drilled at the Judith, Paddy B and Trackside prospects. The strong SAM anomaly and structural target at Susan was unfortunately not able to be tested due to access issues.

The holes were sited to provide a preliminary test of the rock chips highly anomalous in copper and gold and the coincident SAM anomalies in EPM 18084 (80% HMX) located and reported by Hammer last year. (Refer to ASX releases dated August 15th, August 22nd, September 3rd and October 11th.)

Significant results included 2m at 2.36% Cu and 2g/t Au at Trackside and 2m at 2.42% Cu including 1m at 4.21% Cu and 0.13g/t Au at Paddy B (Table 1). No results above 1% Cu were returned from the four holes drilled at Judith. The copper and gold mineralized zones are associated with strongly altered, and in places brecciated granite which coincide with the SAM anomalies and magnetic lows.

Significant widths of strong red-rock alteration with low levels of copper anomalism were intercepted along with IOCG indicator elements including molybdenum and the rare earth lanthanum at all prospects.

Whilst an economic intersection was not obtained in this program this first-pass drilling has confirmed that the exploration concept is valid, with elevated copper mineralisation and alteration present in all the target zones drilled – including narrow zones of higher-grade copper and gold. Only three of the thirty "de-mag" target zones – many of which are obscured by shallow cover are yet to be investigated (Figures 1 and 2).

Hammer's work at Dronfield is still in its early stages and the size of the target area as indicated by the extensive scale of the alteration, magnetite enrichment/depletion and number of surface mineralization occurrences in areas of outcrop highlights the potential of the project for IOCG and ISCG deposits.

Processing and review of the multi-element analyses from the Perentie drill samples and rock chips have also indicated vectors to potential sources of the mineralization further north of the Judith and Trackside prospects. These sources of mineralization coincide with magnetic and gravity highs and anomalous copper in surface and sub-surface samples. Follow up drilling is required to test these new targets.

**Table 1 - Significant intercepts from the 2018 Perentie drilling program**

| Perentie - Collar listing and assay Intercepts (at variable cut-offs) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prospect | Hole ID | E_GDA94 (1) | N_GDA94 (1) | RL_DEM (2) | Dip | Az_GDA | TD | | From | To | Width | Cu % | Au g/t |
| Paddy B | HDRC005 | 401573 | 7648417 | 335 | -55 | 294 | 103 | | 12 | 18 | 6 | 0.60 | 0.14 |
| | | | | | | | | incl. | 12 | 13 | 1 | 0.77 | 0.43 |
| | | | | | | | | & | 14 | 15 | 1 | 1.10 | 0.05 |
| | | | | | | | | & | 16 | 17 | 1 | 1.07 | 0.26 |
| | HDRC006 | 401619 | 7648459 | 337 | -55 | 294 | 121 | No Significant Intercepts | | | | | |
| | HDRC007 | 401624 | 7648930 | 336 | -55 | 270 | 91 | No Significant Intercepts | | | | | |
| Judith | HDRC008 | 401787 | 7649875 | 335 | -55 | 270 | 121 | No Significant Intercepts | | | | | |
| | HDRC009 | 401790 | 7649980 | 337 | -55 | 270 | 79 | | 28 | 29 | 1 | 0.22 | 0.01 |
| | | | | | | | | | 34 | 35 | 1 | 0.25 | 0.04 |
| | HDRC010 | 401812 | 7650042 | 338 | -55 | 270 | 109 | | 34 | 35 | 1 | 0.23 | 0.18 |
| | | | | | | | | | 73 | 75 | 2 | 0.32 | 0.01 |
| | | | | | | | | | 87 | 88 | 1 | 0.14 | 0.10 |
| | HDRC011 | 401724 | 7650072 | 338 | -55 | 300 | 61 | No Significant Intercepts | | | | | |
| Paddy B | HDRC012 | 401692 | 7648924 | 340 | -55 | 270 | 109 | | 42 | 44 | 2 | 0.42 | 0.03 |
| | | | | | | | | | 50 | 53 | 3 | 0.02 | 0.31 |
| | | | | | | | | | 64 | 65 | 1 | 0.39 | 0.03 |
| | | | | | | | | | 74 | 76 | 2 | 2.42 | 0.07 |
| | | | | | | | | incl. | 75 | 76 | 1 | 4.21 | 0.13 |
| | HDRC013 | 401575 | 7648935 | 336 | -55 | 90 | 61 | No Significant Intercepts | | | | | |
| Trackside | HDRC014 | 403809 | 7649757 | 328 | -55 | 283 | 43 | | 16 | 17 | 1 | 0.15 | 0.15 |
| | HDRC015 | 403808 | 7649798 | 328 | -60 | 283 | 55 | | 25 | 27 | 2 | 0.38 | 0.11 |
| | HDRC016 | 403817 | 7649689 | 340 | -55 | 270 | 85 | | 37 | 39 | 2 | 2.36 | 2.01 |
| | | | | | | | | incl. | 38 | 39 | 1 | 4.69 | 3.82 |
| | HDRC017 | 403828 | 7649691 | 340 | -65 | 270 | 85 | | 23 | 24 | 1 | 0.10 | 0.16 |
| | | | | | | | | | 43 | 44 | 1 | 0.01 | 0.11 |
| | | | | | | | | | 72 | 73 | 1 | 0.10 | 0.10 |
| | HDRC018 | 403869 | 7649745 | 328 | -55 | 283 | 127 | | 73 | 75 | 2 | 1.11 | 0.34 |
| | | | | | | | | incl. | 73 | 74 | 1 | 1.93 | 0.53 |
| | | | | | | | | | 78 | 79 | 1 | 0.38 | 0.10 |
| | HDRC0019 | 403838 | 7649802 | 328 | -60 | 270 | 79 | | 29 | 30 | 1 | 0.44 | <0.01 |
| | | | | | | | | | 44 | 45 | 1 | 0.03 | 0.23 |
| | | | | | | | | | 48 | 49 | 1 | 1.05 | 0.22 |
| (1) - Positions relative to GDA94 Zone54. RL relative to best vailable DEM data | | | | | | | | | | | | | |
| (2) - Intersections calcuated using 0.1% and 0.2% Cu envelopes as a guide. Included intercepts calculated to highlight elevated grades of both Cu and Au | | | | | | | | | | | | | |

## MINING STUDIES PLANNED FOR HAMMER'S EXPANDING RESOURCE INVENTORY

The addition of the 51%-owned Jubilee copper-gold deposit **(1.4Mt at 1.4% Cu and 0.67g/t Au)** to Hammer's existing resource inventory materially enhances the total resources in the group of deposits the Company holds in the Mary Kathleen area, 50km east of the Mount Isa mining centre. (Refer to ASX announcement dated December 20th, 2018 for details of the Jubilee resource estimate.)

The deposits are all within a 30km radius of each other and are well-located with respect to existing power, water, rail and road infrastructure (Table 2 and Figure 3).

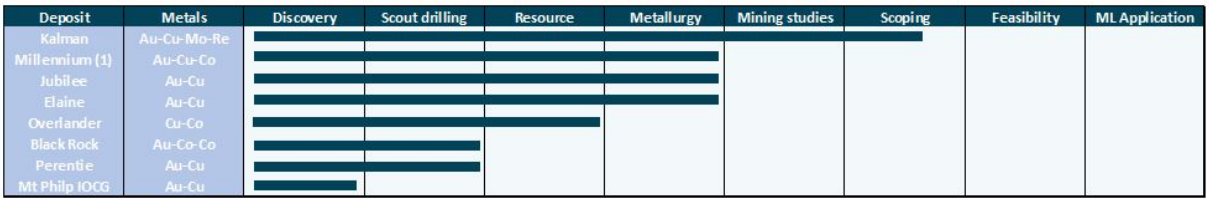
**Table 2 - Hammer Metals Resource Summary Table (Details of each Mineral Resource are appended)**

| Deposit | Tonnes Mt | CuEq % | Cu % | Au g/t | Co % | Mo % | Re g/t | Fe % | Comment |
|---|---|---|---|---|---|---|---|---|---|
| Kalman | 20 | 1.8 | 0.61 | 0.34 | - | 0.14 | 3.7 | - | 0.75% CuEq cut-off |
| Millennium (1) | 5.9 | - | 0.32 | 0.11 | 0.11 | - | - | - | 0.7% CuEq cut-off |
| Jubilee | 1.4 | - | 1.41 | 0.62 | - | - | - | - | 0.5% Cu cut-off |
| Elaine | 9.3 | 0.95 | 0.82 | 0.19 | - | - | - | - | 0.7% CuEq cut-off |
| Overlander | 1.8 | - | 1.20 | - | 0.045 | - | - | - | 0.7% Cu cut-off |
| Mount Philp | 30.5 | - | - | - | - | - | - | 39 | |

(1) - Hammer has agreed to sell its 75% interest in Millennium to Global Energy Metals, subject to a number of conditions precedent being met.

Hammer intends to review the economic potential of the Jubilee, Kalman, Overlander and Elaine deposits individually and as a group and is obtaining quotes for preliminary pit optimization and mine planning work using updated cost and metal price assumptions (Table 3).

**Table 3 – Status of Hammers' main projects**




## BLACK ROCK EXPLORATION TARGET

In addition, the Black Rock and Sunset copper-gold prospects 5km to the west of Jubilee are considered to hold excellent potential for large tonnage copper-gold deposit(s) similar to the Elaine deposit and requires limited additional drilling to generate an initial resource estimate.

The **Black Rock** Prospect is hosted within a magnetite-hematite altered fractured quartzite. Mineralisation occurs as quartz stockwork veining with pyrite-chalcopyrite (± hematite-magnetite). Mineralisation has been delineated by wide spaced drilling over a 1.2km strike length with a mineralised envelope true width of up to 60m. Significant intercepts include:

- 78m at 0.54% Cu and 0.13g/t Au from 140m in CAMD003
- 94m at 0.44% Cu from 159m in DDH-PN1 (no gold assays)
- 98m at 0.30% Cu including 3m at 4.05% Cu and 0.59g/t Au from 85m in CAMC033
- 70m at 0.33% Cu including 5m at 1.08% Cu and 0.23g/t Au from 206m in CAMC028

The **Sunset** Prospect occurs in a shear zone typified by the presence of remobilized carbonate. Mineralisation occurs as multiple stacked lenses which were mined by narrow vein methods. Drilling has delineated mineralisation over a 700m strike length. Significant intercepts include:

- 24m at 1.41% Cu and 0.49g/t Au from 10m including 4m at 4.57% Cu and 2.74g/t Au from 16m in CAMC004

- 17m at 1.40% Cu and 0.38g/t Au from 35m including 8m at 2.66% Cu and 0.18g/t Au from 40m in CAMC015
14m at 2.57% Cu from 21m in CR07002

Refer to ASX announcement dated October 30th, 2018 for more information on these areas.

**Hammer believes that an exploration target of approximately 5 – 15Mt (tonnes) at between 0.5 to 1% Cu may be present at Black Rock.** The company acknowledges that the potential quantity and grade of the exploration target is conceptual in nature and that there has been insufficient additional exploration to estimate a mineral resource at the date of this release and whilst additional exploration is planned it is uncertain if this will result in the estimation of a mineral resource. Targeted tonnage/grades are based on results from previous exploration conducted on the prospect.

Level of exploration activity already completed at Black Rock:

- 18 holes totaling approximately 5.6 kilometres (refer to ASX release dated October 30th, 2018). Apart from a single 309.5m diamond hole, the remaining drilling was by the reverse circulation method. This drilling tested an approximate 1.2km mineralised strike length.
- These holes were drilled on fences with a spacing of between 100 and 300 metres. Down-plunge Intercept spacing within a fence ranged between 40 and 150 metres.

The process used to determine the tonnage and grade ranges utilised are as follows:

- Review of drilling data followed by data validation and estimation of volume, tonnage and grade. This resulted in a tonnage and grade estimate, which is of insufficient quality to be considered a mineral resource.
- Based on Hammers experience with this style of mineralisation in the Mount Isa region and the quality of data received leads us to reasonably expect a total grade ranging between 0.5% and 1% Cu.

Testing of this exploration target is planned over the next 12 to 24 months by an exploration program comprising predominantly reverse circulation and diamond drilling.

## MOUNT PHILP BRECCIA

As announced to the ASX on December 11th, 2018 Hammer was awarded Collaborative Exploration Initiative (CEI) funding from the Queensland Government for the Mount Philp Breccia project which covers one of the largest known breccia complexes in the Mount Isa region. The grant is to part-fund first-pass geophysical and geochemical exploration activities that are expected to generate drilling targets.

Based on portable XRF analysis, three major target areas with anomalous to elevated copper in soils have been identified (Figure 4):

**Core Target Zone.** The most compelling copper anomalies (red outlines) on the bases of associations are coincident with large magnetic feature in the northern part of breccia. This area contains elevated Fe, Zn, Hg, S, Mo, elevated Ti/Zr ratio, V, Ti, and moderate Ni and Ca. The elemental associations are indicative of input from an intermediate to mafic intrusive source.

**West Target Zone.** The analysis carried out on PXRF soil samples shows numerous areas with anomalous Cu. The best concentration of elevated Cu is a 10km long trend starting from Prince of Wales and striking south-southwest. This western Cu anomaly (purple outlines) is partly coincident with a magnetic ridge. Mineralisation tends to form in flexure zones produced by northwest trending fault zones and is associated with elevated levels of U, Rb, Y, K, Ca, Mn, Cr, Ni, Fe, Mo and P.

**East Target Zone.** The third zone of copper anomalism (blue outlines) is located along eastern edge of soil program and is spatially associated with magnetic lows, perhaps structures associated with the Pilgrim

Fault Zone. This trend is approximately 10km long. It is also coincident with some anomalous Zn, Pb, Mn, As, Ca, K, Th, Y, Nb, Rb, Sr, U, P and Mo.

Samples from the reconnaissance soil sampling program completed in 2018 (1239 samples) have been submitted for gold analysis to augment the base metal values obtained by portable XRF analysis.

**Competent Person Statements**

The information in this report as it relates to exploration results, geology and exploration targets was compiled by Mr. Mark Whittle, who is a Member of the AusIMM and a consultant to the Company. Mr. Whittle who is a shareholder and option-holder, has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Whittle consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

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**About Hammer Metals**

*Hammer Metals Limited (ASX: HMX) holds a strategic tenement position covering approximately 3000km$^2$ within the Mount Isa mining district, with 100% interests in the Kalman (Cu-Au-Mo-Re) deposit, the Overlander North and Overlander South (Cu-Co) deposits and the Elaine (Cu-Au) deposit. Hammer also has a 75% interest in the Millennium (Cu-Co-Au) deposit and a 51% interest in the emerging Jubilee (Cu-Au) deposit. Hammer is an active mineral explorer, focused on discovering large copper-gold deposits of the Ernest Henry style and has a range of prospective targets at various stages of testing.*

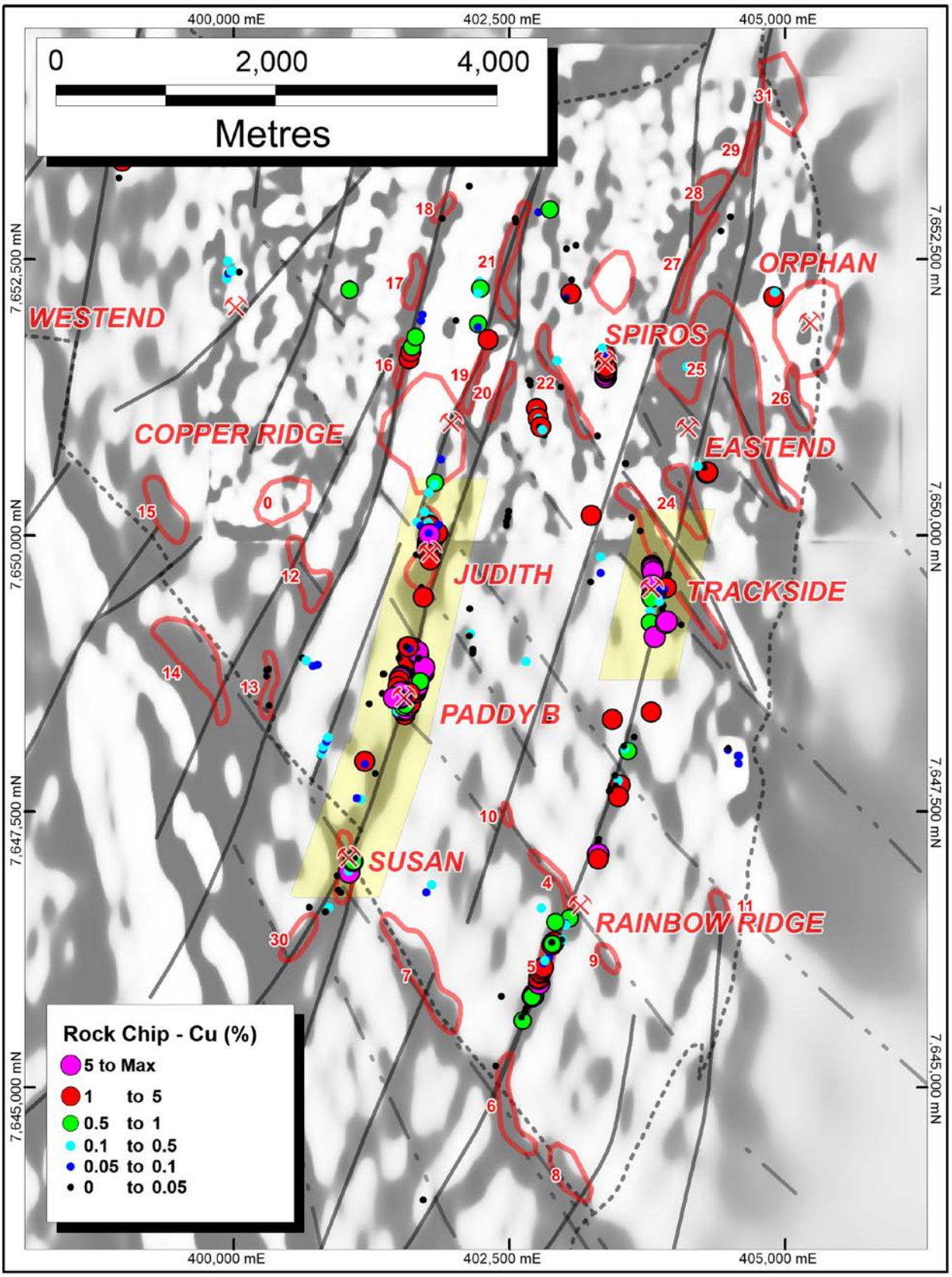


**Figure 1 - Location of the drilled areas within the Perentie Project on magnetic imagery.**

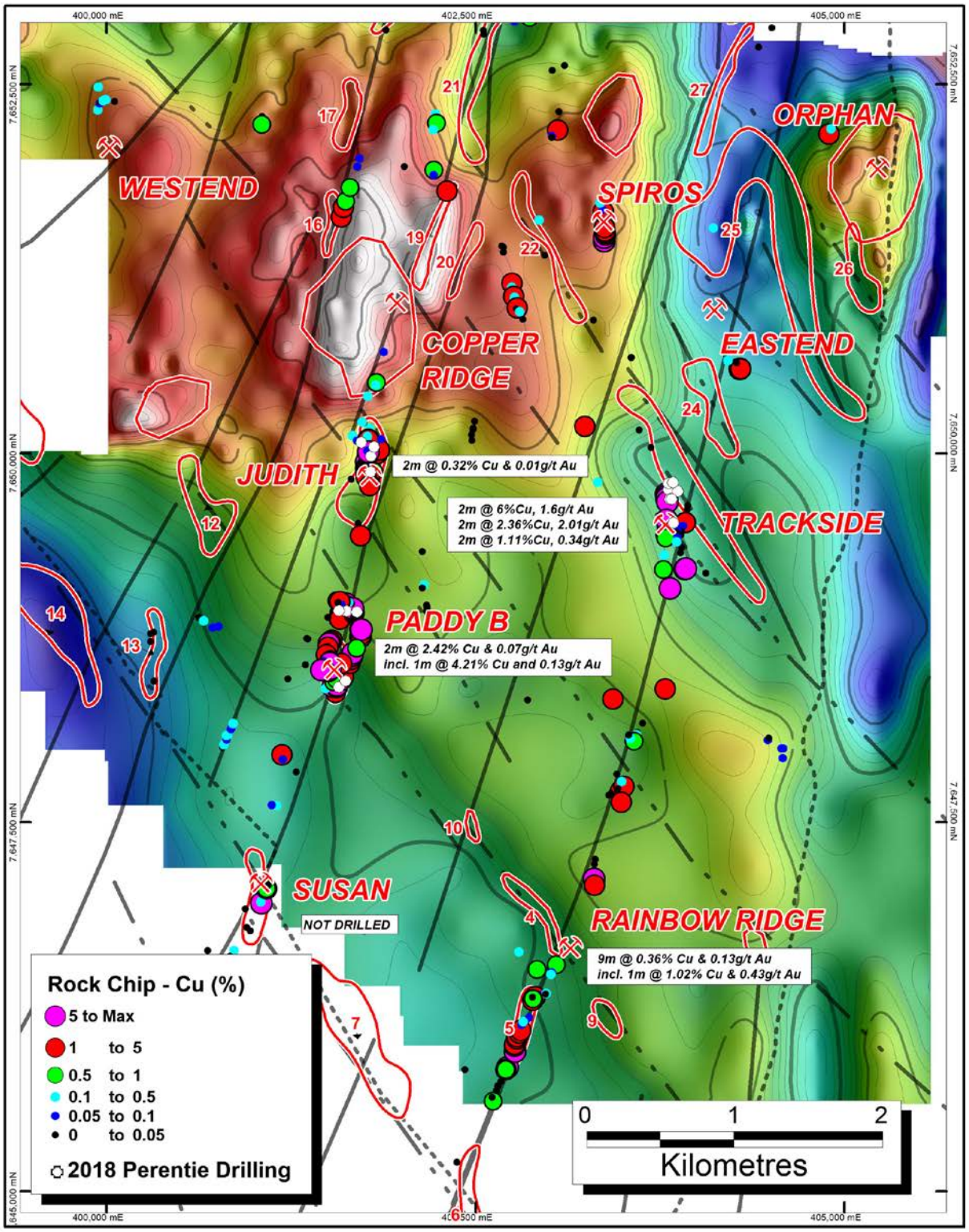


***Figure 2 - Significant results from Perentie drilling on gravity imagery (& contours). The significant result noted at Rainbow Ridge and the intersection of 2m @ 6% Cu and 1.6g/t Au from Trackside were previously reported (refer to the ASX release dated September 16th, 2014).***

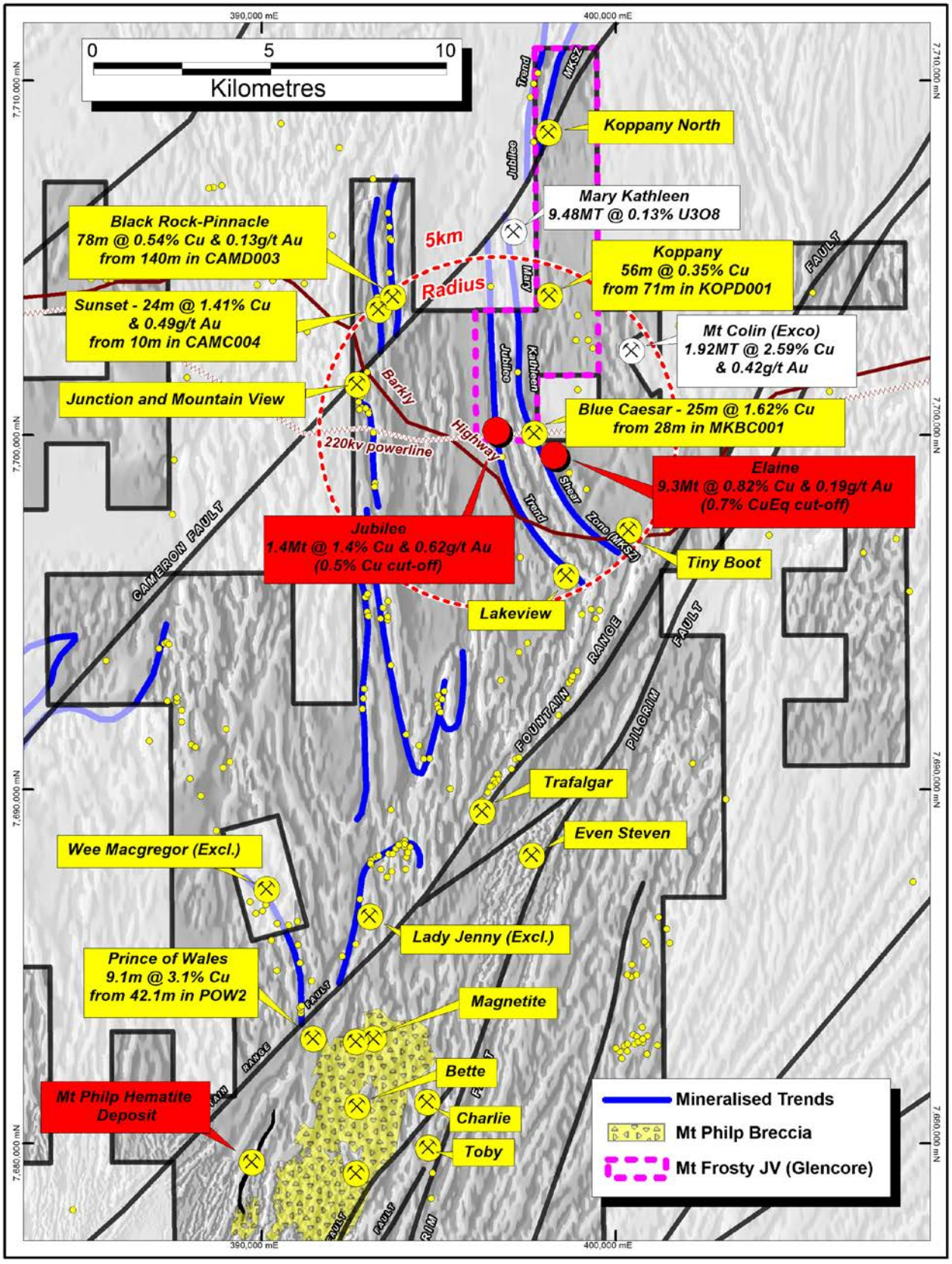


**Figure 3 - Mary Kathleen Hub – Resources and Prospects on magnetic imagery**

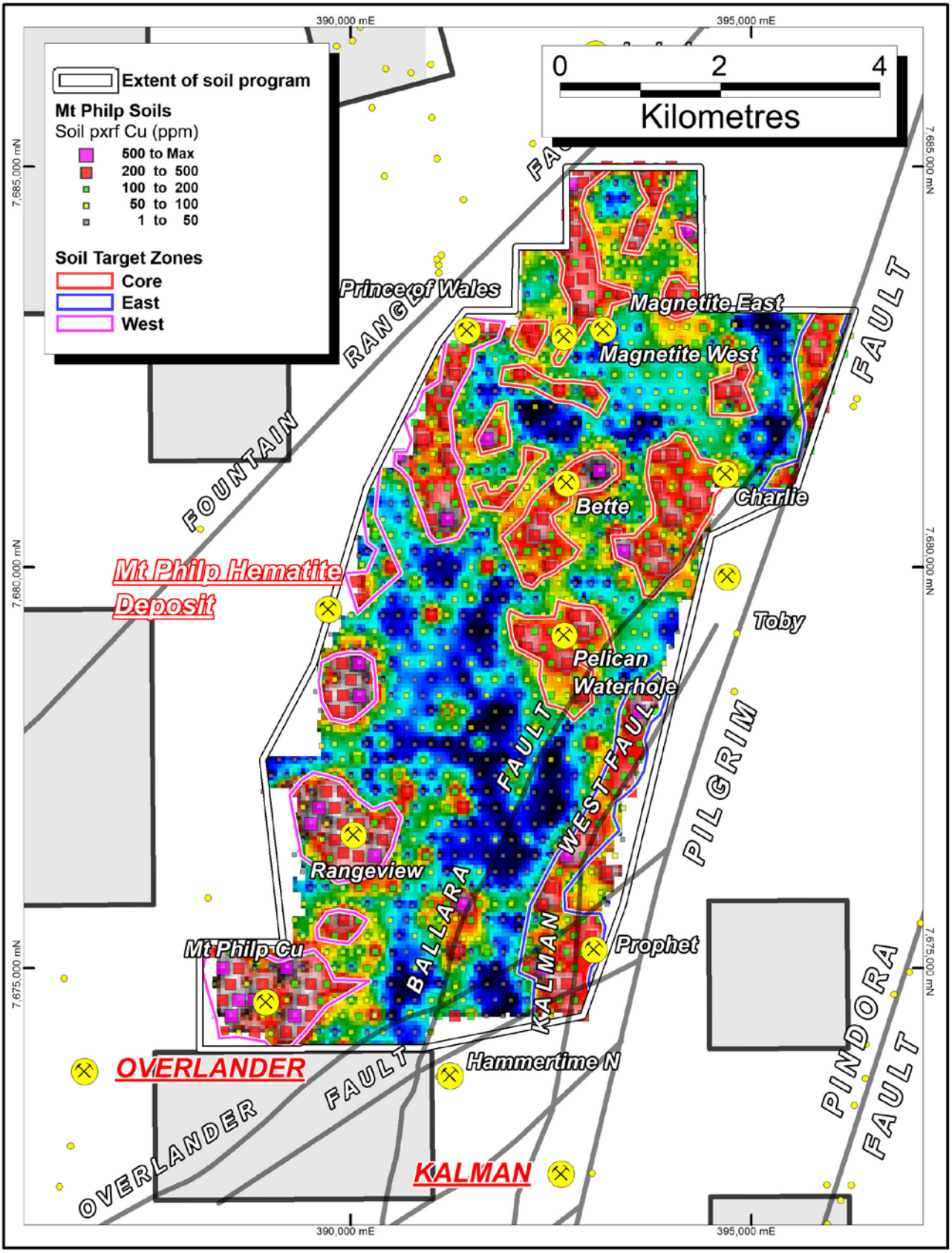


**Figure 4 - Mount Philp Breccia Project showing copper soil geochemical anomalies.**

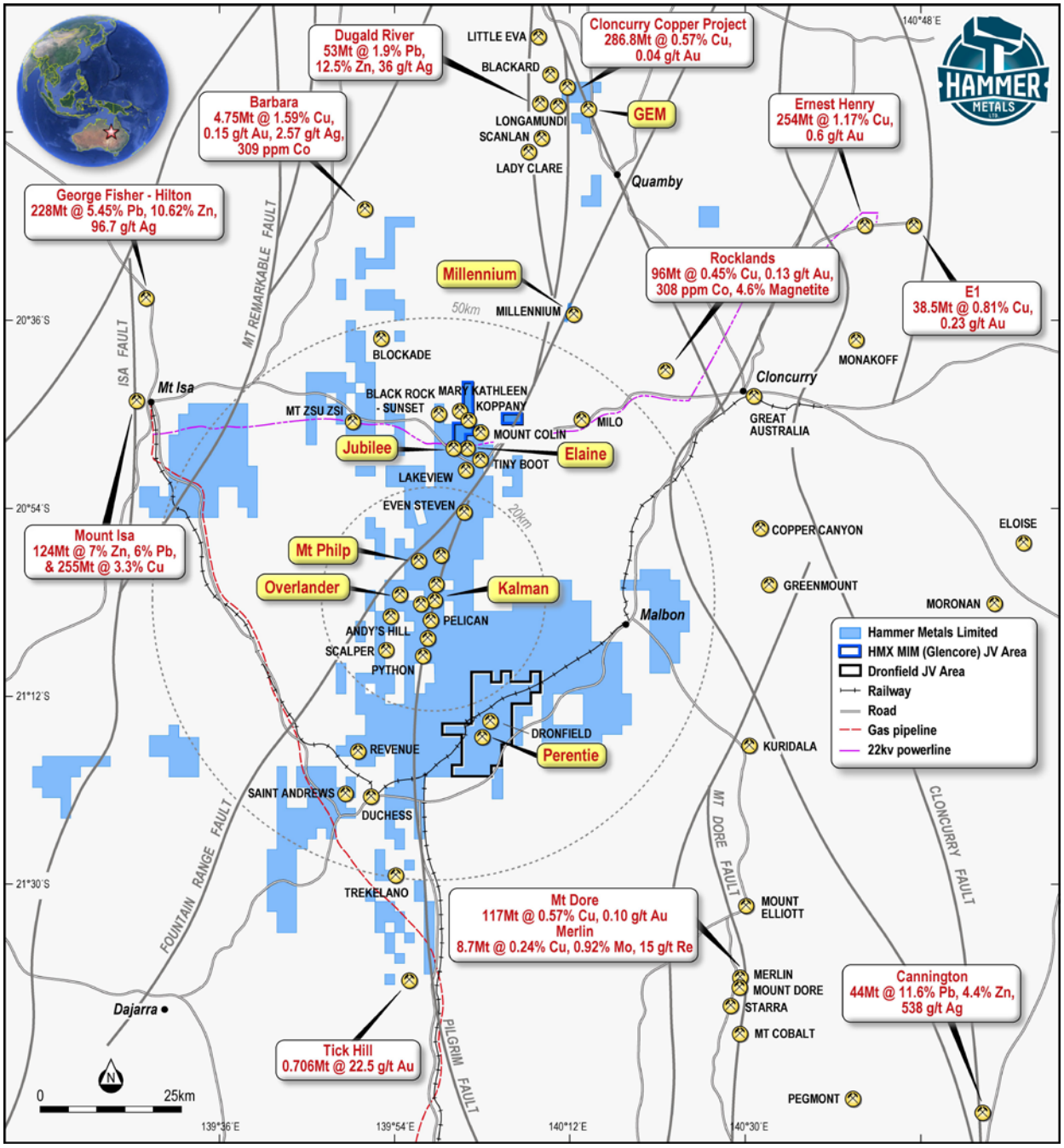


**Figure 5 - Hammer Metals Mount Isa Project Tenements.**

# Appendix - Resources - Explanatory Statements

## Kalman Resource Estimate & Notes on Copper Equivalence Calculation and Metallurgical Recoveries

The Kalman Mineral Resource Estimate was updated in August 2016 in accordance with the JORC Code (2012 Edition). (Refer to the ASX Release dated 27th September 2016 for full details of the Resource Estimate.)

### Kalman Deposit Inferred Mineral Resource Estimate

(Reported at 0.75% CuEq cut-off above 100m RL and 1.4% CuEq cut-off below 100m RL)

| Classification | Mining Method | CuEq Cut-Off | Tonnes | Cu Eq % | Cu % | Mo % | Au g/t | Ag g/t | Re g/t |
|---|---|---|---|---|---|---|---|---|---|
| Indicated | Open Pit | 0.75% | 7,100 | 1.5 | 0.48 | 0.12 | 0.27 | 1.4 | 2.9 |
| Inferred | Open Pit | 0.75% | 6,200 | 1.6 | 0.44 | 0.15 | 0.24 | 1.5 | 3.9 |
| Inferred | Underground | 1.40% | 7,000 | 2.4 | 0.89 | 0.16 | 0.5 | 2.9 | 4.5 |
| **Total** | | | **20,000** | **1.8** | **0.61** | **0.14** | **0.34** | **1.9** | **3.7** |

- *Note: (1) Numbers rounded to two significant figures*
- *Note: (2) Totals may differ due to rounding*
- *Note: (3) CuEq = Cu + (0.864268 * Au) + (0.011063 * Ag) + (4.741128 * Mo) + (0.064516 * Re)*

Copper equivalent (CuEq) grades were calculated using estimated block grades for Cu, Au, Ag, Mo and Re. The CuEq calculation is based on commodity prices and metallurgical recovery assumptions as detailed in this release. Prices agreed to by Hammer were a reflection of the market as at 14/02/2014 and forward-looking forecasts provided by consensus analysis. Metal prices provided are:
Metal prices provided are: Cu: US$7,165/t, Au: US$1,324.80/oz, Ag: US$22.40/oz, Mo: US$16.10/lb
The forward-looking price for Rhenium was estimated using available historical and current prices - Re: US$5,329/kg
The CuEq equation is CuEq = Cu + 0.594464Au + 0.010051Ag + 4.953866Mo + 0.074375Re and was applied to the respective elements estimated within the resource block model.

### Assumed Metallurgical Recoveries

Based on the testing completed and the current understanding of the material characteristics it has been assumed that the Kalman material can be processed using a "typical" concentrator process flowsheet. The mass balance and stage metallurgical recovery of the four major elements were based on the metallurgical test results from the molybdenum zone sample and benchmarks. The final overall recovery was established from the mass balance and benchmarked against other operations and projects.

| Process Stage | Copper | Molybdenum | Gold | Rhenium | Silver[(1)] |
|---|---|---|---|---|---|
| | % Rec'y | % Rec'y | % Rec'y | % Rec'y | % Rec'y |
| Bulk Rougher | 95 | 95 | 82 | 86 | 82 |
| Overall | 86 | 86 | 74 | 77 | 74 |

It is the company's opinion that the metals used in the metal equivalent equation have reasonable potential for recovery and sale based on metallurgical recoveries in flotation test work undertaken to date. There are a number of well-established processing routes for copper molybdenum deposits and the sale of resulting copper and molybdenum concentrates.

## Millennium Resource Estimate & Notes on Copper Equivalence Calculation

The Millennium Mineral Resource Estimate was conducted in December 2016 in accordance with the JORC Code (2012 Edition). (Refer to the ASX Release dated 6th December 2016 for full details of the Resource Estimate.)

The 100%-owned Millennium polymetallic deposit is situated on granted mining leases (ML's 2512, 2761, 2762, 7506 and 7507) approximately 32km northwest of Cloncurry in North West Queensland.

## Millennium Deposit Inferred Mineral Resource Estimate

(Reported at 0.7% CuEq and 1% CuEq cut-offs across four domains)

| CuEq cut-off % | Tonnes | CuEq % | Cu % | Co % | Au g/t |
|---|---|---|---|---|---|
| 0.10 | 3,070,000 | 1.29 | 0.35 | 0.14 | 0.12 |
| 0.70 | 5,890,000 | 1.08 | 0.32 | 0.11 | 0.11 |

- *Note: (1) Totals may differ due to rounding*
- *Note: (2) CuEq= Cu_pct+(Co_pct*5.9)+(Au_ppm*0.9)+(Ag_ppm*0.01)*

## Millennium Mineral Resource Estimate Metal Equivalent Information

The Copper Equivalent (CuEq) equation has been calculated to reflect current and forecast pricing.
CuEq grades were calculated using estimated block grades for Co, Cu, Au and Ag. Metal prices used were:

- Cu: US$4,600/t;
- Co: US$27,000/t;
- Au: US$1,330/oz; and
- Ag: US$20/oz.

The copper equivalent equation is: CuEq = Cu % + (Co % * 5.9) + (Au ppm * 0.9) + (Ag ppm * 0.01)
Cut-offs of 0.7% and 1.0% CuEq has been applied for reporting Mineral Resources.

Metallurgical test-work indicated that acceptable copper-cobalt sulphide concentrates could be produced via conventional processing methods. Based on the test-work conducted, it is the company's opinion that all metals used in the metal equivalent calculation have a reasonable potential to be recovered.

| Test No. | High Grade Composite - Optimum Test – Combined Rougher Concentrate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Product | Cu | | Co | | Au | | As | |
| | | % | % Rec'y | % | % Rec'y | ppm | % Rec'y | % | % Rec'y |
| HG-7 | Cu Con | 20.6 | 90.8 | 0.48 | 5.4 | 5.1 | 45.6 | 0.23 | 2.5 |
| | Co Con | 0.4 | 4.3 | 3.12 | 89.9 | 1.5 | 35.8 | 3.39 | 93.1 |
| | Total Con | | 95.1 | | 95.4 | | 81.4 | | 95.6 |

| Test No. | Low Grade Composite - Optimum Test – Combined Rougher Concentrate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Product | Cu | | Co | | Au | | As | |
| | | % | % Rec'y | % | % Rec'y | ppm | % Rec'y | % | % Rec'y |
| LG-5 | Cu Con | 16.9 | 85.2 | 0.26 | 7.8 | 4.3 | 51.0 | 0.14 | 4.9 |
| | Co Con | 0.5 | 6.1 | 1.16 | 83.9 | 0.9 | 27.0 | 1.00 | 88.4 |
| | Total Con | | 91.3 | | 91.7 | | 77.9 | | 93.2 |

## Overlander Mineral Resource Estimate

The 100%-owned Overlander Project is situated 60 kilometres to the southeast of the mining centre of Mount Isa in North West Queensland and 6 kilometres to the west of Hammer's Kalman copper-gold-molybdenum-rhenium deposit. It is a high-priority target area for both shear-hosted copper and IOCG copper mineralisation. The Overlander North and South copper Deposits are situated approximately one kilometre apart within a common shear zone.

Drilling in the Overlander North deposit extends to a vertical depth of approximately 430m and the mineralisation was modelled from surface to a depth of approximately 420m below surface. Drilling in the Overlander South deposit extends to a vertical depth of approximately 215m and the mineralisation was modelled from surface to a depth of approximately 180m below surface. The resource estimates are based on good quality RC and diamond drilling data. Drill hole spacing is predominantly on a 40m by 20m spacing with additional drill holes between sections targeted at the higher-grade cores of the deposits.

Following additional drilling in 2014 and 2015, The Mineral Resource Estimates for the Overlander North and South shear-hosted copper Deposits were revised by Haren Consulting and reported in accordance with the guidelines of the JORC Code

(2012 Edition). They contain combined resources of 1,772,000 tonnes at 1.2% copper in the indicated and inferred categories (Refer to the ASX release dated August 26th, 2015).

## Overlander North and South Mineral Resource Estimate

(Reported at 0.7% Cu cut-off)

| Overlander North Resource | | | | | |
|---|---|---|---|---|---|
| **Classification** | **Tonnes** | **Cu %** | **Co %** | **Cu t** | **Co t** |
| Indicated | 253,000 | 1.4 | 254 | 3,414 | 64 |
| Inferred | 870,000 | 1.3 | 456 | 11,350 | 396 |
| **Total** | **1,123,000** | **1.3** | **410** | **14,764** | **461** |

| Overlander South Resource | | | | | |
|---|---|---|---|---|---|
| **Classification** | **Tonnes** | **Cu %** | **Co %** | **Cu t** | **Co t** |
| Indicated | - | - | - | - | - |
| Inferred | 649,000 | 1 | 500 | 6,352 | 327 |
| **Total** | **649,000** | **1** | **500** | **6,352** | **327** |

| Overlander Combined Mineral Resource | | | | | |
|---|---|---|---|---|---|
| **Classification** | **Tonnes** | **Cu %** | **Co %** | **Cu t** | **Co t** |
| Indicated | 253,000 | 1.4 | 254 | 3,414 | 64 |
| Inferred | 1,518,000 | 1.2 | 476 | 17,700 | 723 |
| **Total** | **1,772,000** | **1.2** | **445** | **21,112** | **788** |

- *Note: (1) Numbers rounded to two significant figures to reflect appropriate levels of confidence*
- *Note: (1) Totals may differ due to rounding*

## Jubilee Mineral Resource Estimate

The 51%-owned Jubilee Deposit is situated 50 kilometres west of Mount Isa in North West Queensland. It is a high-priority target area for shear-hosted copper mineralisation. Mineralisation was modelled from surface to a depth of approximately 325m below surface.

The resource estimates are based on good quality RC and diamond drilling data. Drill hole spacing is predominantly on a 50m by 40m spacing with additional drill holes between sections targeted at the higher-grade cores of the deposits.

The Mineral Resource Estimate was conducted by H&S consultants Pty Ltd and reported in accordance with the guidelines of the JORC Code (2012 Edition). They contain combined resources of 1.41Mt at 1.41% copper and 0.62g/t Au in the inferred category (Refer to the ASX release dated December 20th, 2018).

## Jubilee Inferred Mineral Resource Estimate

(Reported at 0.7% Cu cut-off)

| Cu cut-off % | Domain | Tonnes (Mt) | Cu % | Au g/t |
|---|---|---|---|---|
| 0.5 | Mod-Slightly Weathered | 0.07 | 1.51 | 0.55 |
| | Fresh | 1.34 | 1.41 | 0.63 |
| | Total | 1.41 | 1.41 | 0.62 |

- *Note: (1) Totals may differ due to rounding*

## Elaine Project Mineral Resource Estimate & Notes on Copper Equivalence Calculation and Metallurgical Recoveries

The 100%-owned Elaine Cu-Au deposit is situated on granted exploration licence 14022, approximately 50km east of Mount Isa in North West Queensland. A resource estimate was first completed and reported to ASX by previous owners (Chinalco Yunnan Copper Resources Limited, now AUKing Limited) on 18th October 2012. The resource was conducted by Mine Development Associates. **There has been no material change to the resource base since that time.**

A review of the Resource Estimate was completed for the purpose of compiling this statement and the principles and methodology of the resource estimation procedure and the resource classification procedure are considered to comply. The Elaine Project Mineral Resource Estimate is based on approximately 30 holes to a depth of 450 metres below surface.

The current resource totals 9.3 million tonnes (Mt) grading 0.82% Cu and 0.19g/t Au (at a 0.7% CuEq cut-off) and is classified as being all in the Inferred category. The resource is tabulated below at a variety of CuEq % cut-offs.

## Elaine Inferred Mineral Resource Estimate

| CuEq cut-off % | Tonnes | CuEq % | Cu % | Au g/t |
|---|---|---|---|---|
| 0.10 | 64,340,000 | 0.34 | 0.31 | 0.05 |
| 0.20 | 32,770,000 | 0.54 | 0.49 | 0.08 |
| 0.25 | 26,100,000 | 0.62 | 0.56 | 0.09 |
| 0.30 | 22,810,000 | 0.67 | 0.60 | 0.10 |
| 0.40 | 17,810,000 | 0.76 | 0.68 | 0.12 |
| 0.50 | 15,050,000 | 0.82 | 0.73 | 0.13 |
| 0.60 | 12,470,000 | 0.88 | 0.77 | 0.15 |
| 0.70 | 9,310,000 | 0.95 | 0.82 | 0.19 |
| 0.80 | 6,460,000 | 1.04 | 0.87 | 0.25 |

## Elaine Mineral Resource Estimate Metal Equivalent Information

The Copper Equivalent (CuEq) equation has been calculated to reflect current and forecast pricing.
CuEq grades were calculated using estimated block grades for Cu and Au. Metal prices used were:

- Cu: US$5,400/t;
- Au: US$1,300/oz;

The copper equivalent equation is: CuEq % = Cu % + (Au ppm * 0.70216)

Metallurgical test-work indicated that acceptable copper-cobalt sulphide concentrates could be produced via conventional processing methods. Based on the test-work conducted, it is the company's opinion that all metals used in the metal equivalent calculation have a reasonable potential to be recovered.

| Test No. | April 2013 Elaine Metallurgical Testwork | | | | |
|---|---|---|---|---|---|
| | Product | Cu | | Au | |
| | | % | % Rec'y | ppm | % Rec'y |
| Test 11 | **Final cleaner concentrate** | **29.9** | **92.2** | **2.73** | **31.7** |
| | Rougher concentrate | 8.1 | 96.0 | 1.22 | 54.4 |
| Test 13 | **Final cleaner concentrate** | **22.9** | **77.1** | **0.88** | **23.9** |
| | Rougher concentrate | 11.6 | 91.6 | 0.67 | 42.3 |

- *Note: (1) Numbers rounded to two significant figures to reflect appropriate levels of confidence*

# Mt. Philp Mineral Resource Estimate

The Mineral Resource Estimate is based on 48 diamond and reverse circulation (RC) drillholes completed in 2011 for a total of 3,801 metres (m). Drilling comprises fans located on a nominal 100 m pattern along the strike length of the ironstone. The Mineral Resource was estimated and reported in-house by Cerro Resource NL.
The current resource totals 19.1 million tonnes (Mt) grading 41.4% iron and 37.9% silica (Table 1-1) in the Indicated category and 11.4 million tonnes (Mt) grading 33.8% iron and 47.4% silica in the Inferred category. This resource is open at depth.
A resource estimate was first completed and reported to ASX by previous owners on 28th September 2012 and there has been no material change to the resource base during the financial year. A review of the resource estimate was completed for the purpose of compiling this statement and the principles and methodology of the resource estimation procedure and the resource classification procedure have been reconciled with the CIM Resource Reserve definitions and found to comply.

## Mt Philp Deposit Mineral Resource Estimate

| Mt Philp Mineral Resource | | | | | | |
|---|---|---|---|---|---|---|
| Classification | Tonnes | Fe % | P % | $SiO_2$% | $Al_2O_3$ % | LOI % |
| Indicated | 19,110,000 | 41 | 0.02 | 38 | 1.2 | 0.29 |
| Inferred | 11,400,000 | 34 | 0.02 | 48 | 2 | 0.31 |
| **Total** | **30,510,000** | **39** | **0.02** | **42** | **1.6** | **0.3** |

- *Note: (1) Numbers rounded to two significant figures to reflect appropriate levels of confidence*
- *Note: (1) Totals may differ due to rounding*

# JORC Code, 2012 Edition

# Table 1 report – Exploration Update

- This table is to accompany an ASX release updating the market with results as they are reported from the Perentie Cu-Au Project which is located within EPM18084.
- Information is also presented for portable XRF soil analyses from the Mt Philp Project.

## Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections in this information release.)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Sampling techniques* | • *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.* | DRILLING HDRC005-HDRC019<br>• Reverse circulation (RC) drill chip samples were taken at four metre intervals but where significant mineralisation was encountered the sample length was reduced to 1m.<br>• All samples to be submitted for assay underwent a fine crush with 1kg riffled off for pulverising to 75 microns.<br>• Samples were submitted for 4 acid digest followed by AAS assay for gold and ICP (OES) analysis for a multi-element suite including copper, silver, cobalt and molybdenum.<br>• All assay results for HDRC005-HDRC019 have been received.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• Samples consist of -80#, C horizon soil samples. Samples weight was between 100-150 grams.<br>• Samples were taken on an offset 200m spaced grid over an area of approximately 50sqkm.<br>• Samples were analysed by an Olympus Vanta 40kv portable XRF unit. |
| *Drilling techniques* | • *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).* | DRILLING (HDRC005-HDRC019)<br>• Holes were drilled by DDH1 utilising a UDR1200 (DE840) truck-mounted rig.<br>• Holes were drilling using reverse circulation technique with a face sampling hammer. |
| *Drill sample recovery* | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample* | DRILLING (HDRC005-HDRC019)<br>• Sample recoveries were generally in excess of 90%. Exceptions being in the shallow portion of holes where |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *recovery and ensure representative nature of the samples.*<br>• *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.* | recoveries could drop over short distances.<br>• No sample recovery bias was noted. |
| *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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | DRILLING (HDRC005-HDRC019)<br>• All drill chips were geologically logged in detail by Hammer Metals Limited Geologists.<br>• Samples were collected for every metre, stored in chip trays and photographed.<br>• Every drilled metre was qualitatively logged for geology and quantitatively logged using an Olympus Vanta portable XRF instrument and magnetic susceptibility meter. |
| *Sub-sampling techniques and sample preparation* | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *Measures taken to ensure that the sampling is representative of the insitu material collected, including for instance results for field duplicate/second-half sampling.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | DRILLING (HDRC005-HDRC019)<br>• Samples consist of RC drill chips.<br>• Sample collection methodology and size is considered appropriate to the target-style, and appropriate laboratory analytical methods were employed.<br>• Standard reference samples and blanks were each inserted into the laboratory submissions at a rate of 1 per 25 samples.<br>• Two duplicate samples were taken from each drillhole and inserted at the end of the drillhole sample sequence.<br>• The sample sizes submitted for analysis were appropriate for the style of mineralisation sought and for the sampled grain size.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• Standard and blank samples were inserted into the sample stream at a rate of 2 standards and 2 blanks per 50 samples.<br>• Duplicates were taken at a rate of 2 duplicates per 50 samples. |
| *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.*<br>• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make* | • All drilling samples will be analysed by ALS for a range of elements by ICP (OES) after a 4-acid digest. Gold was analysed via flame AAS.<br>• Standard reference samples and blanks were inserted at 25 sample intervals. ALS also maintained a comprehensive QAQC regime, including check samples, duplicates, |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *and model, reading times, calibrations factors applied and their derivation, etc.*<br>• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.* | standard reference samples, blanks and calibration standards.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• Standard and blank samples were inserted into the sample stream at a rate of 2 standards and 2 blanks per 50 samples.<br>• Duplicates were taken at a rate of 2 duplicates per 50 samples. |
| *Verification of sampling and assaying* | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | DRILLING (HDRC005-HDRC019)<br>• All intercepts have been verified by alternate company personnel<br>• HDRC013 was drilled to twin HDRC007. This process was conducted confirm the east dipping nature of mineralised zones.<br>• All field logging will be checked and entered into the company database.<br>• Assay files were received electronically from the laboratory.<br><br>• Intercepts which contain an analysis below the detection limit are calculated using an adjusted value which is half the listed detection. |
| *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.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | DRILLING (HDRC005-HDRC019)<br><br>• Drill hole collars were measured using a hand-held GPS unit with an estimated positional accuracy of approximately 5 metres.<br>• Datum used is UTM GDA 94 Zone 54.<br>• RL's for the drill hole collars are initially captured by GPS and subsequently adjusted to the most accurate available DEM data.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• Sample positions were logged with a handheld GPS with a horizonal position accuracy of approximately 5m |
| *Data spacing and distribution* | • *Data spacing for reporting of Exploration Results.*<br>• *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* | DRILLING (HDRC005-HDRC019)<br><br>• The drill density is not sufficient to establish grade continuity.<br><br>• Assays were taken on 1 and 4m |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *estimation procedure(s) and classifications applied.*<br>• *Whether sample compositing has been applied.* | sample lengths. 1m length was preferred in areas of increased mineralisation.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• Samples were taken on an offset 200 metre spaced grid |
| *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.*<br>• *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.* | DRILLING (HDRC005-HDRC019)<br>• Drill holes were oriented as close to perpendicular as possible to the interpreted orientation of the targets based on surface orientation readings.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• The orientation of lines was east-west |
| *Sample security* | • *The measures taken to ensure sample security.* | • Pre-numbered bags were used, and sample were transported to ALS laboratory in Mt Isa by company personnel. |
| *Audits or reviews* | • *The results of any audits or reviews of sampling techniques and data.* | • The datasets reported herein have been subject to data import validation.<br>• All data has been reviewed by two company personnel. |

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

| 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.*<br>• *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.* | DRILLING (HDRC005-HDRC019)<br>• This drilling occurred on granted EPM18084 - owned by Mt Dockerell Mining Pty Ltd (a Hammer Metals Limited subsidiary) 80% and Kabiri Resources Pty Ltd 20%.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• The sampling occurred on granted licences held by Mt Dockerell Mining Pty Ltd (EPM's 26676, 26775 and 26474 & 26694). |
| *Exploration done by other parties* | • *Acknowledgment and appraisal of exploration by other parties.* | DRILLING (HDRC005-HDRC019)<br>• No previous drilling has been conducted by other parties at the |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | prospects tested by Hammer Metals.<br>MT PHILP PROJECT SOIL SAMPLING<br>• No previous soil sampling with this extent and sampling density has been conducted in the Mt Philp area previously. |
| *Geology* | • *Deposit type, geological setting and style of mineralisation.* | DRILLING (HDRC005-HDRC019)<br>• Prospects mentioned in this release are all shear zone hosted quartz-carbonate vein breccia with unusual amounts of hematite and lesser magnetite.<br>• The host rock is granite, granodiorite and microgranite of the Williams-aged Wimberu Granite. Proximal to the shear, the intrusive rocks are strongly red rock altered.<br>MT PHILP PROJECT SOIL SAMPLING<br>• The Mt Philp project covers a large intrusive complex called the Mt Philp Breccia and sediments of the Corella Formation. |
| *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 drill holes:*<br>o *easting and northing of the drill hole collar*<br>o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>o *dip and azimuth of the hole*<br>o *down hole length and interception depth*<br>o *hole length.*<br>• *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.* | • See the attached tables. |
| *Data aggregation methods* | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be* | DRILLING (HDRC005-HDRC019)<br>• Intercepts are quoted at a 0.1% Copper cut-off with included intercepts highlighting zones of increased Copper and/or Gold Grade.<br>.<br>MT PHILP PROJECT SOIL SAMPLING<br>• Soil information has been presented as a gridded image of copper |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *stated and some typical examples of such aggregations should be shown in detail.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | response. The sample locations are also shown as thematically mapped responses colour coded responses according to copper levels. |
| *Relationship between mineralisation widths and intercept lengths* | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').* | DRILLING (HDRC005-HDRC019)<br>• In plan, drill-holes are oriented perpendicular to the interpreted position of the target zones. In section, the average angle between the drillholes and the modelled structural features is between 50 and 70 degrees.<br>• The drilling is not at a sufficient density to enable any grade continuity to be established. The true width of any quoted intercept is not known with any certainty. |
| *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 drill hole collar locations and appropriate sectional views.* | • See attached figures |
| *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.* | DRILLING (HDRC005-HDRC019)<br>• Intersections derived from laboratory analysis are reported at cut-off grades of 0.1% Copper.<br>• The reader can therefore assume that any portions of a drillhole that are not quoted in the intercept tables contain grades less that the quoted cut-off. |
| *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.* | DRILLING (HDRC005-HDRC019)<br>• Refer to the release.<br>• Rock chip results are presented in plan figures. This sampling has been previously released to the market in 2018 on August 15th, August 22nd, September 3rd, September 28th & October 11th. |
| *Further work* | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the* | DRILLING (HDRC005-HDRC019)<br>• Lithochemical analysis of the reverse circulation assays, further geophysical modelling and follow-up |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | *areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | drilling is planned in 2019.<br><br>MT PHILP PROJECT SOIL SAMPLING<br>• The Mt Philp project will be subject to gravity survey and further geological mapping during 2019. |