ASX Announcement (ASX: HMX)

December 6th 2016

Millennium Mineral Resource Estimate

HIGHLIGHTS

- The maiden Millennium Mineral Resource Estimate was prepared by Haren Consulting in accordance with the guidelines of the JORC Code (2012 Edition);
- Mineral Resource comprises an estimated **3.1 million tonnes at 1.29% copper equivalent (CuEq)** at 0.14% cobalt, 0.35% copper, and 0.12 g/t gold in the Inferred category at a 1% CuEq cut-off grade to a maximum depth of 280 metres;
- The deposit extends to surface and is open at depth with good potential to extend the mineralisation along strike to the north;
- The Resource estimate will be used as a basis for studies into metallurgical and open pit mining options.

Hammer Metals Limited (Hammer) (ASX: HMX) is pleased to advise that the maiden Mineral Resource Estimate for the Millennium Copper-Cobalt-Gold Deposit has been completed by Haren Consulting in accordance with the guidelines of the JORC Code (2012 Edition).

The 100%-owned Millennium polymetallic deposit is situated on granted mining leases approximately 32 kilometres northwest of Cloncurry in North West Queensland and 19 kilometres northwest of the operating Rocklands copper-gold-cobalt mine.

Hammer holds a strategic tenement position covering approximately 2,600km^2 within the Mount Isa region and also holds the Kalman (Cu-Au-Mo-Re) deposit and Overlander North and Overlander South (Cu-Co) deposits.

The Mineral Resource was based on a series of 23 RC holes drilled by Hammer Metals following its acquisition of the tenements in May 2016 and 17 RC holes drilled by the previous operator in 2013-2014.

Table 1 Millennium November 2016 Mineral Resource - Inferred

CuEq Cut-off	Tonnes	CuEq (%)	Co (%)	Cu (%)	Au (ppm)
1.0%	3,070,000	1.29	0.14	0.35	0.12
0.7%	5,890,000	1.08	0.11	0.32	0.11

- *Note: (1) Totals may differ due to rounding*
- *Note: (2)* $CuEq = Cu\_pct + (Co\_pct * 5.9) + (Au\_ppm * 0.9) + (Ag\_ppm * 0.01)$

Table 2 Millennium November 2016 Estimate Grade Tonnage Report – Inferred

Cut-off	Tonnes	CuEq (%)	Cu (%)	Co (%)	Au (ppm)	Ag (ppm)	Pb (ppm)	Zn (ppm)
2.00	69,645	2.36	0.61	0.26	0.26	0.94	8.61	27.1
1.95	81,076	2.30	0.60	0.25	0.24	1.08	8.13	27.4
1.90	96,697	2.24	0.61	0.24	0.24	1.12	8.27	26.9
1.85	127,863	2.15	0.58	0.23	0.22	1.30	7.59	27.1
1.80	153,533	2.10	0.58	0.22	0.21	1.48	7.40	26.9
1.75	186,575	2.04	0.56	0.22	0.20	1.51	7.50	27.1
1.70	226,208	1.98	0.54	0.21	0.19	1.54	8.66	27.3
1.65	277,597	1.93	0.51	0.21	0.18	1.48	8.44	26.7
1.60	385,014	1.84	0.46	0.21	0.16	1.37	9.32	25.4
1.55	453,784	1.80	0.44	0.20	0.15	1.32	9.87	26.9
1.50	552,198	1.75	0.41	0.20	0.14	1.22	9.68	26.0
1.45	711,006	1.69	0.38	0.20	0.14	1.14	10.26	26.9
1.40	823,465	1.65	0.38	0.19	0.14	1.08	10.61	26.9
1.35	966,349	1.61	0.37	0.19	0.13	1.06	10.88	27.0
1.30	1,121,694	1.57	0.36	0.18	0.13	1.01	11.00	27.1
1.25	1,263,001	1.54	0.35	0.18	0.13	0.97	10.72	26.7
1.20	1,621,027	1.47	0.36	0.17	0.12	0.89	11.83	29.1
1.15	1,897,710	1.42	0.36	0.16	0.12	0.87	11.97	28.7
1.10	2,177,663	1.39	0.36	0.15	0.12	0.87	12.07	28.5
1.05	2,766,739	1.32	0.36	0.14	0.12	0.85	13.07	29.7
1.00	3,071,412	1.29	0.35	0.14	0.12	0.84	13.11	29.9
0.95	3,521,182	1.25	0.35	0.13	0.12	0.81	13.27	30.6
0.90	3,946,248	1.21	0.34	0.13	0.11	0.80	13.48	30.5
0.85	4,335,616	1.18	0.34	0.12	0.11	0.79	13.42	30.6
0.80	4,795,549	1.15	0.34	0.12	0.11	0.78	13.74	30.7
0.75	5,315,466	1.11	0.33	0.11	0.11	0.78	13.64	30.5
0.70	5,889,037	1.08	0.32	0.11	0.11	0.78	13.43	30.5
0.65	6,769,065	1.02	0.31	0.10	0.11	0.77	15.09	30.4
0.60	7,747,746	0.97	0.31	0.10	0.11	0.84	22.97	31.0
0.55	8,725,104	0.93	0.30	0.09	0.10	0.85	25.39	31.3
0.50	9,921,848	0.88	0.28	0.08	0.10	0.88	26.91	31.6
0.45	11,343,351	0.83	0.27	0.08	0.10	0.91	26.80	31.5
0.40	13,610,189	0.76	0.25	0.07	0.09	0.87	26.10	31.5
0.35	16,138,495	0.70	0.23	0.07	0.08	0.82	24.36	31.1
0.30	18,856,968	0.65	0.21	0.06	0.08	0.78	22.60	30.6
0.25	20,963,724	0.61	0.20	0.06	0.07	0.77	21.49	30.3
0.20	22,379,076	0.59	0.19	0.05	0.07	0.76	21.27	31.0
0.15	24,248,316	0.55	0.19	0.05	0.07	0.75	21.01	31.7
0.10	24,998,174	0.54	0.18	0.05	0.06	0.74	22.66	33.6
0.05	25,420,655	0.53	0.18	0.05	0.06	0.73	22.50	33.7
0.00	25,547,821	0.53	0.18	0.05	0.06	0.73	22.41	33.7

The Mineral Resource estimate is reported here in compliance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' by the Joint Ore Reserves Committee (JORC). Therefore it is suitable for public reporting. The reported Mineral Resources are only those which fall within the Hammer tenements.

The geological and mineralisation continuity has been assumed with sufficient confidence to allow the majority of mineralisation to be classified as an Inferred Mineral Resource. Where significant extrapolation past drilling has occurred the material remains unclassified.

The deposit is similar in size and style to other deposits in the region that have been successfully mined by small-scale open pit techniques which implies that the mineralisation may be economically extracted. Hammer has conducted high level economic studies on similar deposits within the Mt Isa region and found positive results. Preliminary hydrometallurgical studies were undertaken by Strategic Resources N.L. in 1980 and by Diversified Mineral Resources N.L. in 1993 on sulphide drill samples from a total of 5 drill holes. They concluded that saleable copper and cobalt concentrates could be recovered.

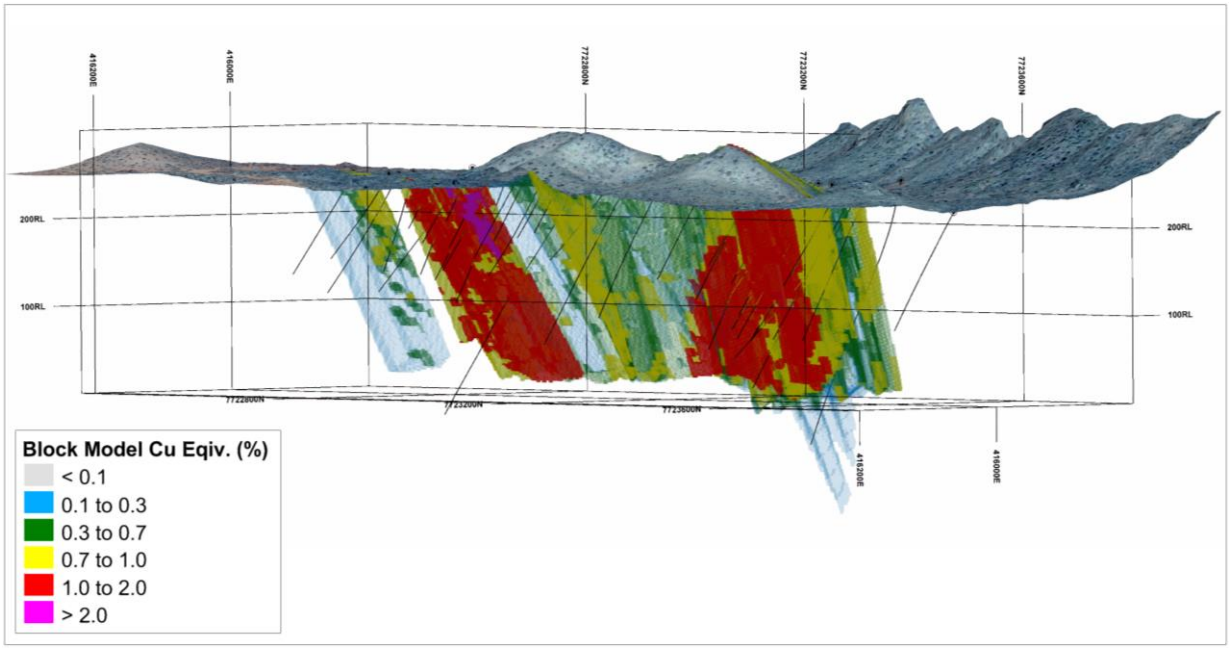

Figure 1 Millennium Resource Block Model (oblique view looking southwest)

Alexander Hewlett, CEO of Hammer Metals said that: *"This maiden resource estimate lays the foundations for further resource definition drilling and mining studies into Millennium. There is also potential to expand the resource at depth and along strike to the north with further drilling. This has also been an exceptional timeframe for Hammer to have reached this stage as the project was only acquired in May of this year."*

"Millennium has the added advantage of being located in an established mining district on granted mining leases. Hammer will now expand on the previous geological and metallurgical studies already completed on Millennium that will assist in further understanding the project's economic potential."

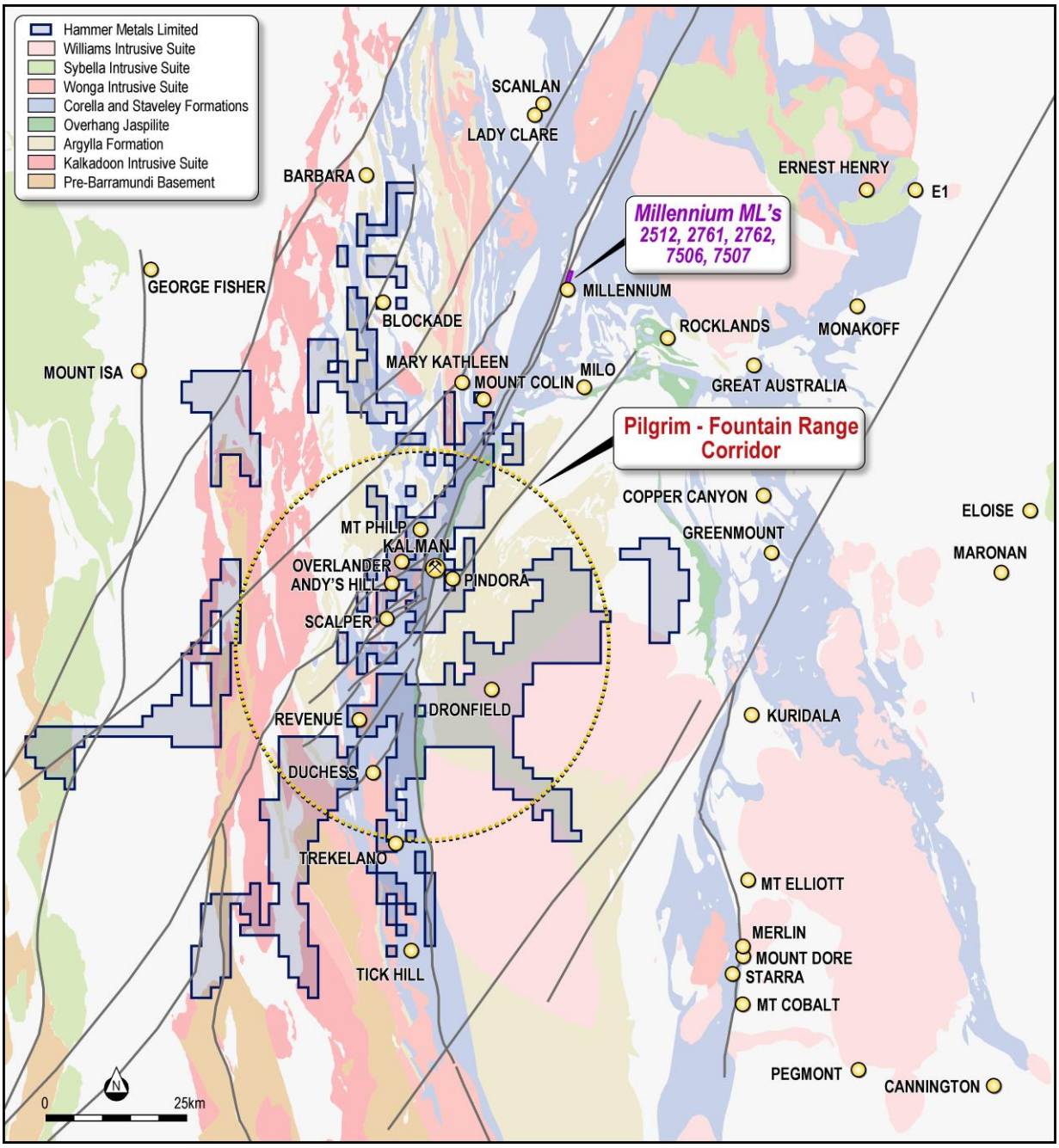

Figure 2 Project Location

A summary of the background and information used in the resource estimation is as follows:

In October 2016 Haren Consulting Pty Ltd (Haren) was engaged by Hammer Metals Limited (Hammer) to complete a maiden Mineral Resource Estimate for the Millennium polymetallic (Co, Cu, Au, Ag and Pb) deposit. Hammer has recently completed a program of 23 RC drill holes targeting the deposit.

The Mineral Resource estimate is reported here in compliance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' by the Joint Ore Reserves Committee (JORC). Therefore it is suitable for public reporting.

Ownership

The Millennium deposit lies within five Mining Leases; ML's 2512, 2761, 2762, 7506 and 7507. Hammer has a 100% interest in all five Mining Leases. The tenements are in good standing and no known impediments exist. The reported Mineral Resources are only those which fall within the Hammer tenements.

Geology

The Millennium Project area is located in the Milo Beds of the Tommy Creek Domain in the northern portion of the Eastern Subprovince of the Mount Isa Province. The Tommy Creek Domain contains Palaeoproterozoic Cover Sequence 3 sediments and felsic and mafic igneous rocks. The domain is underlain by Cover Sequence 2 Corella Formation belonging to the Mary Kathleen Domain (west) and Canobie Domain (east).

The western margin is bordered by the Fountain Range / Quamby Fault system, a regionally extensive NNE-trending, dextral strike slip fault system that demarcates the Tommy Creek Domain from the Mary Kathleen Domain. In the vicinity of the Millennium Project area, the Fountain Range Fault has merged with the Pilgrim Fault, a regionally extensive NNE-trending, reverse to dextral strike slip fault system that hosts numerous mineral occurrences including the Kalman Cu-Au-Mo-Re deposit and the Tick Hill Au deposit.

Drilling Techniques

Exploration in the area has been completed by several companies with historic drill holes and trenches dating back to the 1960's. The database used for Mineral Resource estimation comprises 40 holes for a total of 6,240m of drilling from 2013 to 2016, with historical low quality drilling and trenching data excluded.

Table 3 Millennium Drilling

Date	Company / Hole Type	Number of Drillholes	Metres
1964	Carpentaria Exploration Company / PD	11	280
1970	Tasman Minerals / DD	5	795.6
1970's	Strategic Resources / DD	1	
1992	Diversified Mineral Resources / DD	6	575.5
2013/14	Chinalco Yunnan Copper Resources / RC (resource drilling)	17	2,707
2016	Hammer Metals / RC (resource drilling)	23	3533
	TOTAL	**63**	**7891.1**

Sampling and Sub-Sampling Techniques

All RC drilling was completed with large capacity rigs capable of +200m depths. The rigs were configured with both inbuilt and auxiliary compressors and boosters. The holes were drilled with 4.5" (112 mm) face sampling hammers. The samples were fed through a splitter from a collection cyclone. Sample A (~2-3 kg) was collected in a calico bag for dispatch to the assay laboratory; sample B (25-30 kg) was collected in a UV resistant plastic bag and retained on site in sample farms adjacent to the drill collar.

Sample Analysis Methods

Chinalco (CYU) samples (Q- holes) were submitted to ALS Townsville for preparation. Hammer samples (MIRC- holes) were delivered to ALS Mount Isa for sample preparation. All samples were assayed by ALS Laboratory Group.

CYU drill hole samples underwent gold analysis by 30g fire assay with an AAS finish. A broad suite of elements, including base metals, were analysed for by Aqua Regia digest followed by ICPAES.

Hammer drillhole samples underwent gold analysis by 50g fire assay with an AAS finish. A broad suite of elements, including base metals, were analysed for by multi-acid digestion with hydrofluoric acid followed by a mix of ICPAES, and ICPMS (with REE determination).

Mineral Resource Estimate

The Mineral Resource estimate is reported here in compliance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' by the Joint Ore Reserves Committee (JORC). Therefore it is suitable for public reporting. The reported Mineral Resources are only those which fall within the Hammer tenements. 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. The CuEq calculation is based solely on commodity prices without assumptions about recovery or payability of the different metals. Prices used by Hammer were a reflection of the market as at October 1st 2016 and forward looking forecasts provided by consensus analysis. 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:

$$CuEq = Cu\_pct + (Co\_pct * 5.9) + (Au\_ppm * 0.9) + (Ag\_ppm * 0.01)$$

A cut-off of 0.7% and 1.0% CuEq has been applied for reporting Mineral Resources in

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Table 4 Millennium November 2016 Mineral Resource - Inferred

CuEq Cut-off	Tonnes	CuEq (%)	Cu (%)	Co (%)	Au (ppm)
1.0%	3,070,000	1.29	0.35	0.14	0.12
0.7%	5,890,000	1.08	0.32	0.11	0.11

- *Note: (1) Totals may differ due to rounding*
- *Note: (2)* $CuEq = Cu\_pct + (Co\_pct * 5.9) + (Au\_ppm * 0.9) + (Ag\_ppm * 0.01)$

The model is undiluted, so appropriate dilution needs to be incorporated in any evaluation of the deposit. The mineralisation was interpreted into four domains based on using a 0.5% CuEq cut-off and/or assumed

geological continuity. Variography was interpreted for the four domains as a package with individual variograms modelled for each element. Grade estimation of Co, Cu, Au, Ag, Pb and Zn was by ordinary kriging into parent blocks of 5m E by 25m N by 10m RL. Top-cuts were applied as required by element and domain.

Density was applied based on test results as 2.53 t/m^3 for oxide material, 2.63 t/m^3 for transition material and 2.68 t/m^3 for fresh material.

The deposit has been tested with high quality drilling, sampling and assaying. Geological logging has defined structural and lithological controls that provide reasonable confidence in the interpretation of mineralisation boundaries. The geological and mineralisation continuity has been assumed with sufficient confidence to allow the majority of mineralisation to be classified as an Inferred Mineral Resource. Where significant extrapolation past drilling has occurred the material remains unclassified.

The deposit is similar in size and style to other deposits in the region that have been successfully mined by small-scale open pit techniques which implies that the mineralisation may be economically extracted. Hammer has conducted high level economic studies on similar deposits within the Mt Isa region and found positive results. Preliminary hydrometallurgical studies were undertaken by Strategic Resources N.L. in 1980 and by Diversified Mineral Resources N.L. in 1993 on sulphide drill samples from a total of 5 drill holes. They concluded that saleable copper and cobalt concentrates could be recovered.

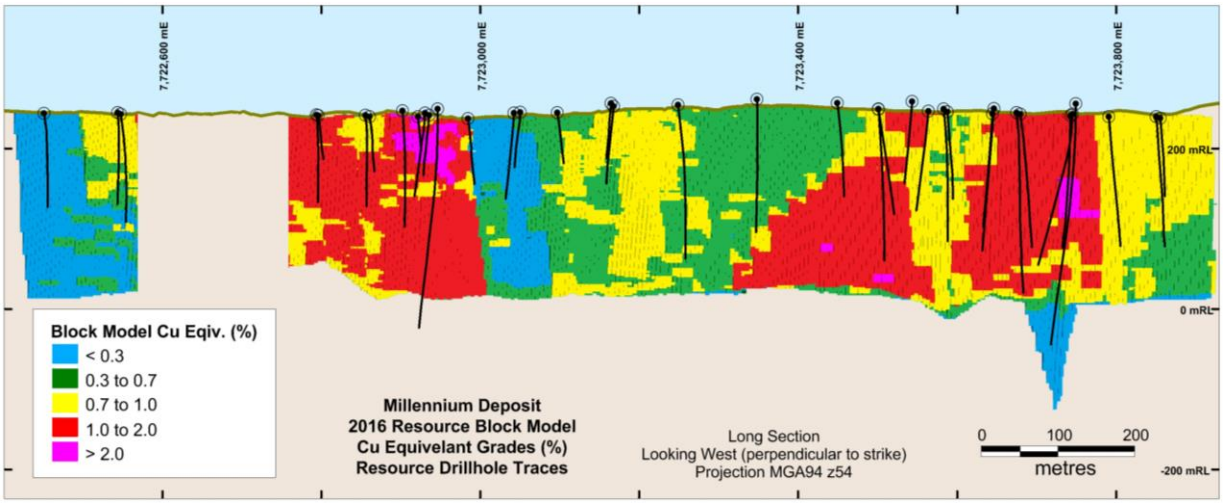


Figure 3 Millennium Long Section showing Resource Blocks and Drillholes

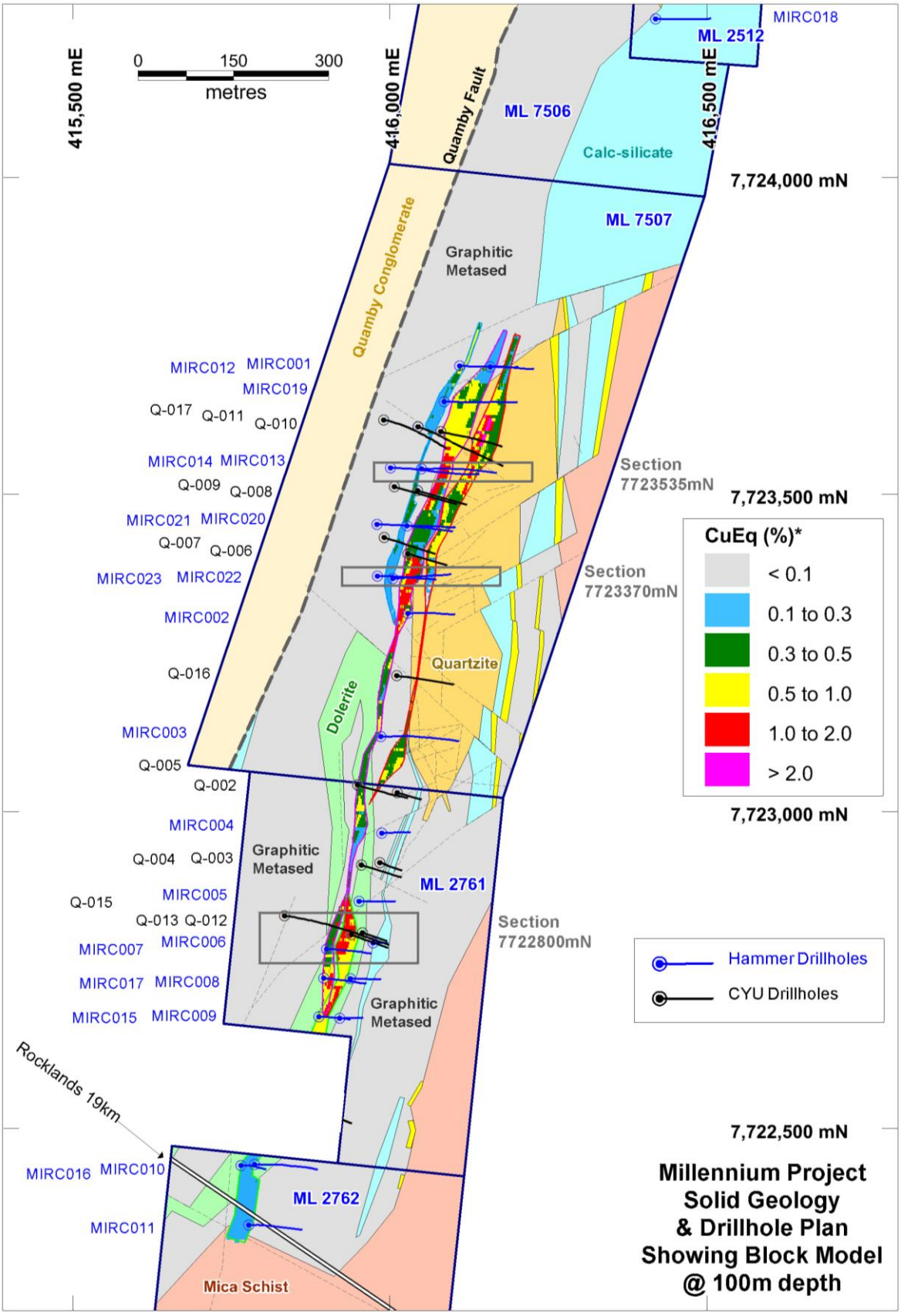


Figure 4 Millennium Plan showing Geology, Resource Blocks, Drill Traces and Section Locations

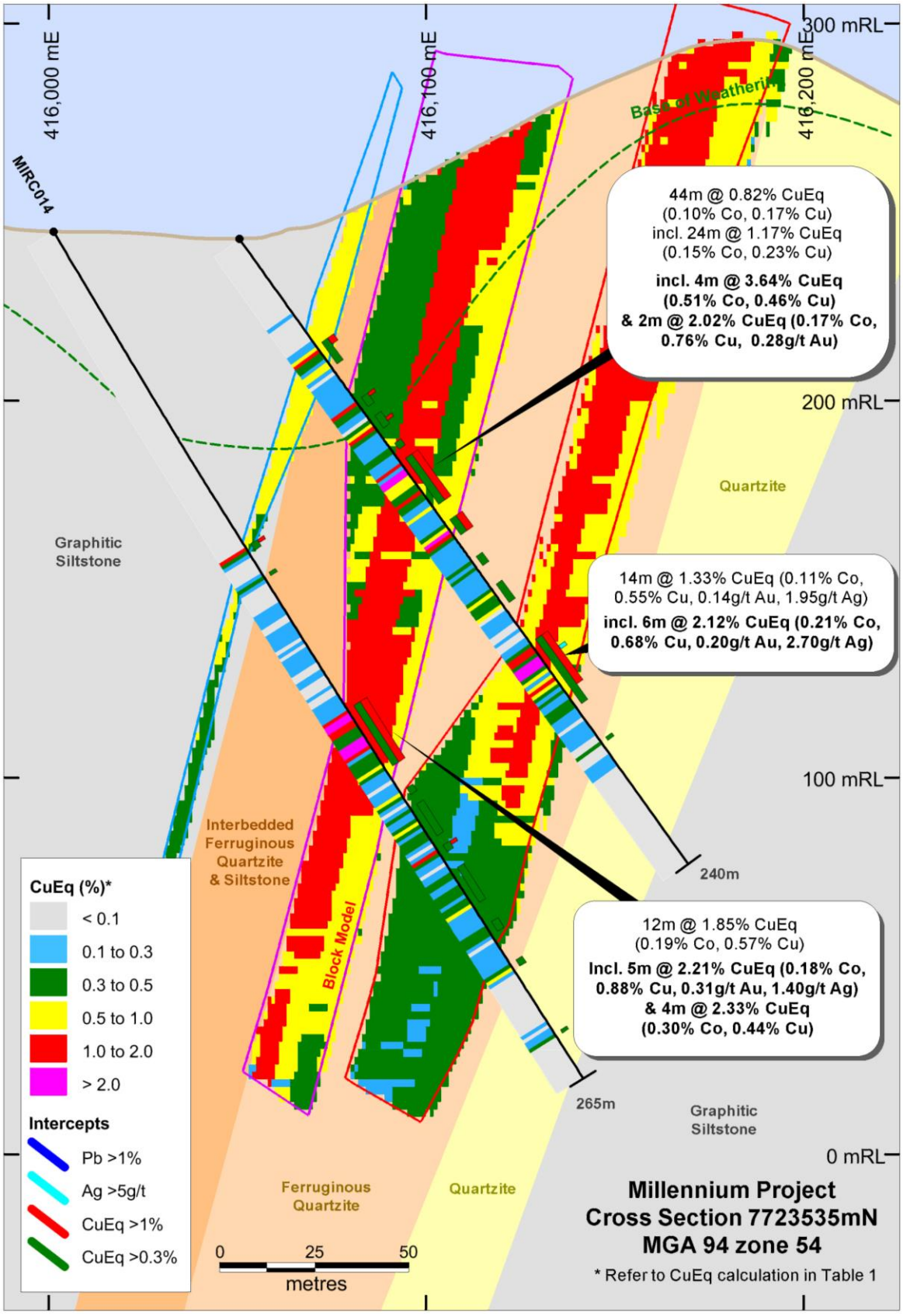


Figure 5 Cross Section 7723535mN (northern) showing Geology, Resource Blocks and Drill Intercepts

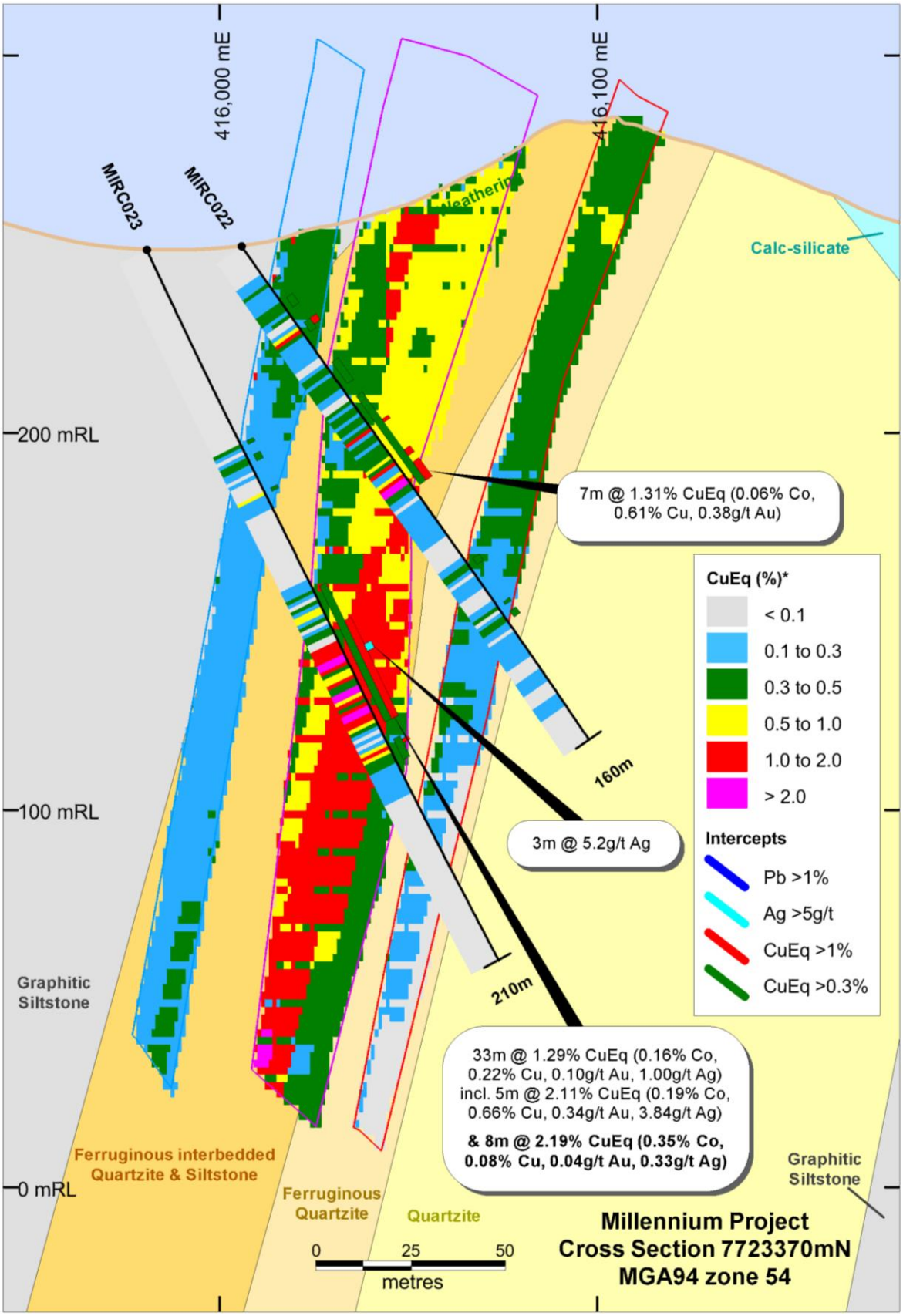


Figure 6 Cross Section 7723370mN (central) showing Geology, Resource Blocks and Drill Intercepts

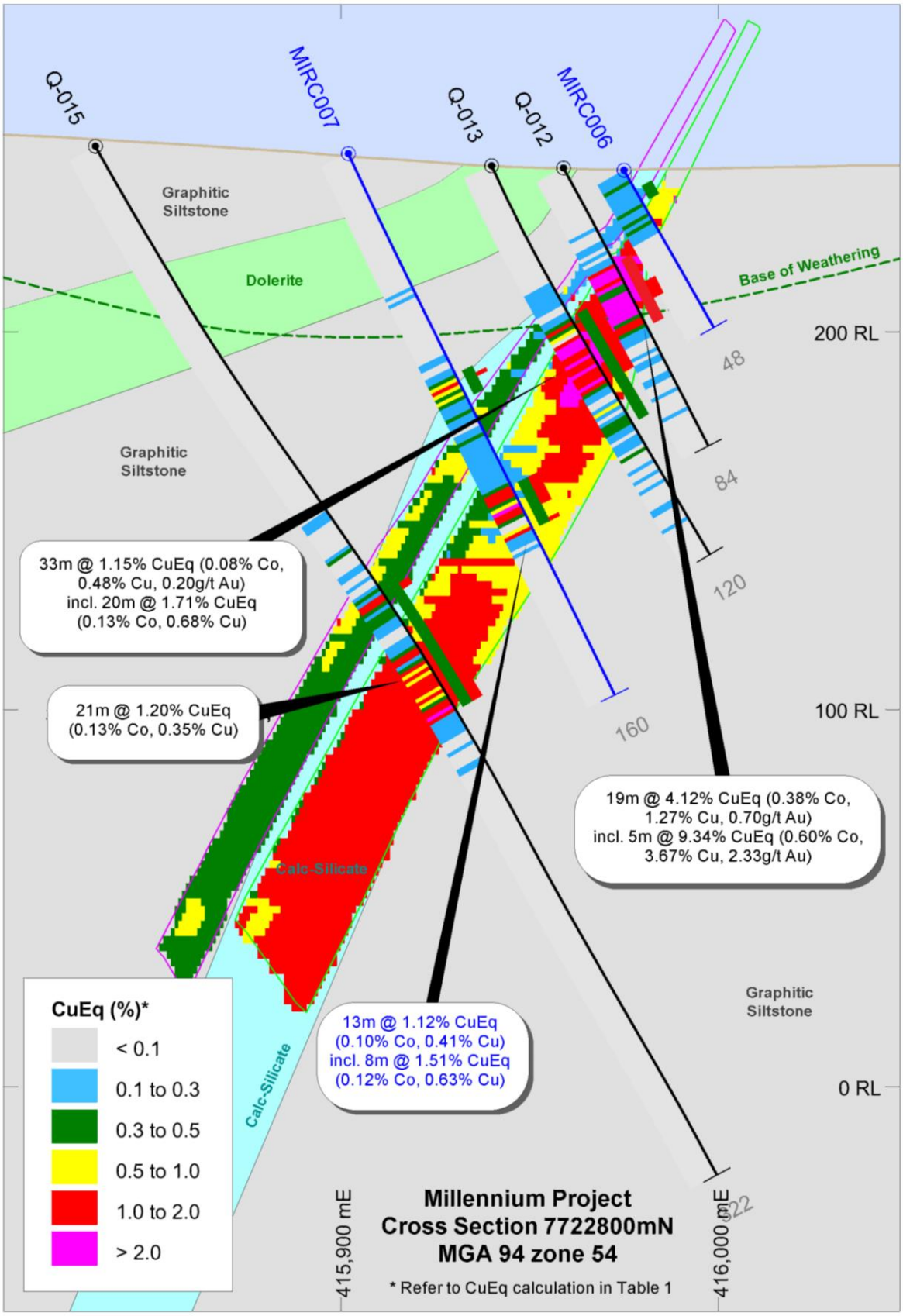


Figure 7 Cross Section 7722800mN (southern) showing Geology, Resource Blocks and Drill Intercepts

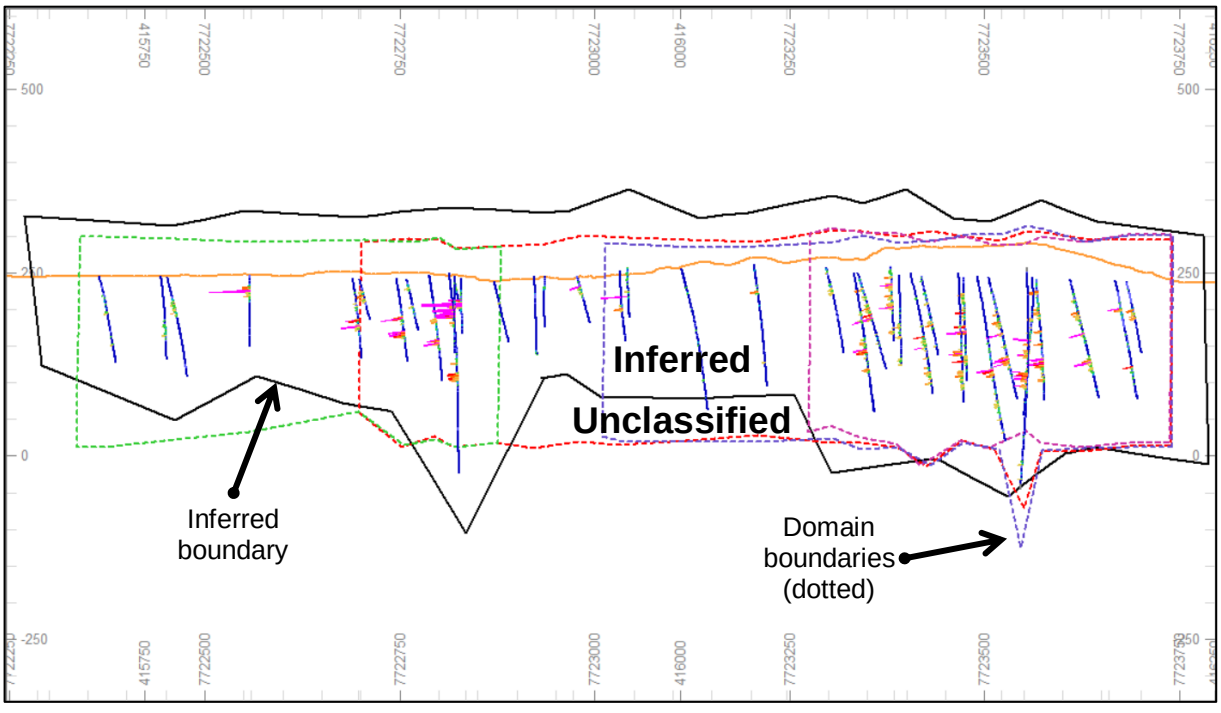
Classification

The Millennium Mineral Resource was classified on the basis of data quality, sample spacing and grade and geological continuity of the mineralised domains. The deposit shows a generally consistent continuity of mineralisation within reasonably well-defined geological constraints characteristic of the local geology. The drill hole spacing throughout the project is approximately 100 to 120m along strike with some 50m to 60m infill drilling. Drill spacing down dip is variable with 10 of the 23 interpretation sections having one drill hole only. The drill spacing is sufficient to allow the grade intersections to be modelled into reasonably coherent wireframes within a broader structural corridor.

The geological and mineralisation continuity has been assumed with sufficient confidence to allow the majority of mineralisation to be classified as an Inferred Mineral Resource. Where significant extrapolation past drilling has occurred the material remains unclassified.

The resource model is undiluted, so appropriate dilution needs to be incorporated in any evaluation of the deposit. The Total Mineral Resource at a range of cut-off grades is shown in Table 2 and Figure 9 (below).

It is expected that further drilling could result in a material increase in the size of the defined Mineral Resource. Infill drilling along strike and down-dip will enable the continuity modelling quality to be increased for each variable. This would therefore allow a higher classification of Indicated or Measured.



View width is approximately 1,600m

Figure 8 Long section view of classification boundaries with drill holes

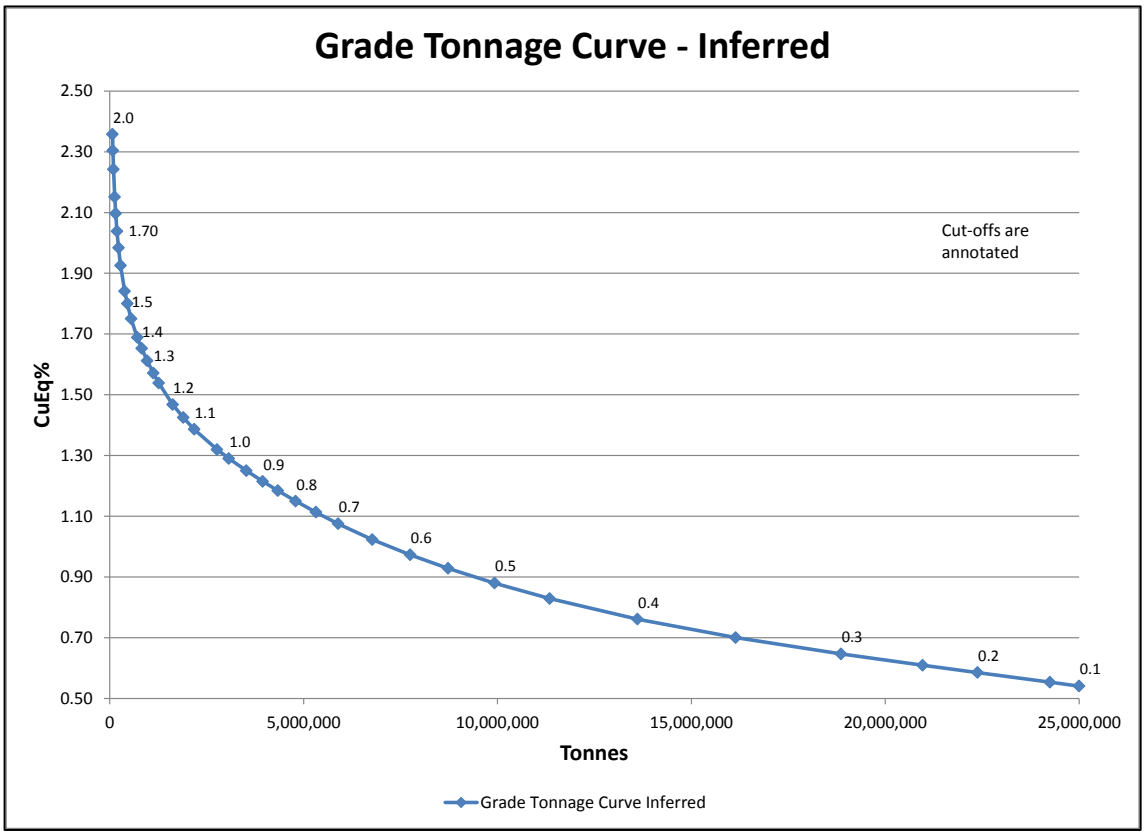


Figure 9 Millennium November 2016 Estimate Grade Tonnage Curve – Inferred

Competent Persons Statement

The information in this report that relates to Mineral Resources is based on information compiled by Ms Elizabeth Haren, a Competent Person who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy and a full time employee of Haren Consulting Pty Ltd. Ms Haren has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she has undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Ms Haren consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

Ms Haren has no economic, financial or pecuniary interest in Hammer and there is no issue that could be perceived as a conflict of interest.

Elizabeth Haren MAusIMM CP(Geo)

The reporting of Mineral Resources presented in this Statement has been carried out in accordance with the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (The JORC Code – 2012 Edition).

The information in this report that relates to Sampling Techniques and Data and Exploration Results is based on information supplied by Mr John Downing, a Competent Person who is a Member of the Australian Institute of Geoscientists and a long-term contractor to Hammer. Mr Downing has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves'. John Downing consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

- ENDS -

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Hammer Metals Limited (ASX:HMX), is an advanced exploration company with a major land position (2600km^2) in the Mount Isa Mineral Province in NW Queensland. The tenement package is sandwiched between several large resource houses including Glencore, BHP and Chinova. Hammer is focused on developing base and precious metal resources in the district through well-targeted exploration and project acquisition activities.

ASX Announcement (ASX: HMX)

JORC Code, 2012 Edition

Table 1 report – Millennium Mineral Resource Estimate

Mr John Downing supplied the information in Section 1 and Section 2 of JORC Table 1 in this Mineral Resource report and is the Competent Person for those sections. Haren has included these sections in their entirety to ensure that all relevant sections of Table 1 are included in this report.

Section 1 Sampling Techniques and Data

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

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. • 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 (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.	• The mineralised lodes at the Millennium deposit were sampled using surface reverse circulation holes ("RC"). Drilling was conducted primarily on nominal 100m to 120m spacing along strike, with some 50m to 60m infill. Similar spacing was achieved down-dip. Holes were drilled on the MGA94 National Grid system. • Drill holes used in the resource estimate included 40 reverse circulation holes for a total of 6,240m within the modelled area. • Drill holes were generally angled at -60° towards the -east to optimally intersect the mineralised zones. • Holes drilled by CYU in 2013 and 2014 were surveyed by gyro at 10m down-hole intervals. • Holes drilled by Hammer were surveyed by Reflex Ezi-trac multi-shot downhole camera at 15m to 30m intervals. Surveys were downloaded from the instrument and imported into a central database. Results were plotted and visually scanned for consistency. Survey records containing very high magnetic intensity or anomalous azimuth deviations were removed from the dataset. • Drilling was conducted by Carpenteria Exploration Company Pty Ltd, Tasman Minerals N.L., Strategic Resources N.L., Diversified Mineral Resources N.L., Chinalco Yunnan Copper Resources Ltd and Elementos Ltd CYU and Hammer. • All samples were sent for preparation (crushing and pulverising) and analysed using fusion fire assay / AAS methods for gold and the Aqua Regia and 4 acid digest with ICP determination methods for base metals, all assaying was carried out by the ALS Laboratory Group in Queensland.
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,	• Reverse circulation drilling was the primary technique used at Millennium. Hole depths ranged from 48m to 322m.

Criteria	JORC Code explanation	Commentary
	depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	
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.	• Instances of wet, damp or small RC drill samples were recorded by Hammer. A review of the bulk reject bags indicates the RC drill sample recoveries were excellent and consistent. • The consistency of sample size and quality was such that any relationship between recovery and grade could not be determined. • No relationship was qualitatively noted between sample recovery and grade. The mineralised zones have been intersected with generally good recoveries. The consistency of the mineralised intervals suggests sampling bias due to material loss or gain is not an issue.
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.	• All recent drill chips were geologically logged in detail by Hammer Metals geologists recording lithology, alteration and mineralisation, weathering, colour and structure, and any other features of the sample to a level of detail to support appropriate studies. The majority of historical holes were logged geologically. • 6,052m or 97% of drill holes within the modelled area were 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.	• RC drill samples were collected at 1m intervals. Samples were collected from a riffle splitter mounted on the drill sample return. Samples were predominantly dry. • Sampling of RC chips used industry standard techniques. • CYU and Hammer used systematic standard and field duplicate sampling. A sequence of every 11th Hammer sample was submitted as a certified standard or blank, a different sequence of every 34th sample was inserted as a field duplicate. Every 200th CYU sample was submitted as a certified standard. • The duplicate and standard system used results overall in 6 samples in every 100 being a QAQC sample or 6%. • Sample sizes (2-5kg for chips) are considered appropriate to correctly represent the mineralisation based on: the style of mineralisation, the thickness and consistency of the intersections, the sampling methodology and assay value ranges for the various elements of interest.

Criteria	JORC Code explanation	Commentary
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• The assay methods used for all drill samples were fusion fire assay / AAS for gold and Aqua Regia /ICP for base metals for 17 CYU Ltd holes and fusion fire assay / AAS for gold and four acid digestion (HF) / ICP for base metals for 23 Hammer Ltd holes. • No geophysical tools were used to determine any element concentrations used in this resource estimate. • The various programs of QAQC carried out by CYU and Hammer have produced results that support the sampling and assaying procedures used. Three matrix matched standards representing grades from 0.2% Cu to 0.6% Cu and 0.5ppm Au were inserted regularly during the drilling program. Results highlighted that the Cu and Au sample assays are within accepted values, showing no obvious bias.
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.	• Haren has not independently verified any intervals. • Two senior company personnel independently verified significant intersections. • No twinning of holes was undertaken during the drilling programs. • Geological logging was directly into Excel spreadsheets on a Panasonic Toughbook computer, which were subsequently imported to a Sql Server relational database. The assay data was checked against portable XRF results and logging for confirmation. • Assay values below detection limit were stored in the database as minus the detection limit and adjusted on export to equal half of the detection limit value. Intervals with no samples were recorded in the sample table and excluded from the assay table in the database.
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.	• All Hammer and 7 of 17 CYU drill holes have been accurately surveyed by LIDAR using a Leica Viva system. The CYU holes were determined to be consistently within 10m of their originally recorded locations. All locations are recorded in projection MGA94 zone 54. Down hole surveys were conducted using gyro or digital down-hole camera. • LiDAR survey data was used to create a topographic surface; this was confirmed by independent GPS drill hole collar locations.
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	• The drill hole spacing throughout the project is approximately 100 to 120m along strike with some 50 to 60m infill drilling. Drill spacing down dip is of similar dimensions. • The Millennium deposit shows consistent continuity of mineralisation within well-defined

Criteria	JORC Code explanation	Commentary
	for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	geological constraints which have been largely confirmed by the recent drilling by Hammer. • The drill spacing is sufficient to allow the grade intersections to be modelled into coherent wireframes for each domain. • For Mineral Resource estimation samples have been composited to 1m lengths using 'best fit' techniques. • The mineralised domains have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Inferred Mineral Resources, and the classifications applied under the 2012 JORC Code.
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.	• Drill holes are orientated predominantly to an azimuth of approximately 90° and drilled at an angle of -55 to -60° to the east which is approximately perpendicular to the orientation of the mineralised trends. Some drill holes targeting deeper mineralisation intersections are drilled at steeper angles. • The orientation of the drilling is usually at a high angle to the strike and dip of the mineralisation. • No orientation based sampling bias has been identified in the data.
Sample security	• The measures taken to ensure sample security.	• For Hammer RC drilling pre-numbered bags are used and transported by company personnel to the ALS Laboratory in Mount Isa. ALS transports samples to its laboratories in Townsville or Brisbane when required. • No information is available regarding security of historical drill samples.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Internal reviews have been undertaken.

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. • 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.	• The Millennium deposit lies within five Mining Leases; ML's 2512, 2761, 2762, 7506 and 7507 (Figure 3). • Hammer currently has a 100% interest in all five Mining Leases. • The tenements are in good standing and no known impediments exist.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Previous exploration over the tenement area has been conducted by a number of parties since 1964, including Carpenteria Exploration Company Pty Ltd, Tasman Minerals N.L., Strategic Resources N.L., Diversified Mineral Resources N.L. and Chinalco Yunnan Copper Resources Ltd • The Chinalco Yunnan Copper Resources Ltd data has been carefully reviewed and is considered of acceptable quality. All other data has not been used for Mineral Resource estimation.
Geology	• Deposit type, geological setting and style of mineralisation.	• The Millennium Project area is located in the Milo Beds of the Tommy Creek Domain in the northern portion of the Eastern Subprovince of the Mount Isa Province. The Tommy Creek Domain contains Palaeoproterozoic Cover Sequence 3 sediments and felsic and mafic igneous rocks with geochronological ages ranging from 1660 to 1610 Ma. The domain is underlain by Cover Sequence 2 Corella Formation belonging to the Mary Kathleen Domain (west) and Canobie Domain (east). • The western margin is bordered by the Fountain Range / Quamby Fault system, a regionally extensive NNE-trending, dextral strike slip fault system that demarcates the Tommy Creek Domain from the Mary Kathleen Domain. A block of Quamby Conglomerate is situated immediately west of the Milo Beds, bound between the Quamby Fault to the east and the Fountain Range Fault to the west. In the vicinity of the Millennium Project area, the Fountain Range Fault has merged with the Pilgrim Fault, a regionally extensive NNE-trending, reverse to dextral strike slip fault system that hosts numerous mineral occurrences including the Kalman Cu, Au, Mo, Re deposit and the Tick Hill Au deposit.

Criteria	JORC Code explanation	Commentary
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: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o 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.	• A complete table of all relevant drill holes is attached to this report as Appendix 2.
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. • 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 stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Exploration results are not being reported.
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 drill hole angle is known, its nature should be reported. • 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').	• Exploration Results are not discussed in this report. • Drill holes were orientated predominantly to an azimuth of approximately 90° and angled to a dip of -55 to -60°, which is approximately perpendicular to the orientation of the mineralised trends. • As the mineralisation generally dips steeply to moderately west the true width approaches the quoted drill intersections. Holes are inclined at 55 to 60° from horizontal to intersect the moderately to steeply west-dipping (~55° to 75°) mineralised

Criteria	JORC Code explanation	Commentary
		structure.
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.	• Plan view and section view figures are contained in the body of this report.
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.	• Exploration Results are not discussed in this report.
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.	• Exploration Results are not discussed in this report. • A detailed filed mapping exercise was undertaken in 2016 by John Downing which has aided in the understanding of the geological terrain.
Further work	• The nature and scale of planned further work (eg 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.	• Extensional and infill drilling is planned but not finalised at the time of this report.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• Drill logging data and assay results are generated digitally, compiled and validated prior to import to a central database. Assay results are not compiled for import until final QAQC data and certification has been received from the analytical laboratory. A suite of validation routines are carried out across the database on a regular basis. • Haren understands that Hammer have undertaken detailed and systematic cross checking of historical data to ensure maximum integrity in the data used for Mineral Resource estimation. • Haren also performed general data audits and checks on the supplied data. Minor corrections were made.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• A site visit has not been conducted by Haren as the project is at an early stage.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The interpretations are guided by the broader regional geological setting and local field observations. The geology of the Millennium deposit has been mapped on-surface and down-hole, to produce a 3D interpretation of the main geological components. • Drill hole logging by geologists, through direct observation of samples have been used to interpret the geological setting. The continuity of the main mineralised lodes is clearly observed by relevant grades within the drill holes. The drilling and trench sampling suggest the current interpretation is robust. • The nature of the domains would indicate that alternate interpretations are possible as the higher grade mineralisation is thin. Further drilling may have some impact on the overall Mineral Resource estimation. • Lithology was not used in the generation of the wireframes for the Mineral Resource. • Wireframes were mainly based on the calculated copper equivalent (CuEq). • The confidence in the geological interpretation is considered to be good. The deposit is similar in style to many polymetallic deposits in Mount Isa Inlier. • The geological logging and the results of the geostatistical analyses have been useful in

Criteria	JORC Code explanation	Commentary
		predicting the continuity of the mineralisation for the Mineral Resource estimation.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The interpreted Millennium Mineral Resource mineralisation is interpreted to extend over a strike length of 1600m and from surface to approximately 280m below surface.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• Ordinary Kriging ("OK") interpolation with dynamic anisotropy oriented 'ellipsoid' search was used for the estimate. Datamine software was used for the estimations. Three dimensional mineralised wireframes were used to domain the mineralised data. Sample data was composited to 1m down hole lengths using the 'best fit' method. Intervals with no assays were excluded from the estimates. The influence of extreme grade values was addressed by applying top-cuts to the data. These cut values were determined through statistical analysis (histograms, log probability plots, CVs, and summary multi-variate and bi-variate statistics) using Supervisor software. The maximum distance of extrapolation from data points for reportable Mineral Resources was around 150m. • Minor artisanal mining has occurred in the area. Haren has assumed that the deposit will be mined, and the ore processed a suite of elements including Co, Cu, Au, Ag and Pb. The Mineral Resource reporting has assumed forward-looking prices for these elements and a Copper Equivalent ("CuEq") value has been calculated for each block. The Mineral Resource reporting used the CuEq value for reporting cut-off purposes. • No assumptions have been made regarding recovery of by-products. • No non-grade elements have been estimated. • The parent block dimensions used were 5m E by 25m N by 10m RL with sub-cells of 1.0m E by 5.0m N by 2.0m RL. The parent block size was selected through kriging neighbourhood testing and considering the dimensions of the domains and drill hole spacing. • Selective mining units were not modelled. • No assumptions were made regarding correlation of variables. Each variable was estimated independently. • The mineralisation domains were constrained by wireframes constructed using a nominal 0.5% CuEq cut-off grade. Four domains were constructed. • Top-cuts were required for some elements in some domains as there were extreme grades which would result in overestimation using ordinary kriging if not addressed. To assist in the selection

Criteria	JORC Code explanation	Commentary
		of appropriate top-cuts, log-probability plots and histograms were generated. • To validate the model, a qualitative assessment was completed by slicing sections through the block model in positions coincident with drilling. A quantitative assessment of the estimate was completed by comparing the average grades of the sample file input against the block model output for all the resource objects. A trend analysis was completed by comparing the interpolated blocks to the sample data within all the lodes. This analysis was completed for northings and elevations across the deposit. Validation plots showed good correlation between the sample grades and the block model grades.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages and grades were estimated on a dry in situ basis. No moisture values were reviewed.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• Cut-offs of 0.5% and 1% CuEq for has been applied for reporting Mineral Resources.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• The deposit is similar in size and style to other deposits in the region that have been successfully mined by small-scale open pit techniques. • No dilution has been applied.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may	• Preliminary hydrometallurgical studies were undertaken by Strategic Resources N.L. in 1980 and by Diversified Mineral Resources N.L. in 1993 on sulphide drill samples from a total of 5 drillholes. They concluded that saleable copper and cobalt concentrates could be recovered.

Criteria	JORC Code explanation	Commentary
	not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• No assumptions have been made by Haren regarding possible waste and process residue disposal options.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Density analysis suggests that there is a small zone of oxidised material between surface and 20m depth and a transition zone between 20m and 40m depth. • The topography surface was translated down to create the base of complete oxidation (BOCO) and the top of fresh rock (TOFR). • Within the mineralisation envelopes 44 bulk density values were used to determine an average bulk density of 2.53 t/m^3 for oxide material, 2.63 t/m^3 for transition material and 2.68 t/m^3 for fresh material. • The bulk density was assigned as a dry bulk density.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data,	• Mineral Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC, 2012 Edition). • The deposit has been tested with high quality drilling, sampling and assaying. Geological logging has defined structural and lithological controls that provide reasonable confidence in the interpretation

Criteria	JORC Code explanation	Commentary
	confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	of mineralisation boundaries. Haren considers that geological and mineralisation continuity has been assumed and demonstrated with sufficient confidence to allow the Millennium deposit to be classified as Inferred Mineral Resources. • The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• Internal audits have been completed which verified the technical inputs, methodology, parameters and results of the estimate.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The Millennium Mineral Resource estimates have been reported with degree of confidence commensurate with Inferred Mineral Resources. • The data quality is good and the drill holes have detailed logs produced by qualified geologists for all recent drilling. A recognised laboratory has been used for all analyses. • The Mineral Resource statement relates to global estimates of tonnes and grade. • No significant mechanised mining has occurred at the deposit.