30 November 2015

ASX ANNOUNCEMENT

AVALON MINERALS LTD

NEW D ZONE COPPER MINERAL RESOURCE ESTIMATE

UNDERPINS SCOPING STUDY

ASX: AVI

REGISTERED OFFICE

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Highlights

- **Avalon Minerals has completed a new Mineral Resource estimate for the D Zone copper deposit at Viscaria**
- **Key reportable components include:**
    - **Mineral Resource estimate of 11.14 Mt at 1.23% Cu for 137,200 tonnes of contained copper**
    - **High confidence levels with 93% of the Mineral Resource estimate in the Indicated classification**
- **This Mineral Resource estimate incorporates cut-off grades that are consistent with the requirement for reasonable expectation of development as either open pit or underground mining**
- **This work underpins the Viscaria copper-only Scoping Study due to be released in December**
- **Two holes, VDD 195 and 196, have been drilled outside of the area of this 2015 Mineral Resource estimate and both contain copper, indicating that further growth of the D Zone Mineral Resource estimate is to be expected with additional drilling in 2016**

Avalon Minerals Limited ('**Avalon**' or '**Company**') (**ASX: AVI**) is pleased to announce a new Mineral Resource estimate at Viscaria D Zone (Figures 1 and 2).

The Mineral Resource estimate is based on all historical drilling and on 8,000 m of diamond drilling that has been completed during late 2014 and 2015. The Mineral Resource is based on significantly improved geological interpretations and on completely new wireframing of interpreted copper zones.

The objectives of the 2015 drilling program were to define thicker and higher grade zones of copper mineralisation at depth, and outside of the historical area of mineral resources at D Zone. This strategy was based on the requirement to move the Viscaria project to a copper-only development scenario. The 2015 objectives were met. Figure 3 shows the limit of the drilling coverage used to estimate the 2014 D Zone mineral resource, and the drilling that has been completed during 2015. This recent drilling campaign has defined higher copper grade and thicker zones below the historical resource area.

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The Mineral Resource for D Zone is reported according to the guidelines outlined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012). Avalon commissioned Measured Group Pty Ltd, who are independent to Avalon, to undertake the Mineral Resource estimate. Measured Group visited the Viscaria Project in November 2015 and undertook a review of the D Zone geological database, geological interpretations, and QAQC protocols. Independent laboratory assay checks were also undertaken (Appendix Table 1).

The Mineral Resource estimate underpins the Viscaria copper-only Scoping Study, and differs from previous Mineral Resource estimates in that it:

1. focusses on a copper-only resource estimate and uses wireframed domains that model copper mineralised zones of varying types;
2. does not take into account any contribution from iron, as has been done in previous Mineral Resource estimates;
3. uses different cut-off grades to reflect an expectation of development by either open pit or underground mining.

As such it is not appropriate to directly compare this estimate to the previous Mineral Resource estimates that applied lower cut-off grades even though a portion of the mineralisation would most likely be developed by underground mining.

Table 1: Summary of D Zone Mineral Resource Estimate

Zone	Classification	Tonnes (Mt)	Cu (%)	Contained Cu (kt)
Open Pit	Indicated	3.11	0.81	25.2
	Inferred	0.01	0.32	0.02
	Sub Total	3.11	0.81	25.2
Underground	Indicated	7.26	1.37	99.8
	Inferred	0.78	1.57	12.2
	Sub Total	8.03	1.39	111.9
TOTAL	**Indicated**	**10.36**	**1.21**	**125.0**
	Inferred	**0.78**	**1.56**	**12.2**
	TOTAL	**11.14**	**1.23**	**137.2**

Geological wireframes have been defined to follow higher grade zones within the ironstone package. Higher grade copper areas and lower grade interbedded ironstone zones have been selectively defined. Geological wireframes have been extended into areas at depth and along strike as a result of the 2015 drilling program. This wireframing has produced better grade and geological continuity for geostatistics and variography, and allowed application of a larger search ellipsoid with increased confidence levels. Additional drilling in previously classified Inferred areas has delivered an increase in confidence levels.

The use of pit and stope optimisation exercises has supported interpretations of economic extraction levels at different cut-off grades. The overall reported grade has increased due to the selection of a higher cut-off grade, and improved definition of geological boundaries resulting in improved grade continuity in these zones.

The 2015 drilling campaign at D Zone was very successful in intersecting higher grade and thicker zones of copper mineralisation than had been previously intersected. For this Mineral Resource estimate copper mineralisation has been defined from surface to a depth of approximately 550 metres below surface. VDD 195 has been drilled post estimation of the mineral resource and has intersected significant copper mineralisation 80 metres below the lower limit of this Mineral Resource estimate.

The 2015 drilling focussed on the northern portion of D Zone. Recent drilling in the south of D Zone (VDD 196) indicates that areas of significant copper mineralisation are also expected outside of the area of the current mineral resource in this southern zone. Results from the recent drilling will be announced when assays are received and further drilling will be completed in 2016 to follow up on these areas.

The Mineral Resource estimate results are shown in Tables 1 and 2.

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Table 2: D Zone Mineral Resource Estimate Sub-categories

Sub-categories	Zone	Classification	Tonnes (Mt)	Cu (%)	Contained Cu (kt)
Oxide	Open Pit	Indicated	0.40	0.49	2.0
		TOTAL	**0.40**	**0.49**	**2.0**
Sulphide	Open Pit	Indicated	2.71	0.86	23.2
		Sub Total	2.71	0.86	23.2
	Underground	Indicated	7.26	1.37	99.8
		Inferred	0.78	1.57	12.2
		Sub Total	8.03	1.39	111.9
	Open Pit + Underground	Indicated	9.96	1.23	123.0
		Inferred	0.78	1.57	12.2
		TOTAL	**10.74**	**1.26**	**135.2**
Oxide + Sulphide	Open Pit	Indicated	3.11	0.81	25.2
		Inferred	0.01	0.32	0.02
		Sub Total	3.11	0.81	25.2
	Underground	Indicated	7.26	1.37	99.8
		Inferred	0.78	1.57	12.2
		Sub Total	8.03	1.39	111.9
	Open Pit + Underground	**Indicated**	**10.36**	**1.21**	**125.0**
		Inferred	**0.78**	**1.56**	**12.2**
		TOTAL	**11.14**	**1.23**	**137.2**

Note: In all tables, figures have been rounded to reflect accuracy and these may not sum exactly.

Figure 1: Location of the Viscaria Copper Project

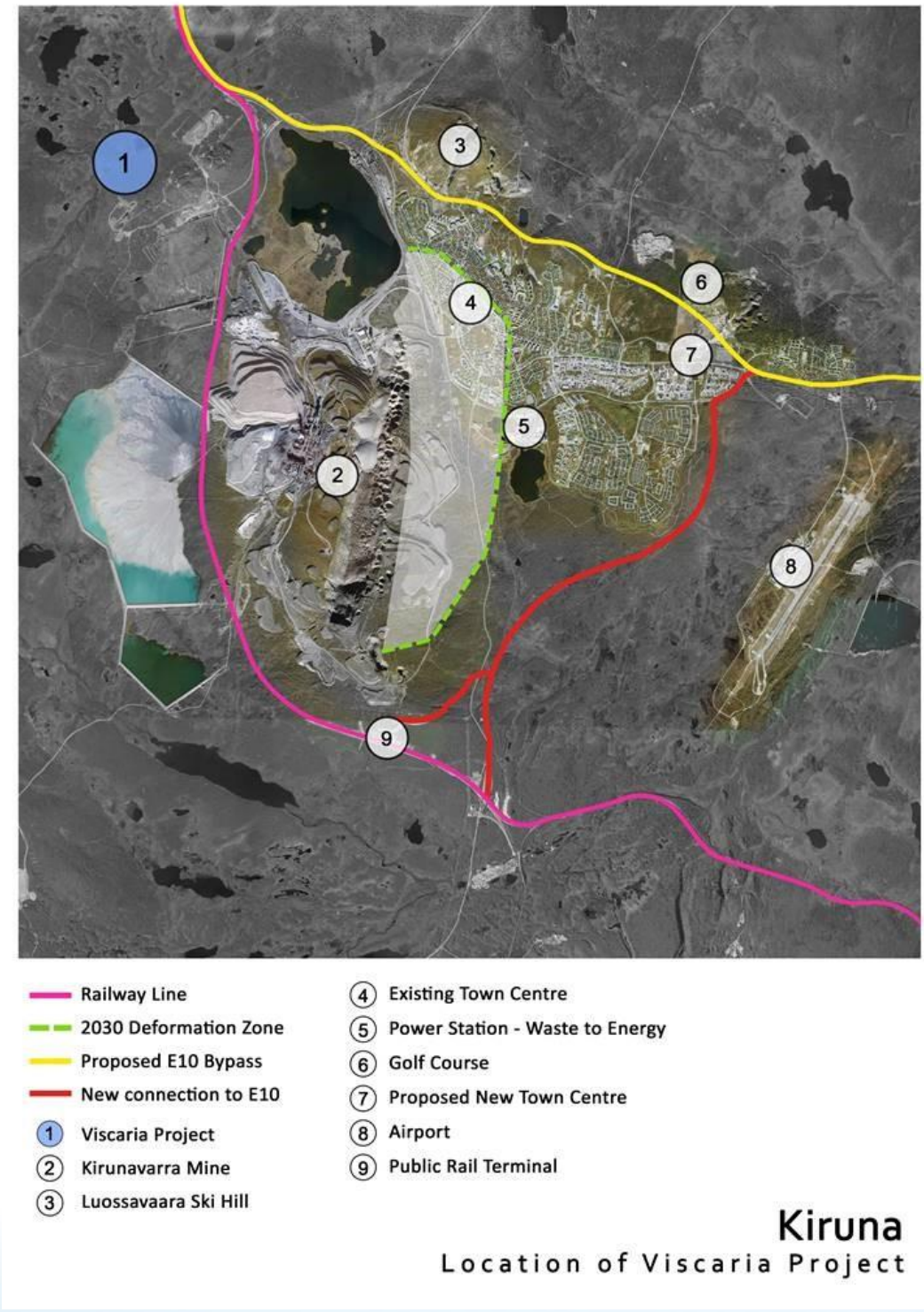


Figure 2: Location of D Zone at the Viscaria Copper Project

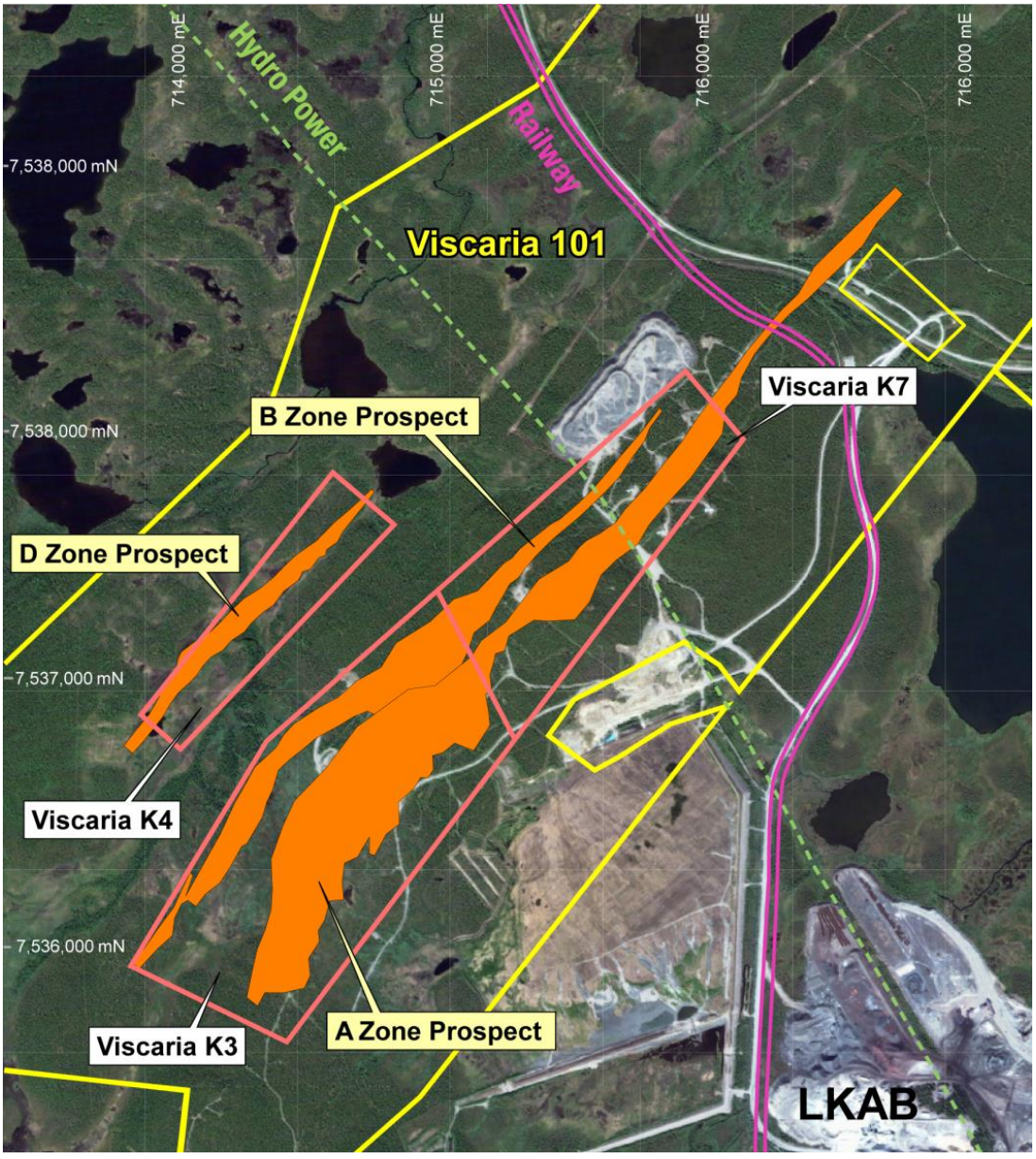
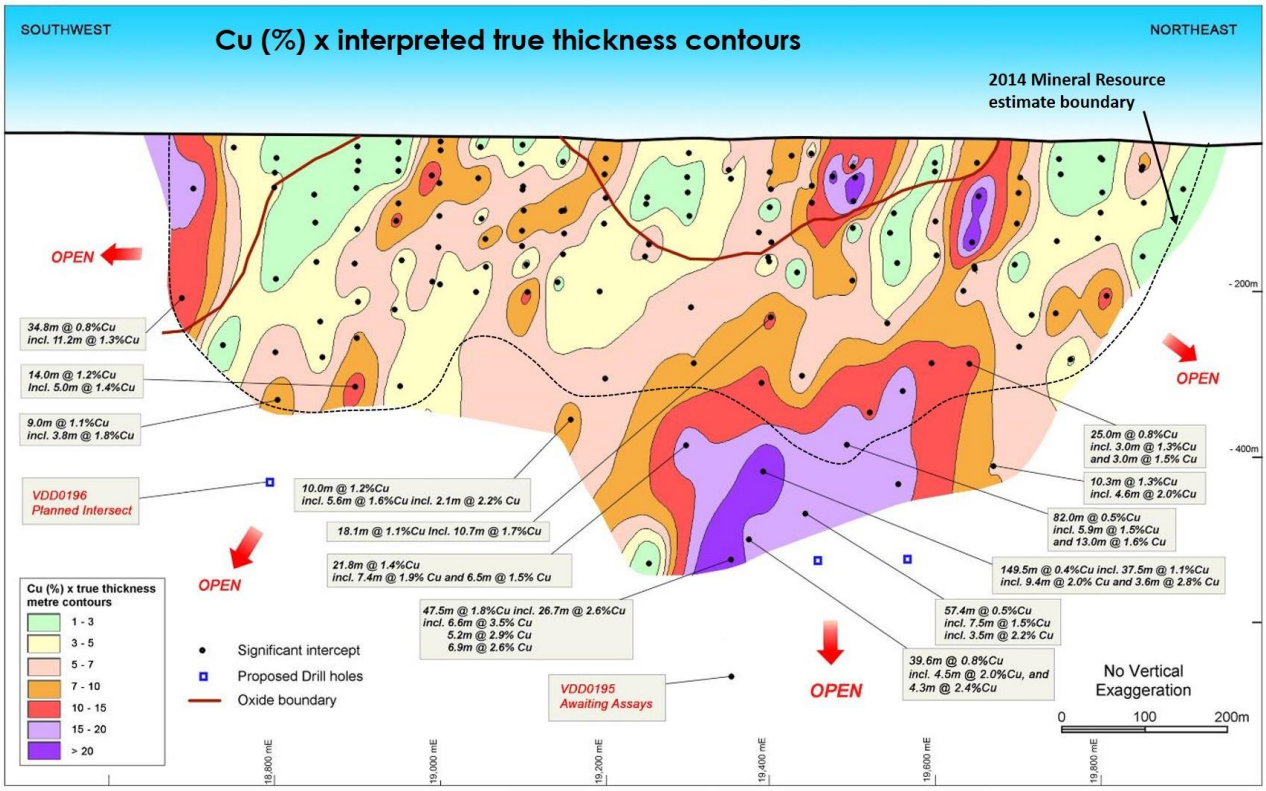


Figure 3: Schematic D Zone long section showing limit of 2014 Mineral Resource estimate (dashed black line) and drilling that has been completed in 2015



Drilling

206 diamond core boreholes sized at HQ (63.5 mm diameter) and NQ (47.6 mm diameter) and 29 non-core boreholes of various borehole diameters have been drilled within the D Zone project area. Diamond core boreholes were used as points of observations in the estimate, whilst non-core boreholes were used for geological interpretation.

Drilling during 2014 and 2015 was undertaken by Arctic Drilling Company Ltd. for holes VDD 180 to VDD 190, and then Oy Kati AB Kalajoki for holes VDD 191 to 196.

Geological Interpretation

Initial geological interpretations at D Zone were conducted on 25 paper cross-sections at 1: 2000 scale. These initial 2D interpretations of lithology domains, Base of Complete Oxidation ("BOCO") and Base of Partial Oxidation ("BOPO") were used to create wireframes in the 3D modelling software package Maptek Vulcan.

Lithology:

Eight lithological domains have been wireframed (Figure 4) and include:

Base of Till: Boundary between glacial till cover and basement. Base of till depth varies between 5-10m.

Western Basalt: Constitutes the Pikse Formation, a tholeiitic, basaltic lava flow sequence. This unit is fine grained, massive to weakly foliated and chlorite altered. Chlorite and calcite filled amygdules are common. Trace disseminations of sulphides are present and include chalcopyrite and pyrite. It has a sheared contact with the breccia to the east.

Breccia: Heterogeneous in character, the breccia has a fine grained, chlorite-biotite-hematite matrix proximal to the Western Basalt contact and progressively becomes more dolomitic closer to the Ironstone contact at depth. It is dominantly a matrix supported breccia with lithic fragments consisting of sub-angular to sub rounded clasts of basalt, talc and magnetite. The breccia is moderately sheared, sub-vertical, typically 2-10m in thickness and modelled substantially thicker closer to surface (up to 45m thick). Sporadically associated with this unit is an internal, 1-5m wide, magnetite-dolomite horizon containing minor disseminated chalcopyrite. The breccia directly abuts the Ironstone horizon at depth.

Central Dolerite: Fine to medium grained mafic intrusive that is wedged between the breccia and the Ironstone. This unit is up to 50m thick at surface and pinches out at depth.

Central South Shear: Modelled in the central south of the deposit between the Central Dolerite and the Ironstone. This unit manifests as a series of chlorite-carbonate shear zones in a mafic host rock.

Ironstone: The Ironstone unit is a structurally complex enveloping ore package. In the upper section of the deposit the unit is overturned and steeply dipping to the north-west. At depth, however, it is steeply dipping to the south east. This unit consists of a dolomite-magnetite host rock (magnetite typically > 20%) with disseminated chalcopyrite and lesser pyrite, and with strong tremolite and actinolite alteration. The ore package is disrupted by numerous doleritic sills that pinch and swell along strike. Chlorite – talc +/- biotite shear zones are spatially associated with the margins of the sills. It is also disrupted by internal marble units, variable in thickness, especially on the eastern margin of the ironstone package. Several copper ore lodes are recognisable within this package.

Eastern Marble: Dolomitic marble is sporadically present on the eastern margin of the Ironstone and varies in thickness from 1m to 40m. The marble is generally massive but can include narrow, talc- chlorite shear zones with associated minor disseminated chalcopyrite.

Tuff: Fine grained, strongly bedded, andesitic tuffaceous siltstone marks the eastern contact of the Ironstone or the Eastern Marble where present. Sub-economic, disseminated chalcopyrite mineralisation is evident proximal to the Ironstone – Tuff contact, and is often associated with magnetite-dolomite-tremolite-actinolite shear zones.

Oxidation:

BOPO and BOCO surfaces were first interpreted on paper cross-sections. The BOPO surface was interpreted below where lithological units were logged as being either *weakly, moderately or strongly* weathered. BOCO was interpreted where lithological units were logged as either *strongly* or *completely* weathered.

The BOCO surface is confined to the top 100m of the deposit and is poddy. The BOPO surface is also poddy but appears to follow structures that allowed penetration of oxidised surface water at depth. Importantly, these structures are primarily located in the breccia and have little impact on the oxidation of copper sulphide species within the ironstone unit at depth.

Copper Wireframing:

Three main copper ore lenses have been modelled: D1, D2 and D3 (Figure 5).

The D1 wireframe defines the eastern most lode and closest to the Tuff – Ironstone contact. It is predominantly a magnetite-dolomite horizon with tremolite and chlorite alteration, disrupted by chlorite-talc shears. Copper mineralisation (chalcopyrite) is present as disseminations or vein arrays. D1 is more consistent along strike and at depth than the D2 and D3 lodes and contains higher copper grades.

The D2 wireframe lies to the west of the D1 wireframe and is separated from D1 by a weakly copper mineralised magnetite-dolomite rock (copper mineralisation <0.5%) and a doleritic sill. D2 copper mineralisation is also found in a magnetite-dolomite horizon with tremolite and chlorite alteration, disrupted by chlorite-talc shears.

The D3 wireframe defines the western most lode and is separated from the D2 wireframe by a weakly copper mineralised magnetite-dolomite rock (copper mineralisation <0.5%) and multiple dolerite sills. It is thought to be controlled by the breccia and although current modelling suggests the Central Dolerite truncates this horizon, D3 may continue up dip, positioned between the Breccia and the Central Dolerite.

Figure 4: Generalised cross-section showing geology of D Zone

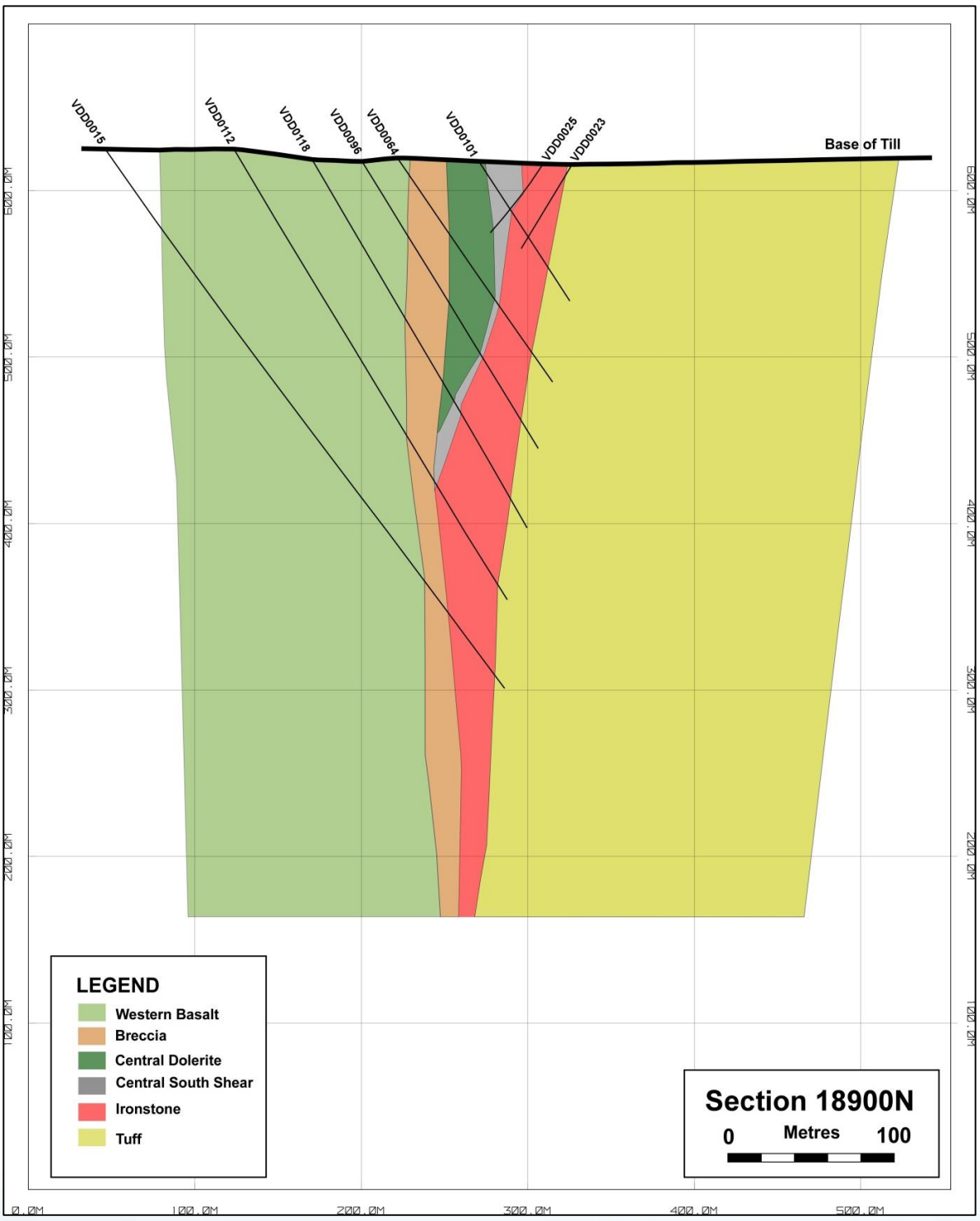


Figure 5: Generalised cross-section showing copper zones at D Zone

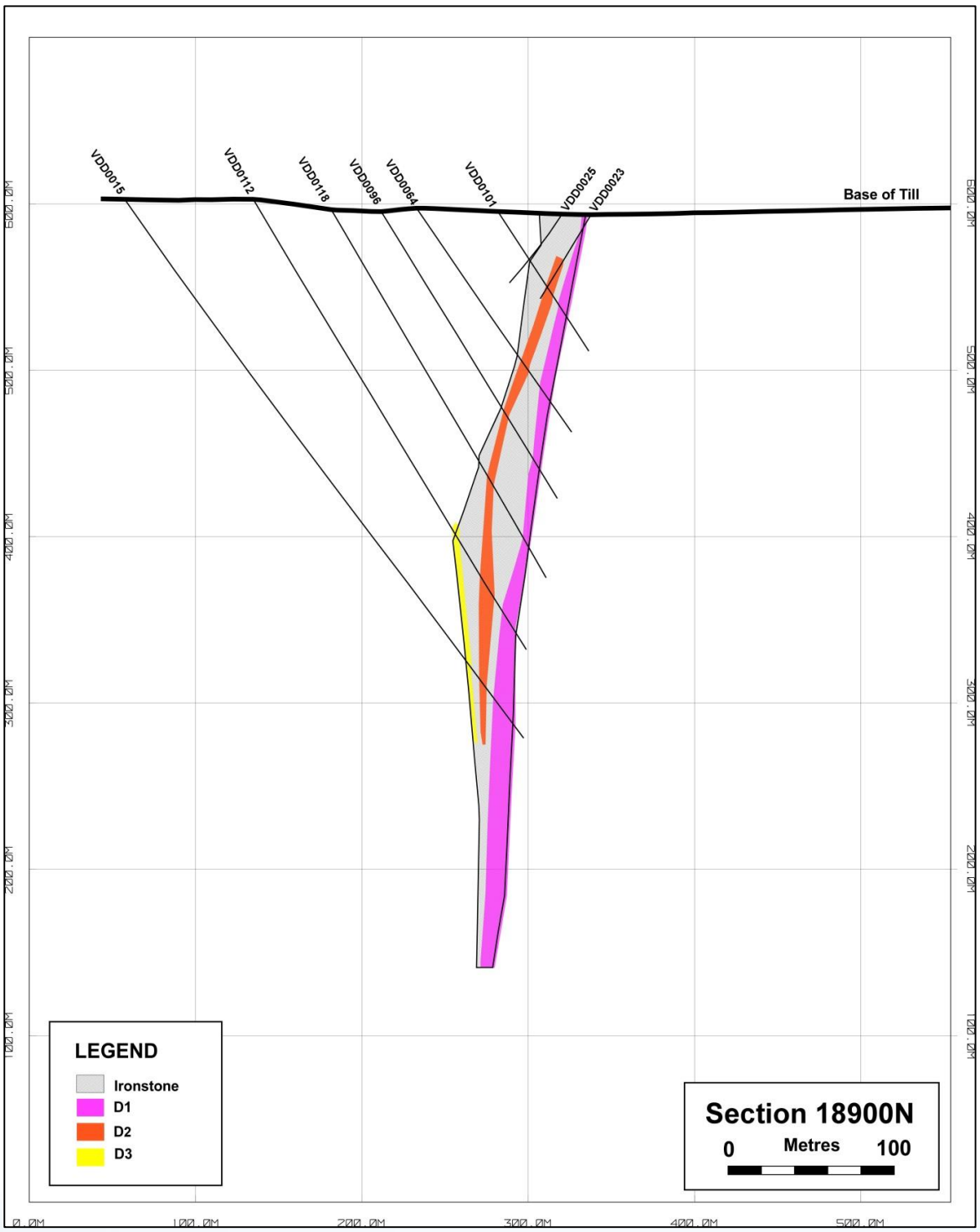


Figure 6: Plan view of the D Zone orebody showing location of cross sections presented in Figures 7 and 8

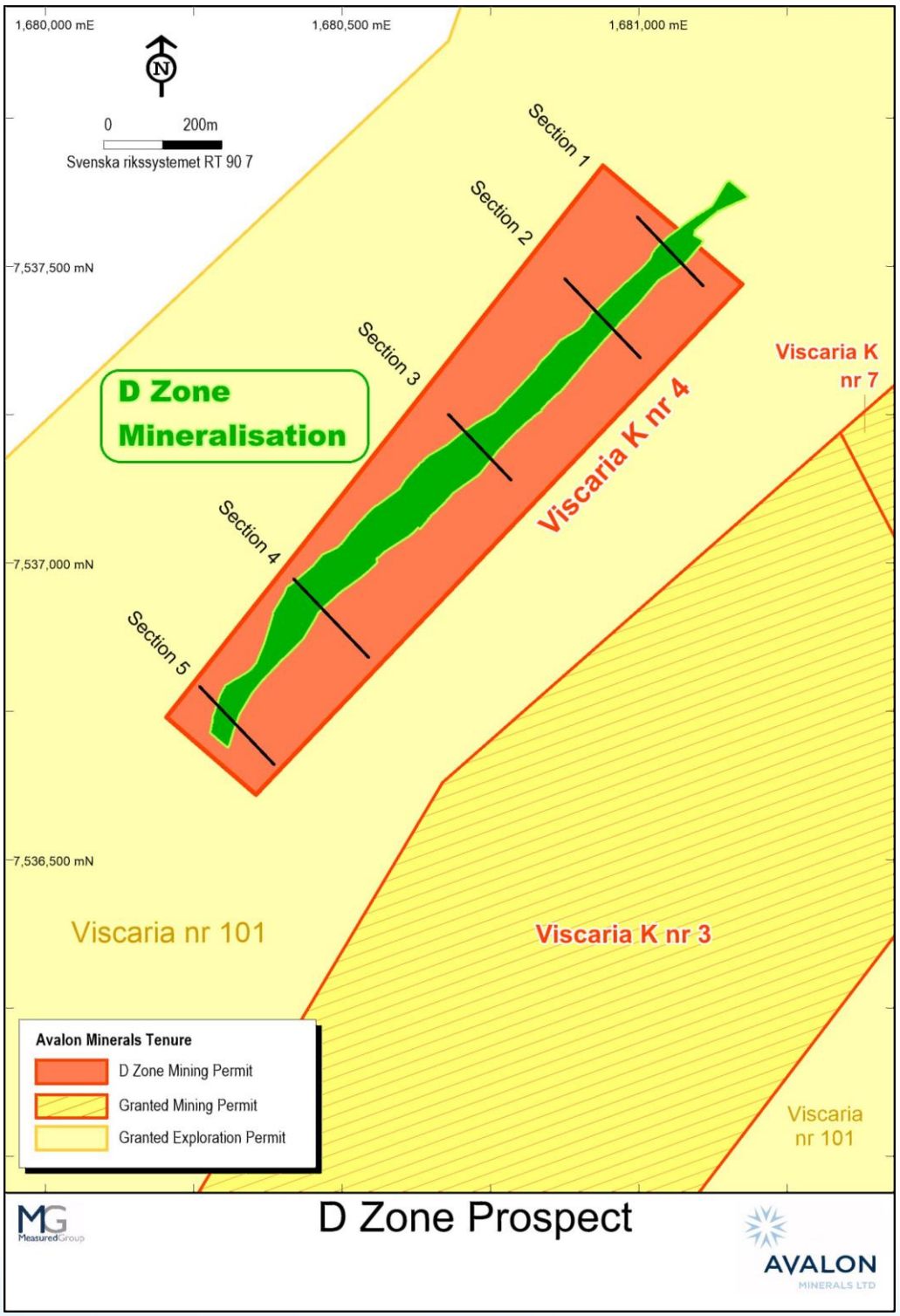


Figure 7: Cross sections through D Zone orebody

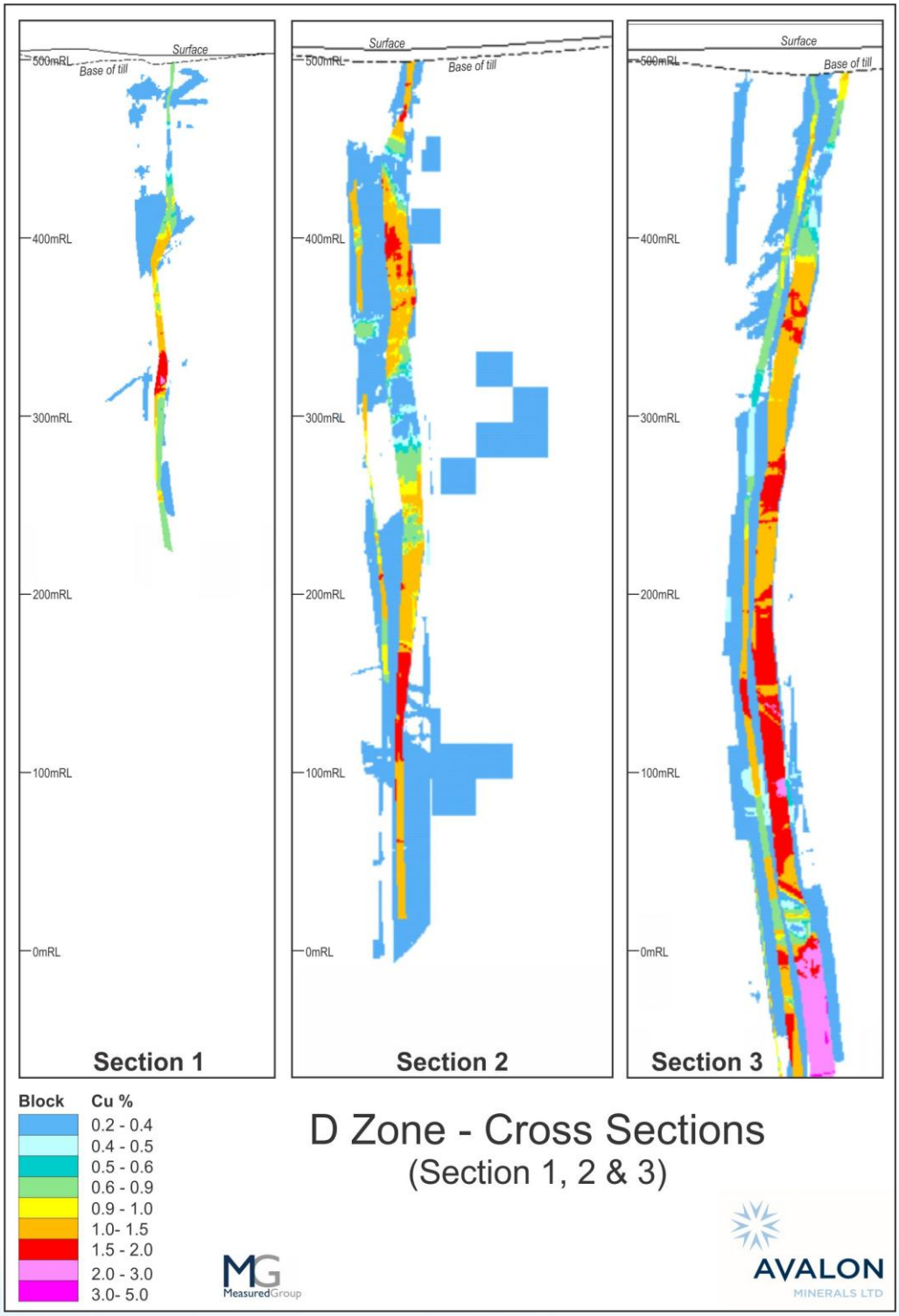
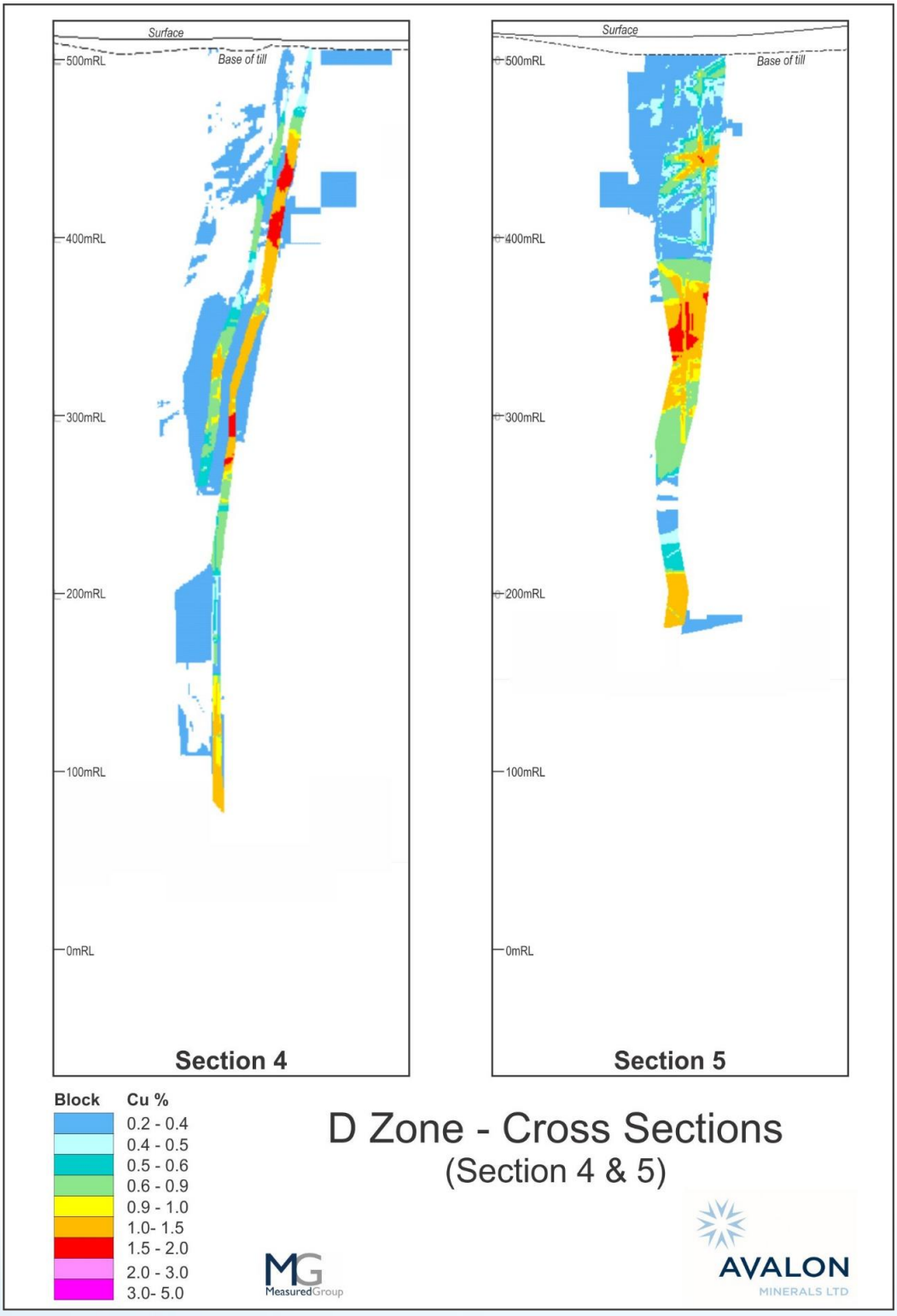


Figure 7: Cross sections through D Zone orebody



Competent Persons Statement

The information in this report that relates to exploration results is based upon information reviewed by Mr Malcolm Norris who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Norris is a full-time employee of Avalon Minerals Ltd and 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 Norris consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the D Zone Mineral Resource estimate is based on the information compiled by Chris Grove who is a Member of the Australasian Institute of Mining and Metallurgy and is a full time employee of Measured Group Pty Ltd. Measured Group is an independent mining consultancy who have been engaged by Avalon Minerals Limited to perform geological consulting on a fee for service basis. Mr Grove has sufficient experience that is relevant to the style of mineralisation being considered and to the activity being undertaken 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 Grove consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

For further information please visit www.avalonminerals.com.au or contact:

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APPENDIX: JORC CODE, 2012 EDITION – TABLE 1

Section 1: Sampling Techniques and Data

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.*	• Viscaria Copper Project D Zone mineralisation has been sampled using diamond drill core methods. • Core samples were generally taken at 1 metre intervals (except where adjusted to geological boundaries) after geological and geotechnical logging and photography. Core was aligned prior to splitting in half and sampled as required. • As a rule, no sampling occurred across obvious geological boundaries (sample lengths of between 0.4 m and 1.4 m were permitted at geological boundaries). • Mineralised zones were determined based on detailed geological logging, sampling and assay results.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• 206 diamond core boreholes sized at HQ (63.5 mm diameter) and NQ (47.6 mm diameter) and 29 non-core boreholes of various borehole diameters have been drilled within the project area. • Diamond core boreholes were used as points of observations in the estimate, whilst non-core boreholes were used for geological interpretation.
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.*	• Ground conditions within the D Zone area are generally stable and as a result, no extra measures have been implemented to maximise sample recovery. • Each core run has been logged to measure and record core recovery, geology and geotechnical data using digital logging software. • Core recovery data has been reviewed and assessed for representivity, with the majority of recoveries being accepted as representative for sampling and analysis. • Generally, core recovery is between 95% and 100%. • No relationship between sample recovery and grade has been established

Criteria	JORC Code explanation	Commentary
		as there is generally full sample recovery.
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 available core has been geologically logged for lithology, weathering, structure, mineralogy, mineralisation, colour and other features. In addition, core has been geotechnically logged for rock properties and/or characteristics, including Rock Quality Data (RQD), defect logging and measurement. • Core photography has been completed on all the recent drilling undertaken by Avalon Minerals (both wet and dry). • Specific gravity (rock density) determinations were conducted by trained Avalon Minerals personnel using the weight in air/water technique. • Logging and sampling was completed by trained, competent geologists in accordance with Avalon Minerals' internal protocols and QA/QC procedures. • Logging is qualitative in nature and is to a sufficient level of detail to support the definition of geological domains appropriate to support Mineral Resource estimation and classification.
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.*	• Diamond drill core was sawn longitudinally and split in half for sampling using a Corewise Automatic Core Saw. Sample interval boundaries and sample numbers are marked on core boxes at the relevant position along the drill core. • Samples were bagged and identified with individual sample numbers (and other relevant details) and transported via courier to ALS, Piteå using Avalon Minerals' chain of custody procedure. • Sample preparation procedures are appropriate, with ALS preparing samples by crushing to < 2 mm, splitting using a riffle splitter, then pulverising to <75 µ to achieve a 250 g sample mass that is sub-sampled for analysis. • A series of certified reference materials (standards), blank samples as well as the submission of duplicate core samples have been inserted into the sampling programme. The frequency of analysis of blanks and standards has been approximately 1 standard and 1 blank sample in 20 samples. A duplicate core sample is submitted for analysis at a frequency of 1 in every 20 samples, with both samples in a duplicate pair being quarter core. • Sample sizes have varied according to the length of core sample taken as determined by geological logging. Sample lengths are appropriate for the intersected mineralisation and minimum core diameters are greater

Criteria	JORC Code explanation	Commentary
		than the maximum mineralisation crystal size.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc. the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Avalon Minerals has used the following assay test methods: ME-ICP61, ME-ICP81/ME-ICP81x and CU-OG62 to determine Copper grades. ME-ICP61 and CU-OG62 uses a 4-acid digest near-total methods) whilst ME-ICP81 and ME-ICP81x uses sodium peroxide fusion (total methods). • Each test uses a different methodology and has the following detection limits: ▪ ME-ICP61: 0.0001% to 1%. ▪ ME-ICP81(x): 0.01% to 50%. ▪ CU-OG62: 0.01% to 40%. • Avalon Minerals inserts standards and blanks into the sampling programme and monitors QA/QC on a batch-by-batch basis. • The Competent Person requested umpire assays be undertaken on 246 samples taken from locations across the project area and from different drilling campaigns. The results of the umpire assays have been received and the results indicate a slight bias to higher copper grades in the check laboratory samples. The bias is being further investigated.
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.*	• The Competent Person visited the Viscaria project facilities and selected drill sites to review drilling, logging, photography, core splitting, sampling, sample preparation and assay procedures and results, including significant intersections. • Avalon Minerals Senior Management regularly review sampling and assay results, including significant intersections. • No twinned boreholes have been drilled. • Avalon Minerals operational and QA/QC standards, procedures and protocols are consistent with, or exceed industry standards. These cover all aspects of data capture, data management, storage and transfer. • Primary data is stored (where possible) in its source electronic form. Assay data is retained in both the original certificate (.pdf) form, where available, and the text files received from the laboratory. • All data is loaded into Avalon Minerals' acQuire database and transferred to geology and resource databases as required via documented standard operating procedures and guided import validations to prevent incorrect or invalid data transfer. • No assay data has been adjusted.

Criteria	JORC Code explanation	Commentary
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.*	• Borehole collar co-ordinates have been surveyed using Differential GPS in the Swedish co-ordinate system RT90 2.5 gon vast (which is situated 4.01° to the east of True North) to a decimetre level of accuracy. • Collar surveys have been completed by a qualified and competent local contract surveying company that has had a long engagement with Avalon Minerals. Survey equipment is well maintained and regularly calibrated and checked for accuracy. • Re-survey and checks of historical borehole collars have been completed where possible and no material issues have been identified. • Regular downhole surveys are conducted using a Reflex Gyro tool that measures borehole dip and azimuth. These measurements are recorded in borehole databases and used to control borehole orientation in geological models. • The topographic surface was derived from LIDAR data (airborne laser scanning) purchased from Lantmateriet (the Swedish mapping, cadastral and land registration authority). Data resolution is specified as accurate to 20 cm for elevation and 60 cm in the horizontal. The LIDAR topographic surface has been verified by Differential GPS collar surveys. • The level of accuracy of the LIDAR topographic surface is considered adequate for the purposes of resource estimation.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The mineralisation was drilled from surface predominantly on a nominal northwest-southeast 50 m sections, however areas of wider drill spacing do exist. • Data distribution in the resource area is sufficient to support geological interpretation and grade continuity for the purposes of generating a Mineral Resource estimate and resource classification. • No sample compositing has been applied prior to resource modelling.
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.*	• Boreholes are generally collared at dips of between 45° and 60°. The mineralised zones generally dip at between vertical and 85° and therefore drilling generally intersects mineralisation at between 30° and 45°. • All boreholes used to support the resource estimate have down hole survey data recorded at an average of 6 m intervals, which provides acceptable down hole control on borehole orientation and consequently the location of mineralised zones and samples. • The relationship between the orientation of drilling and mineralised zones is not considered to have introduced a sampling bias or adversely

Criteria	JORC Code explanation	Commentary
		affect the resource estimate.
Sample security	• *The measures taken to ensure sample security.*	• Samples were bagged and identified with individual sample numbers (and other relevant details) and transported from the Viscaria site facilities via courier to ALS, Piteå using Avalon Minerals' chain of custody procedure. • Core samples were prepared by ALS, Piteå and sample analysis was conducted at ALS laboratories outside of Sweden, with pulps transported and managed via ALS inter-lab transfer protocols.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Avalon Minerals' logging, sampling, sample preparation, data and data management processes have been audited and reviewed by the Competent Person, who concluded that the processes are acceptable and suitable for the purposes of reporting in accordance with JORC, 2012. • All historical data has been validated and migrated into a database and this data has been checked and validated by the Competent Person. Errors and/or material data issues were resolved by either fixing the issue or excluding it.

Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The following tenements contain the D Zone mineralisation and are held by Avalon Minerals Viscaria AB, a wholly owned subsidiary of Avalon Minerals Ltd: ▪ Viscaria K nr 4 Mining Permit (Exploitation Concession - Licence ID 30.0319), which expires on 16 January 2037. ▪ Viscaria nr 101 Exploration Permit has been renewed until 16th October 2017. • Avalon Minerals has not identified any material impediments to developing and exploiting the D Zone mineralisation.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historic drilling at the D Zone prospect was completed by Viscaria AB (owned by Outokumpu OY) between 1985 and 1997.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The D Zone deposit is interpreted to be either a volcanic hosted massive sulphide-type (VHMS) ore system or an iron oxide copper gold-type (IOCG) ore system.

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		• The deposit has subsequently been strongly attenuated by shearing associated with a lower amphibolite facies metamorphic event. • Subsequent to the lower amphibolite facies metamorphism and associated deformation, these rocks have been overprinted by locally constrained shear zones displaying retrograde, greenschist metamorphic mineralogy (chlorite, epidote, actinolite and talc).

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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Avalon Minerals' has previously released exploration results via regular reports and company updates for all material boreholes, including location and total depth of boreholes, down hole intercept lengths, depths and grades.
		• No D Zone exploration results have been reported in the accompanying release, therefore there is no drill hole information to report. This section is not relevant to this Mineral Resource estimate.

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.*	• No D Zone exploration results have been reported in the accompanying release, therefore there are no drill hole intercepts to report. This section is not relevant to this Mineral Resource estimate.
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').*	• No D Zone exploration results have been reported in the accompanying release, therefore there are no relationships between mineralisation widths and intercept lengths to report. This section is not relevant to this Mineral Resource estimate.

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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.*	• Figures 3 to 8 contained in the accompanying release show the location of boreholes and selected cross-sections through the resource.
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.*	• No D Zone exploration has been reported in this release, therefore there are no results to report. This section is not relevant to this Mineral Resource estimate.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• No D Zone exploration has been reported in the accompanying release, therefore there are no results to report. This section is not relevant to this Mineral Resource estimate.
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.*	• Further drilling campaigns in 2016 will delineate the D Zone orebody to the south and at depth in the central area. In addition, further infill drilling will improve confidence levels and aims to achieve higher resource classifications.

Section 3: Estimation and Reporting of Mineral Resources

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.*	• The Viscaria Project maintains an acQuire database to manage all borehole data. • Data is logged directly into the database utilising established transfer protocols on portable computers. • Validation checks are written into the acQuire database, which are activated to ensure that data is valid and loaded correctly. • Read/write privileges for primary tables in the database are limited to mine geologists and user profiles are in place to restrict access to data as appropriate. • The acQuire database is backup up on a regular basis, with roll-back procedures in place. In addition, change logs are retained to ensure data integrity.

Criteria	JORC Code explanation	Commentary
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.*	• The Competent Person visited the Viscaria Project site facilities in October 2015. The purpose of the site visit was to: ▪ review drilling and sampling practices, logging and interpretation by on-site geologists; ▪ gain knowledge of and verify site and local geology; ▪ verify the security and storage of drill core and samples; ▪ verify sampling and analysis QA/QC methods; • The information and knowledge acquired, as well as the techniques, protocols and procedures observed during the site visit provided confidence that the geological assessment of D-Zone meets or exceeds industry standards.
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.*	• Geological setting and interpretation of the mineralisation of D-Zone have been confidently established from borehole logging, sampling, analysis and geological mapping. • All available data has been used to develop a robust three-dimensional (3D) model of major geological units that host the mineralisation. • High grade copper mineralisation consists of 4 separate zones striking approximately 50 degrees and dipping at between 80º and 90º. • The limits of the mineralisation have not been completely defined and are open at depth and along strike to the north and south. • There is high level of understanding of the local geology and controls on mineralisation; and therefore a high level of confidence in the geological interpretation and 3D models. • As a result, alternative interpretations are not required.
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 mineralisation consists of 4 separate zones striking approximately 50º and dipping between 80º and 90º to the NW. • The mineralisation is approximately 90 m wide, 1.3 km along strike and up to 600 m deep. • The limits of mineralisation has not been completely defined and is open at depth and along strike (currently limited to half the drill hole spacing past the last line of drilling to the northeast, southwest and at depth).
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*	• Statistical analysis, variography, modelling and resource estimation and classification was undertaken by the Competent Person using standard tools in Maptek's Vulcan V9 modelling software. • A review of statistics and spatial distribution of sample lengths was undertaken across the resource area to understand the optimum length

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	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.*	for sample composites. As a result, a sample composite length of one metre was used. • Statistical analysis was undertaken for each domain to ascertain the distribution of grade and examine whether any extreme values or outliers existed. Grade capping was not required to be enforced. • Variograms were attempted and completed for all domains for Copper only and Ordinary Kriging (OK) estimation was favoured for all domains. • Block sizes were set as follows: ▪ Parent block sizes were 20 m x 20 m x 20 m in all of the host (or waste) rock types bearing little to no Copper grade. ▪ Sub-blocking against lithological boundaries used 0.5 m x 0.5 m x 0.5 m block size. ▪ Within the mineralised zones, the maximum block size was set to 1 m x 1 m x 1 m, to restrict grade estimation to the composited sample sizes, so as to reflect actual data and not dilute or overestimate grade. • Sample searches were generally aligned with geological orientation of domains, with consideration taken of the relevant directional variograms for each domain. • Estimation domain boundaries relate to mineralised zones and consequently were used as hard estimation boundaries. • Estimates and calculations were validated visually and interrogated to ensure: ▪ Blocks contained all required variables, block sizes and default codes were correctly applied to blocks and that all codes were represented. ▪ Domain variables were correctly assigned according to priority order within defined triangulations. ▪ Code allocation within overlapping areas to ensure proper priority order was applied. ▪ Sub-blocking was applied correctly and provided reasonable definition of triangulations. ▪ Blocks did not leak from a domain due to triangulation errors such as openings, crossing or inconsistency. ▪ Comparison of domain wireframe volumes to block model domain volumes to ensure block parent and sub-block size was appropriate. • The D-Zone Mineral Resource estimate was compared to the

Criteria	JORC Code explanation	Commentary
		previously published estimate of May 2015 and was found to be comparable, when taking into account differences in cut-off grades and the increase in the number of boreholes drilled since the release of that estimate.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages were estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The cut-off grade used in the estimate was 0.2% Cu for open-pit areas and 0.9% Cu for underground operations. • The cut-off grades and the areas defined for open-pit and underground extraction methods were determined by mining optimisation work.
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.*	• Open-pit and underground optimisations were completed applying modifying factors and financial inputs to determine the optimum transition from open-pit to underground extraction of the resource in accordance with the "…reasonable prospects for eventual economic extraction." clause in JORC, 2012. • Parameters were provided by Avalon Minerals and included costs for mining and non-mining, slope angles, processing recoveries, loss and dilution, discount rates, capacities and selling costs.
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 not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• No metallurgical factors were used to determine the Mineral Resource estimate. • The dominant copper mineral is chalcopyrite • Several metallurgical test work programs have been completed at independent laboratories confirming that the mineralogy is amenable to standard flotation processing.
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.*	• The Viscaria Copper project lies within an area of National Interest for Mining with a clear legislative path for environmental permitting. • While D Zone has not previously been mined, Outokumpu Oy conducted open pit and underground operations 700m away at A Zone.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the*	• Bulk density was determined from continuous measurements within

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	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.*	the different mineralised zones and geological domains. • 5877 density measurements have been tested using air-dried core samples weighed in air and water. • Measurements have been recorded and density values determined for each block and by domain. • The determination of bulk density estimates is adequate for the estimate.
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, 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.*	• The Mineral Resource has been classified into Indicated and Inferred based on and accounting for all relevant factors, including but not limited to the following: ▪ Borehole type, data quality and associated QA/QC. ▪ Geological, mineralisation and grade continuity. • Two methods were used to determine the optimal drill spacing for Mineral Resource classification in D-Zone: ▪ Variogram method which analyses proportions of the sill. ▪ Estimation variance method. • Due to the orientation of the mineralisation, boreholes have been drilled on drill lines spaced at between 25 m and 100 m along strike. • Step-off holes were drilled along the lines at various spacing when noteworthy mineralisation was intercepted and were drilled at different azimuths so as to intersect mineralisation at different angles and from both east and west of mineralised zones. • Borehole spatial distribution is sufficient to establish geological and grade continuity to a sufficiently appropriate level for Mineral Resource estimation and classification and the results appropriately reflect the Competent Person's view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No external audits or review have been undertaken of the current Mineral Resource estimate. • An internal peer review of modelling and estimation methods, assumptions and results has been conducted by Measured Group.
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*	• Confidence in the relative accuracy of the estimates is reflected in the classification of estimates as Indicated and Inferred. • Variography was completed for copper only. • The variogram models were generally interpreted as being isotropic in the plane with shorter ranges perpendicular to the plane of maximum continuity.

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	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.*	• Validation checks have been completed on raw data, composited data, model data and Resource Estimates. • The model is checked to ensure it honours the validated data and no obvious anomalies exist which are not geologically sound. • The lithological zones are based on actual intersections. These intersections are checked against the drill hole data. Field geologist picks and laboratory sample data have been independently checked by the competent person. The picks are sound and suitable to be used in the modelling and estimation process. • At the final drill hole intercept, the lithological zones were created half the distance from the previous intersection unless there was evidence that no lithology was intercepted. • There has been no production from this deposit to reconcile against this resource estimate. • Further drilling also needs be completed to improve Resource classification to higher levels. • Metallurgy is assumed to be representative.