

# WIDE COPPER INTERSECTIONS & HIGH PRIORITY TARGETS DEFINED AT YAMARNA

## HIGHLIGHTS

- Thick, shallow copper mineralisation intersected from a seven-hole (1,550m) RC drilling program at the Company's Mt Venn copper-nickel-cobalt project
- Significant new intersections at Mt Venn include:
  - 18m @ 0.48% Cu, 0.12% Ni, 340ppm Co from 142m in YARC021
  - 13m @ 0.46% Cu, 0.11% Ni from 179m including 1m @ 1.27% Cu from 191 in YARC023
  - 17m @ 0.26% Cu from 132m in YARC017
- All holes intersected copper mineralisation at targeted depths, confirming and extending the interpretation of the mineralisation to the north, south and down dip of the current sections
- Moving loop electromagnetic (MLEM) survey completed over the high priority Minjina base metals target located 1km north of Mt Venn, and associated with widespread surface copper anomalism, where historical hole 17MVRC004 intersected<sup>1</sup>:
  - 12m @ 0.8% Zn, 3.3g/t Ag & 0.16% Pb from 48m including 2m @ 2.13% Zn, 3.56g/t Ag & 0.39% Pb from 58m
- The Minjina MLEM survey covered a shallow, untested off-hole conductor identified by the Company's August downhole EM (DHEM) survey. Processed MLEM data are with the Company's geophysicists for modelling with results expected in coming weeks.
- RC drilling is planned to commence later this month to test Minjina and other high priority regional targets interpreted from the MLEM

Cosmo's Managing Director, James Merrillees commented:

*"The latest intersections at Mt Venn continue to support our interpretation that Cosmo's Yamarna projects host a significant mineralised system with potential for economic base metals deposits. We've now encountered thick, shallow, and continuous copper mineralisation in the three programs drilled at Mt Venn in 2022, and the identification of the Minjina prospect, a new 'blind' target less than 1km to the north of Mt Venn, supports our view of the region's prospectivity, particularly when looked at with 'new eyes'.*

*Ongoing review of the recently completed MLEM survey is expected to yield further targets and with an RC rig on the horizon we're looking forward to testing these and the Minjina target in the coming weeks."*

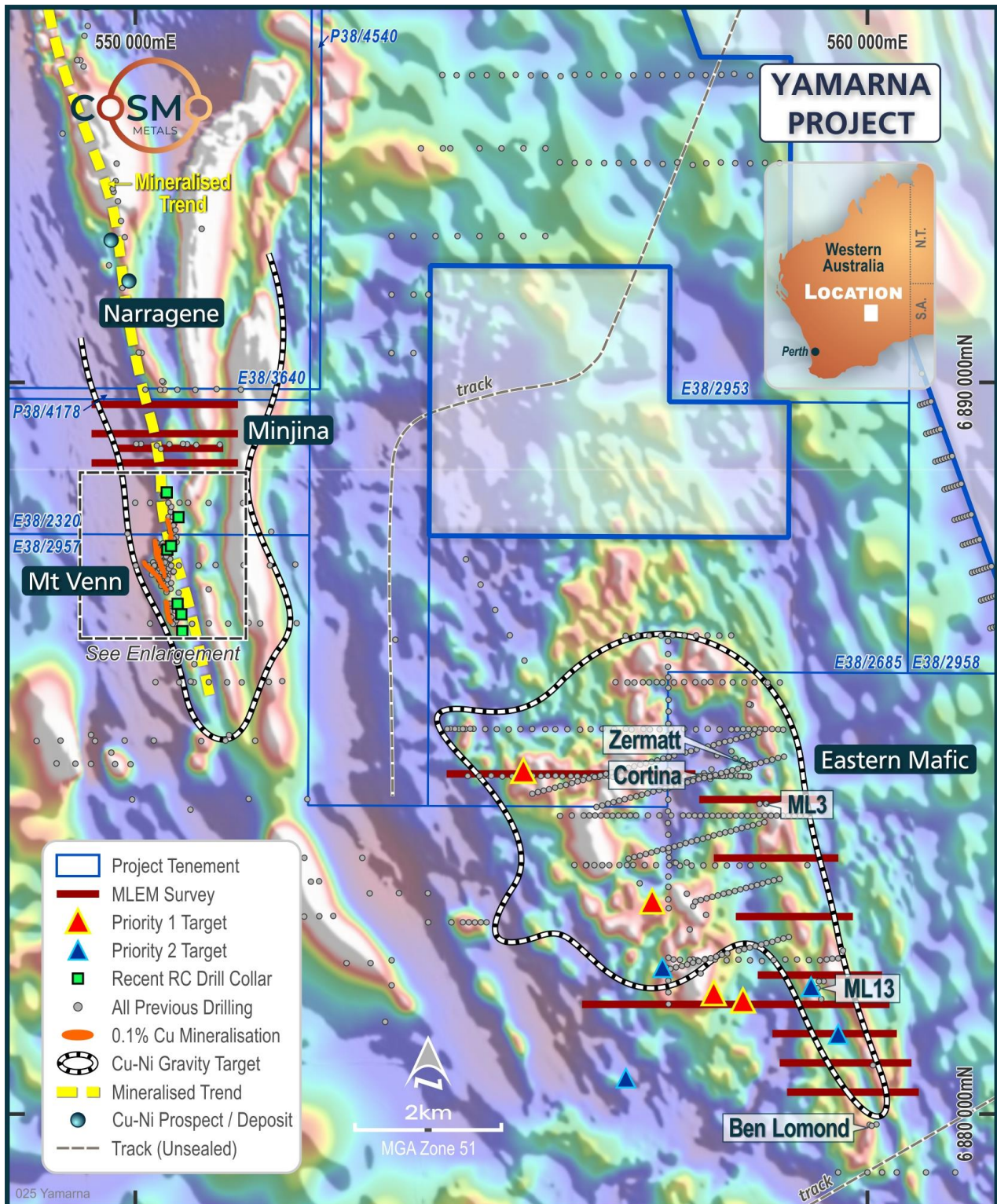
<sup>1</sup> Refer GBR ASX Announcement 16/12/2019 and Independent Geologist's Report in CMO's Prospectus 22/11/2021

### Cosmo Metals

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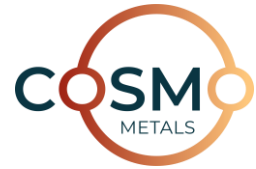
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Shares on Issue: 50.5M  
Market Cap: \$8.1 (at \$0.16)  
Cash: \$2.1M (at Sep 30 2022)



**Figure 1:** Cosmo Metals' Yamarna Project, Eastern Goldfields Western Australia. Location of recently completed drill holes, MLEM survey and prospects on regional airborne magnetic imagery (RTP TMI).





## RC DRILLING - MT VENN (Cu-Ni-Co)

Cosmo Metals Ltd ("Cosmo" or the "Company") (ASX: CMO) is pleased to announce results from a seven-hole (1,550m) RC drilling program at the Company's Yamarna Cu-Ni-Co project east of Laverton in the Eastern Goldfields of Western Australia. The program was designed to extend and infill copper-rich sulphide mineralisation hosted within gabbroic rocks of the Mt Venn Igneous Complex (*refer Figures 1 & 2*).

All holes drilled in the program intersected significant (>0.15%) copper mineralisation at targeted depths, with mineralised intervals comprising disseminated to massive and semi-massive sulphides (pyrrhotite>>chalcopyrite) hosted within a mafic (gabbro) to ultramafic (pyroxenite) unit adjacent to the contact with felsic-intermediate volcanics and volcaniclastics.

A brief description of the targets and results are presented in Table 1 with selected new intersections at Mt Venn including (*refer Appendix A for details of all collar and significant intervals*):

### YARC017

- 17m @ 0.26% Cu from 132m

### YARC018

- 2m @ 0.38% Cu from 195m and
- 1m @ 0.19% Cu, 0.29%Ni, 558ppm Co from 229m

### YARC020

- 4m @ 0.23% Cu from 54m and
- 4m @ 0.17% Cu from 74m and
- 3m @ 0.26% Cu, 0.21%Ni, 463ppm Co from 97m

### YARC021 (*refer Figure 3*)

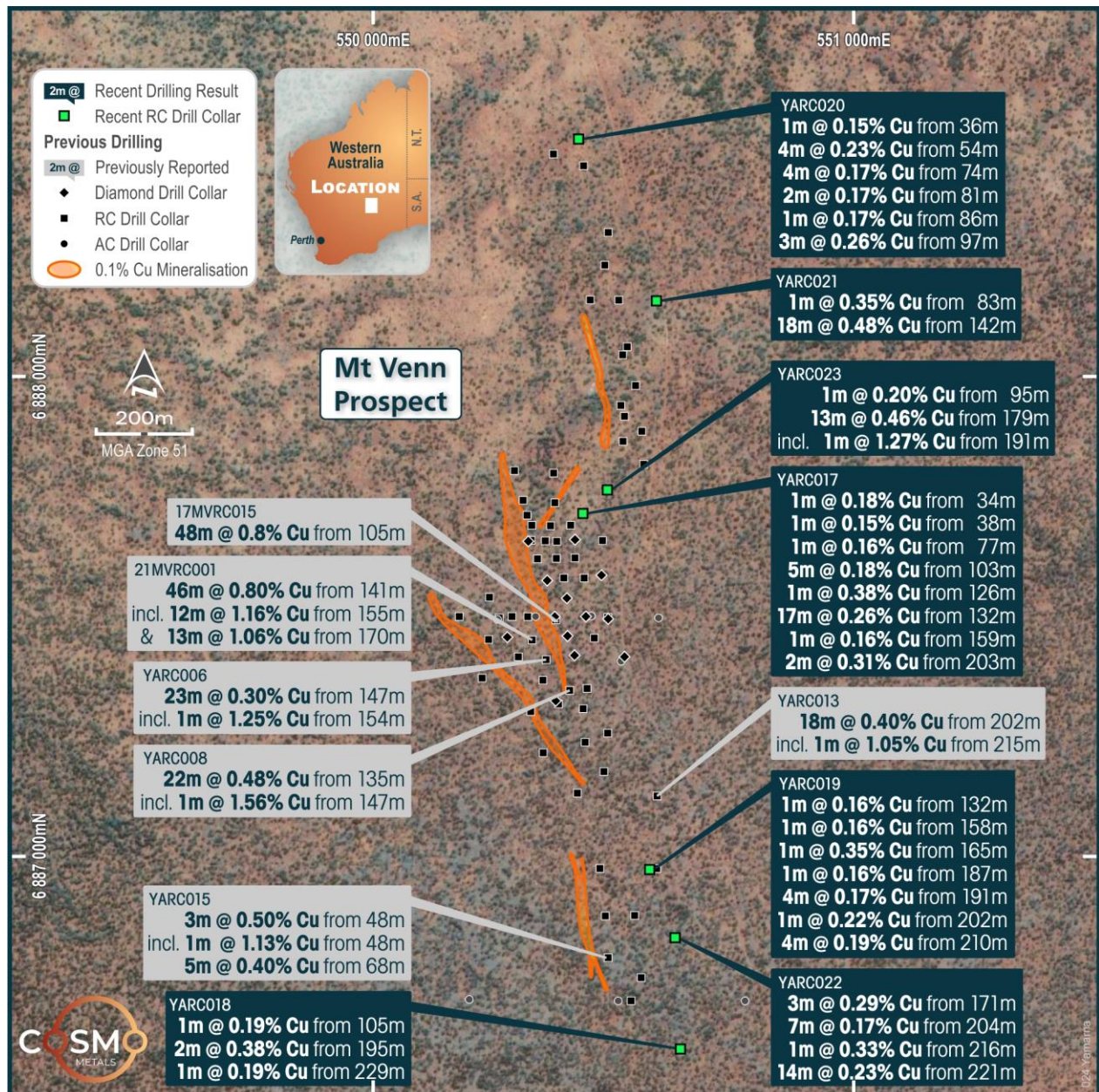
- 18m @ 0.48% Cu, 0.12% Ni, 340ppm Co from 142m

### YARC022

- 14m @ 0.23% Cu from 221m

### YARC023 (*refer Figure 4*)

- 13m @ 0.46% Cu, 0.11% Ni from 179m *including*
  - 1m @ 1.27% Cu from 191



**Figure 2:** Cosmo Metals' Mt Venn Project. August-September 2022 RC drilling including selected historical drill intersection on aerial photo background. For details of historical intersections, including JORC Table 1, refer CMO ASX Announcement 20 June 2022 and Independent Geologist's Report within Cosmo Metals' Prospectus dated 22 November 2021<sup>1</sup>.

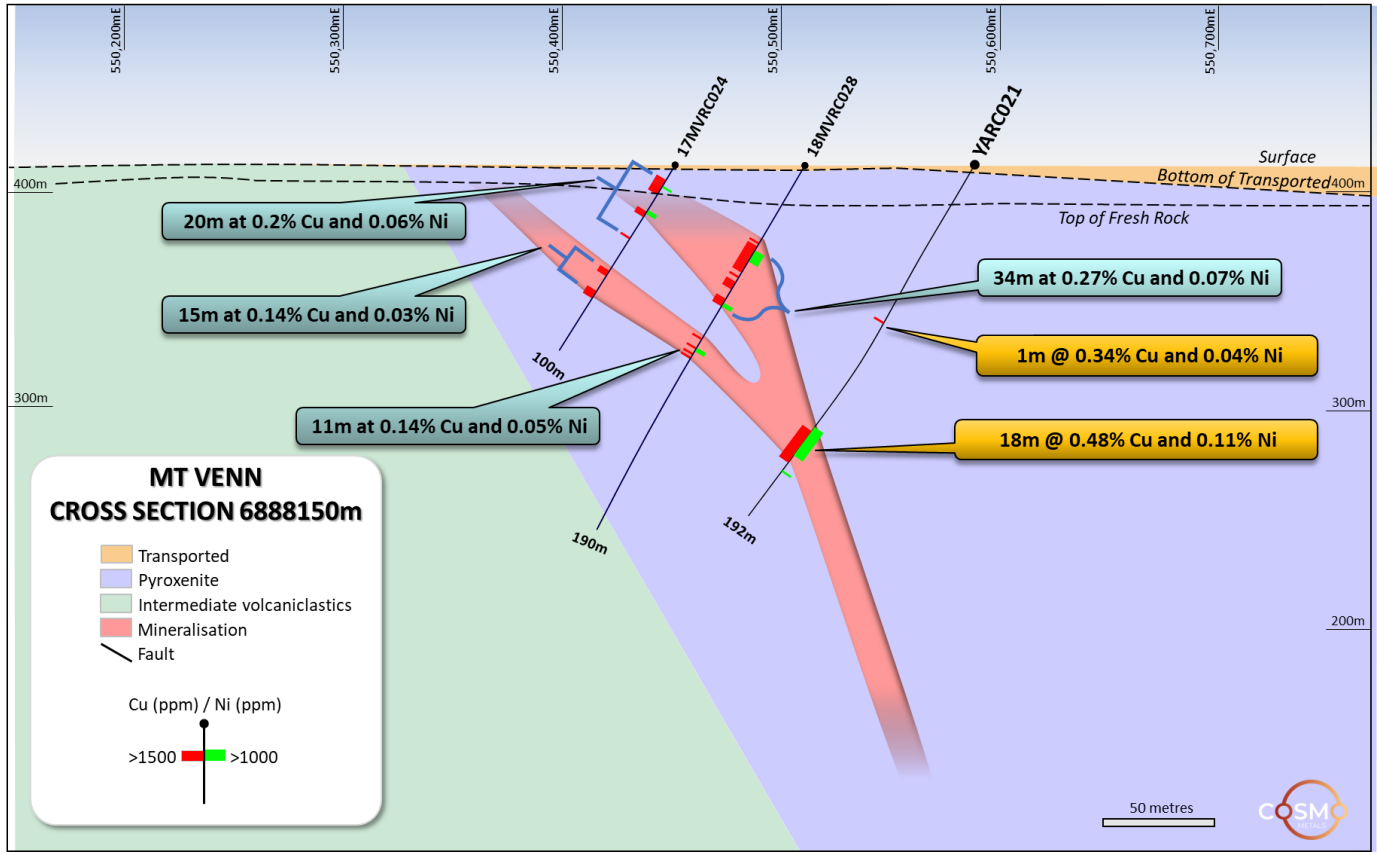


Figure 3: Cross section 688150mN (view looking north).

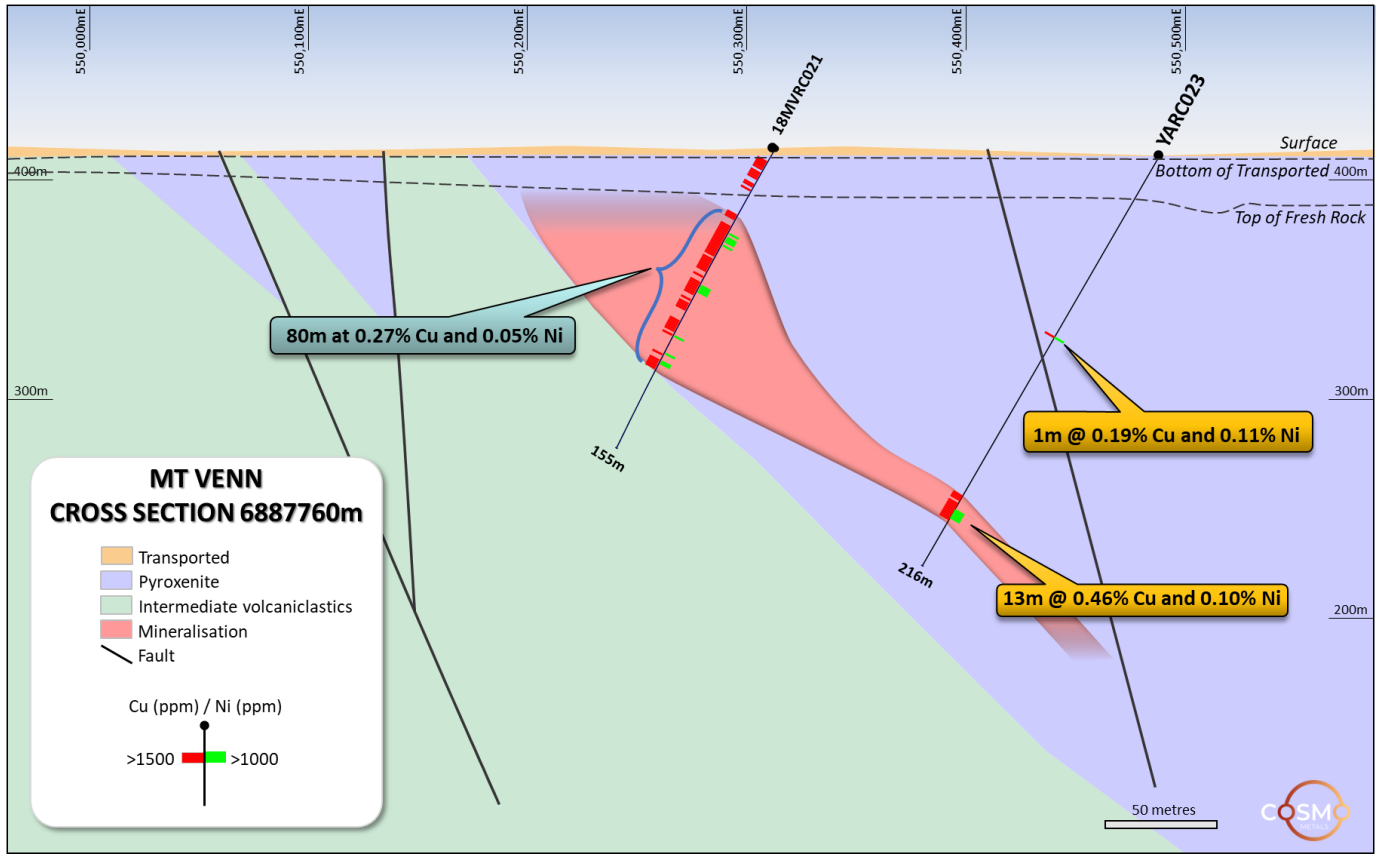


Figure 4: Cross section 6887760mN (view looking north).



**TABLE 1:** RC Drilling Mt Venn, summary of geology and mineralisation

HOLE ID	DEPTH (M)	TARGET	GEOLOGY	MINERALISATION
<b>YARC017</b>	246	Downdip extension of mineralisation in 18MVRC001	Overall mafic lithologies with gabbro to 194m, then 8m of diorite then mafic rock to the EOH.	Intersected three Cu mineralised zones with 2m mineralisation on contact between diorite and mafic unit.
<b>YARC018</b>	240	Southern extension of Mt Venn mineralisation – (southernmost YARC series hole)	Hole started in intermediates (Diorite) then Gabbro and alternating between the two until massive sulphides intercepted between 194 and 200m within Diorite	Narrow mineralisation with best intercept of 2m @ 3,785 ppm Cu, 833 Ni from 195m.
<b>YARC019 (redrill of YARC016)</b>	248	Downdip extension of mineralisation in YARC014 and the 'gap' between YARC013 to the north and YARC022 to the south	Hole started in gabbro and goes through two sections of diorite between 64 and 131m then gabbro until basal contact is intersected at 226m.	Mineralisation is located within a gabbro, mostly as thin bands, with the best 4m mineralised band close to the basal contact.
<b>YARC020</b>	168	Northern extension of Mt Venn and down dip continuation of mineralisation in 17MVRC005	Hole starts in mafic (gabbro) and then intersects two bands of diorite. The basal contact is intersected higher than interpreted.	Mineralisation is all within the mafic unit as thin discrete bands of massive to semi massive sulphides (dom. Pyrrhotite). A significant 12m shear zone is evident towards EOH (139 – 151m) which suggests some fault movement that may cut- or displace mineralisation.
<b>YARC021</b>	192	Downdip extension of flat dipping (15 degrees) mineralisation identified in holes 17MVRC024 and 18MVRC028	Gabbro from near surface then 5m of diorite at 28m. Shearing in the gabbro evident between 85 and 88m and again at 100 – 120m but doesn't appear related to any mineralisation. The basal contact was intersected at 170m.	A solid 18m band of massive and semi-massive sulphides was intersected at 142m indicating that the mineralisation seen in the other two holes on section continues at depth.

## MOVING LOOP ELECTROMAGNETIC (MLEM) SURVEY

Late last month the Company completed a ground based MLEM survey at Yamarna to follow up high priority base metals targets at Yamarna. Airborne and ground-based electromagnetic geophysics has been an effective tool to detect buried massive sulphide mineralisation in the Yamarna area, where all EM targets tested by drilling to date are explained by sulphide accumulations, rather than other conductive sources such as graphitic sediments and salt water.

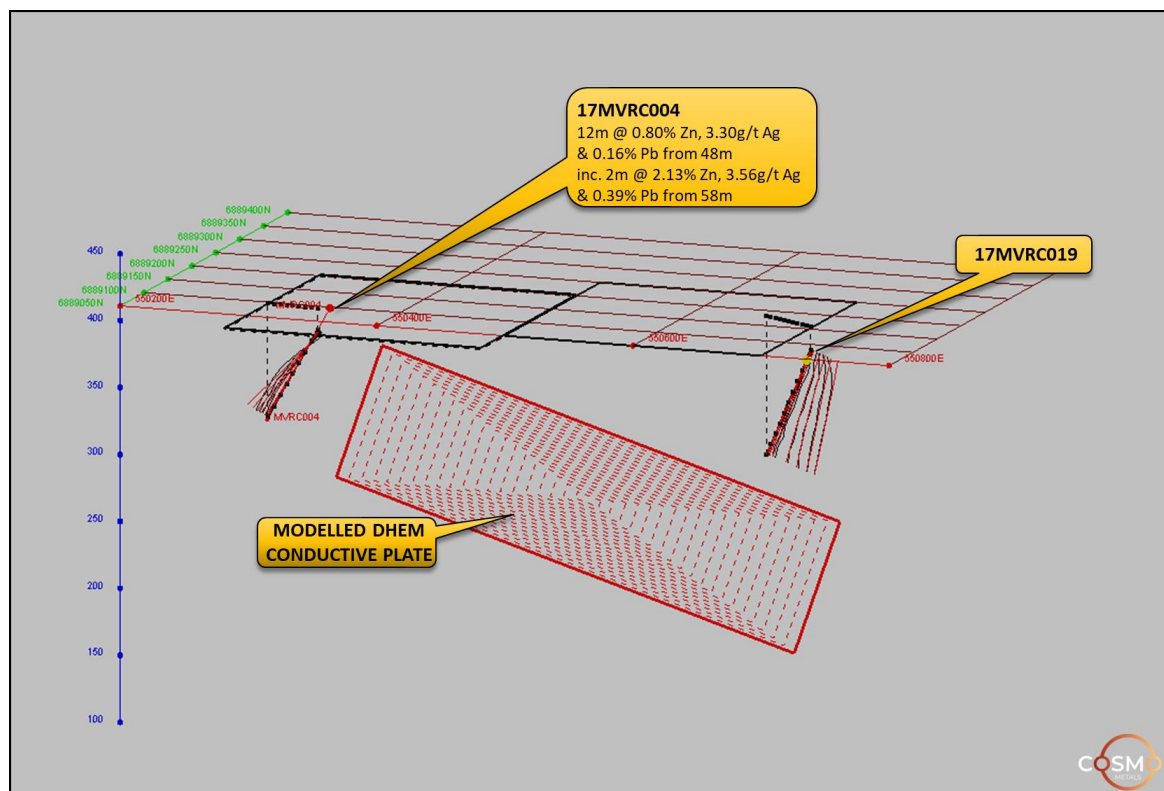
A total of 32.3-line kilometres of MLEM were surveyed over three target areas (refer Figure 2 and Table 2 below):

1. **Minjina** (8.3line km), ~900m north of Mt Venn, was first recognised as a base metals target from a review of historical drillhole 17MVR004, drilled in 2017, which intersected <sup>2</sup>:
  - 12m @ 0.8% Zn, 3.3g/t Ag & 0.16% Pb from 48m, *including*
    - 2m @ 2.13% Zn, 3.56g/t Ag & 0.39% Pb from 58m

A downhole EM (DHEM) survey of 17MVR004 & 17MVR0019 by Cosmo in August 2022, identified a strong off-hole conductor untested by drilling (refer Figure 4).

At its shallowest the modelled plate is ~60m below surface and a drillhole proposed to test this feature is interpreted to intersect the target at ~190m downhole depth.

Minjina represents an exciting new target for the Company given the association of an untested, high conductance (>1,000S) off-hole conductor with historical base metals intersections and widespread Cu anomalism in surface sampling.



**Figure 4:** Geophysical modelling of off-hole conductor at Minjina with historical holes 17MVR004 and 019.

<sup>2</sup> Refer CMO ASX Announcement 16/02/22



2. **Eastern Mafic Feeder Zone** (21.8 line km). The potential 'feeder zones' of the mineralised system at Eastern Mafic (i.e., the potential source to near-surface mineralisation), is considered to have the potential to host large zones of sulphide mineralisation analogous to other Cu-Ni-PGE deposits globally. The feeder zone target is associated with several target areas which the survey covered 3km to the south of ML13 towards the Ben Lomond prospect.
3. **NE7** (2.2 line km); a strong coincident gravity magnetic anomaly at Eastern Mafic.

**TABLE 2:** October 2022 Moving Loop Electromagnetic (MLEM) survey statistics

Target	Lines	Stations	Kilometres
Minjina	4	79	8.3
Eastern Mafic (Feeder target)	10	208	21.8
Eastern Mafic (ME7)	1	21	2.2
<b>TOTAL</b>	<b>15</b>	<b>308</b>	<b>32.3</b>

## FURTHER WORK AT MT VENN

The focus of exploration at Mt Venn now turns to the Minjina target 900m to the north of Mt Venn with an RC rig contracted to test this exciting prospect later this month. This program is expected to include testing of several additional targets currently being reviewed by the Company's technical team.

Cosmo has engaged a Perth-based resource consultancy to review the results from the Company's 2022 drilling at Mt Venn with the aim to provide an initial Exploration Target for the Project. It is expected that this will provide a robust platform for planning further work at Mt Venn as well as more advanced mining and processing studies. This work is expected to be reported late in the calendar year.

**This announcement is authorised for release to the ASX by the Board of Cosmo Metals Ltd.**

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*Note 1: Information on historical results, including JORC Code Table 1 information, is contained in the Independent Geologist's Report within Cosmo Metals' Prospectus dated 22 November 2021. The Company confirms it is not aware of any new information or data that materially affects the exploration results set out in the Prospectus and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.*

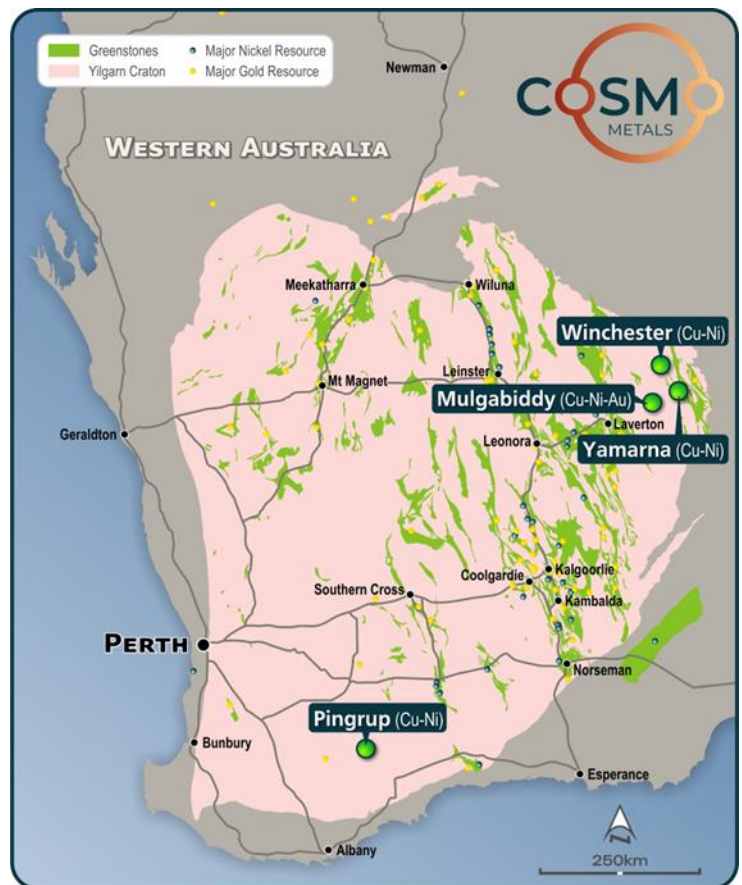


### **About Cosmo Metals Ltd**

Cosmo Metals Ltd (Cosmo; ASX: CMO) is an ASX-listed, base metals exploration company focused on the advancement of its flagship Mt Venn, Winchester and Eastern Mafic projects in the underexplored Yamarna Belt, in the Eastern Goldfields region of Western Australia.

The Yamarna Belt is considered highly prospective for copper-nickel-cobalt (Cu-Ni-Co) and platinum group elements (PGE), and Cosmo's well regarded technical team is advancing exploration on multiple fronts to unlock the potential of the region.

With previous drilling having identified sulphide Cu-Ni-Co mineralisation at Cosmo's key projects, the company has a unique opportunity to add value from this 460km<sup>2</sup> landholding



### **Competent Persons Statement**

*The information in this report that relates to Exploration Results is based upon and fairly represents information compiled by Mr James Merrillees, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Merrillees is a full-time employee of the Company.*

*Mr Merrillees has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Merrillees consents to the inclusion in the report of the matter based on his information in the form and context in which it appears.*

### **Forward-Looking Statements**

*This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Cosmo's planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although Cosmo believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.*

## APPENDIX A DRILL HOLE INFORMATION

**TABLE 1:** RC drill hole coordinate details. Drill hole coordinates MGA94 Zone 51 (GDA94). Collars located with handheld GPS ( $\pm 5$  m accuracy), EOH= end of hole depth, RC = Reverse Circulation drill hole

PROSPECT	HOLE ID	HOLE TYPE	EOH (M)	EAST MGA	NORTH MGA	RL MGA	DIP	AZIMUTH MGA
MT VENN	YARC017	RC	246	550436	6887711	411	-60	270
MT VENN	YARC018	RC	240	550639	6886595	409	-60	270
MT VENN	YARC019	RC	248	550575	6886969	409	-60	270
MT VENN	YARC020	RC	162	550427	888491	412	-60	270
MT VENN	YARC021	RC	192	550589	6888154	412	-60	270
MT VENN	YARC022	RC	246	550628	6886827	409	-60	270
MT VENN	YARC023	RC	216	550487	6887760	411	-60	270

**TABLE 2:** Significant drilling assay results. Intervals are calculated with a lower cut-off of 0.15% Cu with up to 2m of internal dilution. Higher grade intervals reported >1% Cu. No top-cut applied. All widths quoted are downhole widths, true widths are not known at this stage.

HOLE ID	TOTAL DEPTH (M)	DEPTH FROM (M)	DEPTH TO (M)	LENGTH (M)	CU (PPM)	NI (PPM)	CO (PPM)
<b>YARC017</b>	246	34	35	1	1,760	369	130
and		38	39	1	1,545	294	108
and		77	78	1	1,560	299	109
and		103	108	5	1,808	428	172
and		126	127	1	3,810	291	124
and		132	149	17	2,569	637	232
and		159	160	1	1,590	321	113
and		203	205	2	3,088	931	253
<b>YARC018</b>	240	105	106	1	1,875	291	101
and		195	197	2	3,785	833	264
and		229	230	1	1,860	2,860	558
<b>YARC019</b>	248	132	133	1	1,560	525	123
and		158	159	1	1,625	699	186
and		165	166	1	3,450	459	122
and		187	188	1	1,610	156	70
and		191	195	4	1,733	392	151
and		202	203	1	2,170	427	181
and		210	214	4	1,948	540	211
<b>YARC020</b>	162	36	37	1	1,545	389	154
and		54	58	4	2,280	234	96
and		74	78	4	1,731	541	189
and		81	83	2	1,675	621	209

HOLE ID	TOTAL DEPTH (M)	DEPTH FROM (M)	DEPTH TO (M)	LENGTH (M)	CU (PPM)	NI (PPM)	CO (PPM)
<i>and</i>		86	87	1	1,655	660	206
<i>and</i>		97	100	3	2,570	2,070	463
<b>YARC021</b>	192	83	84	1	3,450	367	127
<i>and</i>		142	160	18	4,761	1,159	340
<b>YARC022</b>	246	171	174	3	2,920	739	289
<i>and</i>		204	211	7	1,674	273	88
<i>and</i>		216	217	1	3,290	324	111
<i>and</i>		221	235	14	2,348	898	327
<b>YARC023</b>	216	95	96	1	1,950	1,065	351
<i>and</i>		179	192	13	4,600	1,036	347
<i>including</i>		191	192	1	<b>12,650</b>	867	291



## APPENDIX B JORC CODE, 2012 EDITION – TABLE 1

### SECTION 1 - SAMPLING TECHNIQUES AND DATA

(Criteria in this section apply to all succeeding sections)

CRITERIA	COMMENTARY
<i>Sampling techniques</i>	<p>RC samples were collected into calico bags over 1m intervals using a cyclone splitter. The residual bulk samples are placed in piles on the ground. Two cone splits are taken off the rig splitter for RC drilling.</p> <p>Visually prospective zones were sampled over 1m intervals and sent for analysis while the rest of the hole was composited over 4m intervals by taking a spear sample from each 1m bag.</p> <p>A quality assurance /quality control (QAQC) system comprising internal and laboratory standards, blanks and duplicates were used to evaluate analytical results.</p>
<i>Drilling techniques</i>	<p>Industry standard drilling methods and equipment were utilised.</p> <p>Reverse Circulation (RC) Drilling was undertaken by Challenge Drilling using 130 to 140mm diameter drill bits. RC drilling employed face sampling hammers ensuring contamination during sample extraction is minimised.</p>
<i>Drill sample recovery</i>	<p>Sample recovery data is noted qualitatively in geological comments as part of the logging process. Sample condition has been logged for every geological interval as part of the logging process.</p> <p>No quantitative twinned drilling analysis has been undertaken and no information is available to assess the relationship between sample recovery and grade.</p>
<i>Logging</i>	<p>Geological logging of drilling followed established company procedures. Qualitative logging of samples includes lithology, mineralogy, alteration, veining and weathering. Abundant geological comments supplement logged intervals.</p>
<i>Sub-sampling techniques and sample preparation</i>	<p>1m cyclone splits and 4m speared composite samples were taken in the field. Samples were prepared and analysed at ALS Laboratories Perth.</p> <p>All samples were submitted to ALS Laboratory (Perth) for analyses. Sample preparation included:</p> <p>Samples were weighed, crushed (such that a minimum of 70% pass 2mm) and pulverised (such that a minimum of 85% pass 75µm) as per ALS standards.</p> <p>A 4-acid digest and ICP-AES (ALS method; MS-ICP61) was used for 33 multi-elements including Co, Cu, Ni &amp; Zn.</p> <p>For elements that reported over range, ALS used ore grade 4-acid digest and ICP-AES methods; nickel (Ni-OG62), copper (Cu-OG62), and sulphur (S-IR08 Leco Sulphur analyser).</p> <p>Sample collection, size and analytical methods are deemed appropriate for the style of exploration.</p>
<i>Quality of assay data and laboratory tests</i>	<p>All samples were analysed by industry standard techniques.</p> <p>Analytical methods are detailed in the previous section and are consider 'near total' values.</p> <p>Routine 'standard' (mineralised pulp) Certified Reference Material (CRM) was inserted by Cosmo at a nominal rate of 1 in 50 samples. Routine 'blank' material (unmineralised sand) was inserted at a nominal rate of 1 in 100 samples. No significant issues were noted.</p> <p>No duplicate or umpire checks were undertaken.</p> <p>ALS (Perth) provided their own routine quality controls within their own practices.</p> <p>No significant issues were noted.</p>
<i>Verification of sampling and assaying</i>	<p>The standard CMO protocol was followed for insertion of standards and blanks with a blank and standard inserted per 40 samples. No QAQC problems were identified in the results. No twinned drilling has been undertaken.</p>
<i>Location of data points</i>	<p>Drill collars were set out using a handheld GPS and final collar were collected using a handheld GPS. Sample locations were collected using a handheld GPS as was deemed acceptable for the nature of this program.</p>



CRITERIA	COMMENTARY
	<p>Downhole surveys were completed by the drilling contractors using the Reflex EZ-TRACK with a measurement taken every 30m downhole.</p> <p>Planned or compass bearing/dip measurements were used for survey control for holes without downhole survey data.</p> <p>MGA94 UTM zone 51 coordinate system was used.</p>
<i>Data spacing and distribution</i>	<p>The spacing and location of most of the drilling in the CMO projects is variable which is common with early exploration.</p> <p>The spacing and location of data is considered acceptable for exploration purposes.</p>
<i>Orientation of data in relation to geological structure</i>	<p>Drilling is nominally perpendicular to regional geological and mineralisation trends where interpreted, and practical. True width and orientation of intersected mineralisation is currently uncertain.</p> <p>The spacing and location of data is considered acceptable for exploration purposes.</p>
<i>Sample security</i>	Cosmo Metals' personnel are responsible for delivery of samples from the drill site to the Yamarna exploration camp for courier pick-up and delivery to ALS in Perth.
<i>Audits or reviews</i>	None completed.

## SECTION 2 REPORTING OF EXPLORATION RESULTS

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

CRITERIA	COMMENTARY
<i>Mineral tenement and land tenure status</i>	<p>The Yamarna Project comprises the following tenements held 100% by Cosmo Metals Ltd.</p> <p>Tenements comprise Exploration licences E38/2320, E38/2685, E38/2952, E38/2953, E38/5957, E38/2958, E38/3640 and prospecting licences P38/4178 and P38/4540.</p>
<i>Exploration done by other parties</i>	<p>Previous explorers included:</p> <ul style="list-style-type: none"> <li>• 1990's. Kilkenny Gold NL completed wide-spaced, shallow, RAB drilling over a limited area. Gold assay only.</li> <li>• 2008. Elecktra Mines Ltd (now Gold Road Resources Ltd) completed two shallow RC holes targeting extension to Mt Venn igneous complex. XRF analysis only, no geochemical analysis completed.</li> <li>• In 2011 Crusader Resources Ltd completed broad-spaced aircore drilling targeting extensions to the Thatcher's Soak uranium mineralisation. Only XRF analysis was completed.</li> <li>• In late 2015 Gold Road drilled and assayed an RC drill hole on the edge of an EM anomaly identified from an airborne XTEM survey, identifying copper-nickel-cobalt mineralisation.</li> <li>• In 2017 Great Boulder subsequently re-assayed the Gold Road hole and confirmed primary bedrock sulphide mineralisation, with peak assay results of 1.7% Cu, 0.2% Ni, 528ppm Co (over 1m intervals) over two distinct lenses.</li> <li>• Great Boulder completed a ground based moving loop EM survey in September 2017 and reported extensive strong EM conductors and co-incident copper-nickel mineralisation from aircore geochemistry.</li> </ul> <p>Full details of all historical drilling and exploration results can be found in the Independent Geologist's Report in Cosmo Metals' Prospectus dated 22 November 2021 available from the Company's website.</p>
<i>Geology</i>	<p>Cosmo Metals' Yamarna Project hosts the southern extension of the Mt Venn igneous complex. This complex is immediately west of the Yamarna greenstone belt.</p> <p>The mineralisation encountered in the Mt Venn drilling suggests that sulphide mineralisation is defined by a prominent long, conductive EM trend, demonstrating a highly sulphur-saturated system within a metamorphosed dolerite, pyroxenite and gabbroic sequence.</p>



CRITERIA	COMMENTARY
	Visual logging of sulphide mineralogy shows pyrrhotite dominant with chalcopyrite a subordinate sulphide phase.
<i>Drill hole Information</i>	A list of drill hole coordinates, orientations and intersections reported in this announcement are provided in the body and appendices within this announcement.
<i>Data aggregation methods</i>	<p>Results were reported using cut-off levels relevant to the sample type. For single metre splits, significant intercepts were reported for grades greater than 0.15% Cu with a maximum dilution of 2m. High grade intervals are quoted using a &gt;1% Cu cut-off with a maximum of 2m internal dilution.</p> <p>No maximum or minimum grade truncations have been applied.</p> <p>A weighted average calculation was used to allow for bottom of hole composites that were less than the standard 4m and when intervals contain composited samples plus 1m split samples.</p> <p>No metal equivalents are used.</p>
<i>Relationship between mineralisation widths and intercept lengths</i>	The orientation of structures and mineralisation is not known with certainty; however drill holes were oriented perpendicular to interpreted mineralisation.
<i>Diagrams</i>	Appropriate maps, sections and tabulations are presented in the body of this announcement.
<i>Balanced reporting</i>	<p>All composite samples were assayed however comprehensive reporting of all results is not practicable.</p> <p>Significant intersections are reported in the body and appendices of this announcement</p>
<i>Other substantive exploration data</i>	Not applicable, no other material exploration data.
<i>Further work</i>	Further work is discussed in the body of this announcement.