

## **ASX ANNOUNCEMENT**

31 March 2022

# New Geophysical Targets Identified at Black Hills

### **KEY HIGHLIGHTS**

- Downhole EM surveys identify off hole conductors from the two initial drill holes completed in late 2021
- Drone magnetic survey and associated 3D inversion modelling has identified a number of anomalies associated with the mafic intrusion intersected in the initial drilling
- Anomalous zones of nickel and copper intersected in the initial two holes corresponding with the logged disseminated sulphides

**Mamba Exploration Limited** (ACN 644 571 826) ('**Mamba**', '**M24**' or the '**Company**') has identified additional geophysical targets within the Black Hills project from surveys and drilling completed in December 2021. Downhole EM surveys have identified one weak in-hole conductors and several discrete off hole conductors from the initial surveys from the two holes completed in 2021 (see Figures 1-8). It is pleasing that conductors were identified from the first two holes given the surface EM loop could not be placed in the preferred orientation, due to access limitations, reducing the coupling between the loop and the downhole probes.

In addition to the downhole EM surveys, an ultra-detailed drone magnetic survey has also been undertaken over the interpreted mafic / ultramafic intrusion at the northern end of 6km long mapped ultramafic and 2PGE anomaly trend (see Figure 2). This ultra-detailed survey and the associated 3D inversion modelling of the data has identified several magnetic anomalies and identified a number of structural complexities which we believe represent compelling drill targets (see Figure 4 - 6).

#### Managing Director, Mike Dunbar said,

"After intersecting disseminated sulphides in the initial drilling at Black Hills in December 2021, downhole EM and an ultra-detailed drone magnetic survey was undertaken over the interpreted intrusion at the northern end of the 6km long mapped ultramafic trend, which corresponds with the 6km long 2PGE anomaly.

The disseminated sulphides intersected are not interconnected and as a result do not adequately explain the original VTEM anomaly.

The downhole EM completed on the first two holes has identified several off hole conductors which is pleasing, given the EM loop configuration was not optimal due to access limitations. The drone magnetic survey and the 3D inversion modelling of the data, which was not hampered by these limitations, has identified several anomalies and identified structural complexities which represent compelling targets.

We are continuing to assess options for access to the northern and southern targets at Black Hills while also actively exploring the exciting gold discovery we have made in the Great Southern at our Calyerup Creek project"

The initial RC drilling completed at Black Hills intersected disseminated to blebby sulphides (as announced on 20<sup>th</sup> and 22<sup>nd</sup> of December 2021). The original VTEM anomaly has not been explained by the drilling as the disseminated to blebby sulphides are not interconnected and as a result will not create an EM anomaly. Encouragingly the limited amount of sulphides intersected did result in weakly anomalous nickel, copper and 3PGE (Pt+Pd+Au) intersections, including:

- 12m @ 213 ppm Ni, 103 ppm Cu and 55 ppb 3PGE from 84m in 21BHRC001,
- 10m @ 156 ppm Ni, 124 ppm Cu and 13 ppb 3PGE from 154m in 21BHRC001,
- 32m @ 156 ppm Ni, 138 ppm Cu and 44 ppb 3PGE from 20m in 21BHRC002,
- 18m @ 153 ppm Ni, 106 ppm Cu and 20 ppb 3PGE from 111m in 21BHRC002,
- 6m @ 340 ppm Ni, 65 ppm Cu and 45 ppb 3PGE from 142m in 21BHRC002 and
- 2m @ 225 ppm Ni, 322 ppm Cu and 52 ppb 3PGE from 286m in 21BHRC002

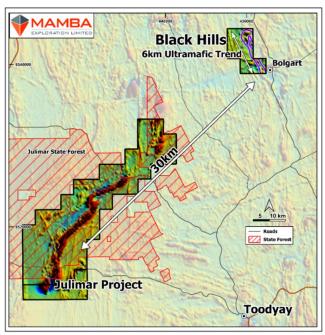
Individual assays up to 810ppm nickel and 551ppm copper and 130ppb 3PGE were intersected within the broader zones of anomalism, coinciding with zones more sulphide identified in the detailed geological logging (see Table 1 for details of anomalous zones and Table 2 for collar details).

The background nickel and copper grades within the intrusive rocks are very low for mafic / ultramafic rocks (110ppm Ni and 72ppm Cu), so the anomalism identified confirms that the likely source of the anomalism is the disseminated sulphides and not just from a background silicate source.

With the additional geophysical data, the Company is now able to better target the geophysical anomalies, both EM and magnetic, to discover the source of the original EM responses, which the Company's geophysical consultants believe are from a sulphide source.

While a diamond drill rig had been sourced, given the need to finalise land access, this drilling will be delayed until after land access issues have been resolved.





**Figure 1:** Location of Mamba Exploration's Black Hills project area in relation to Chalice Mining's Julimar discovery.

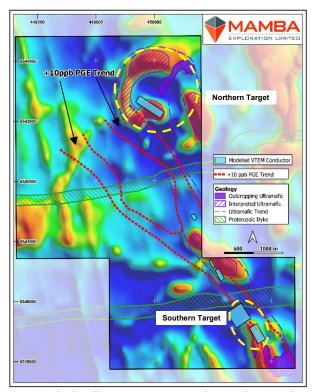
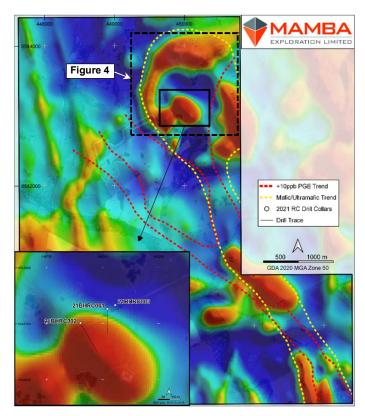
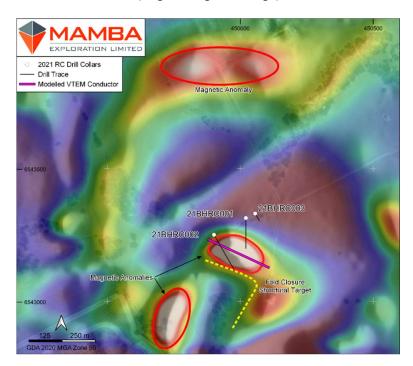


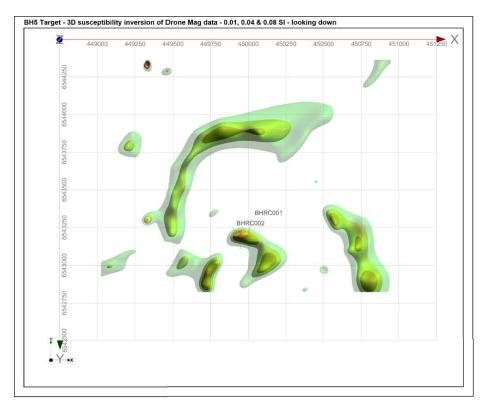
Figure 2: Black Hills Tenement +10ppb Pt+Pd Anomaly – red, mapped ultramafic trend – purple, VTEM Conductors blue and original Magnetic Image highlighting northern and southern targets



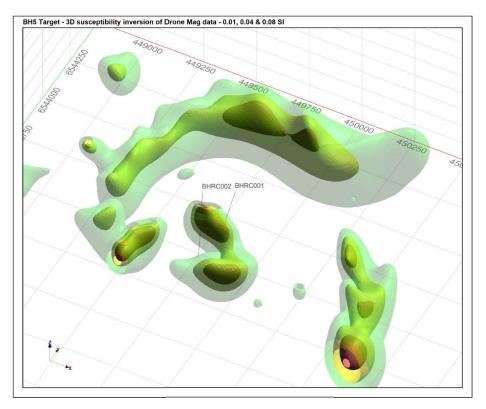
**Figure 3:** Drill Hole Locations for the Northern Target at the Black Hills Tenement (original magnetic image)



**Figure 4:** Ultra Detailed Drone Magnetic survey with drill hole traces highlighting the enhanced definition of northern magnetic anomalies and targets



**Figure 4:** 3D inversion model of ultra-detailed drone magnetic survey highlighting northern magnetic anomalies and RC drill holes completed in December 2021



**Figure 5:** Isometric view of 3D inversion model highlighting northern magnetic anomalies and location of the 2 RC drill holes completed in December 2021.

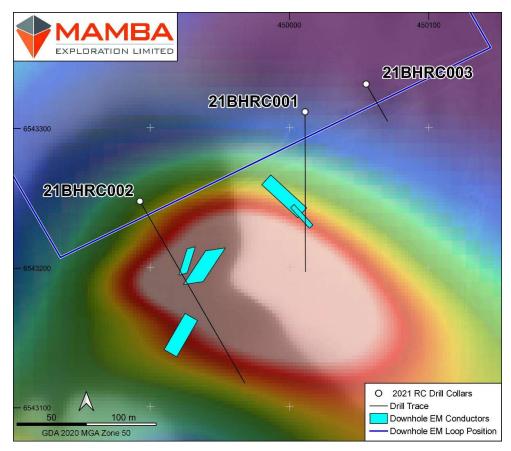


Figure 6: Downhole EM off hole plates identified from 2021 Drillholes

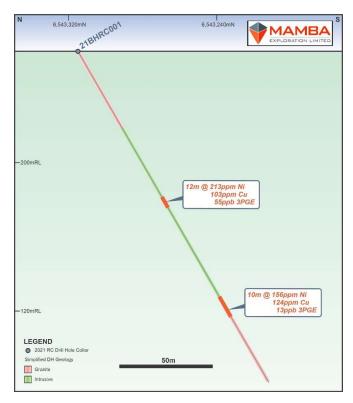


Figure 7: Schematic Cross Section for 21BHRC001

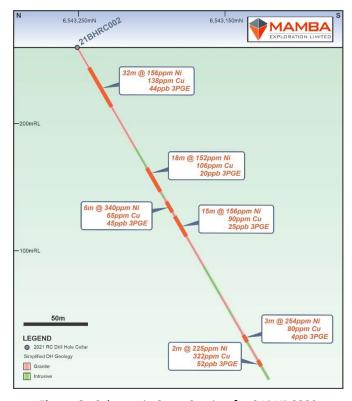


Figure 8: Schematic Cross Section for 21BHRC002

Table 1: Significant Zones of Anomalism from Initial RC Drilling

				Grade	Grade	3PGE	Gold	Platinum	Palladium
Hole ID	From	То	Interval	Nickel	Nickel	(Au+Pt+Pd)	(ppb)	(ppb)	(ppb)
				(ppm)	(ppm)	(ppb)			
21BHRC001	84	96	12	213	103	55	53	1	1
21BHRC001	154	164	10	156	124	13	9	2	2
21BHRC002	20	52	32	156	138	44	31	5	7
21BHRC002	111	129	18	152	106	20	17	2	1
21BHRC002	142	148	6	340	65	45	29	8	8
21BHRC002	155	170	15	156	90	25	19	3	3
21BHRC002	263	266	3	254	80	4	-	2	2
21BHRC002	286	288	2	225	322	52	45	3	4

Table 2: Collar Details for RC drilling completed in December 2021

Hole ID	Easting (MG/	Northing (MG	Elevation (nominal)	Depth	Dip	Azimuth	Comments
21BHRC001	450,020	6,543,315	250	229m	-60	180	Completed
21BHRC002	449,900	6,543,252	250	301m	-60	150	Completed
21BHRC003	450,055	6,543,332	250	61m*	-60	150	Pre-collar completed

<sup>\*</sup> Originally designed as a precollar, additional geophysical data does not support extending this hole at this stage.

Additional information will be released as the programme progresses and as new data becomes available.

This announcement has been authorised for release by the Board.

#### **CONTACTS**

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#### **Competent Person Statement**

The information in this report that relates to Exploration Targets or Exploration Results is based on information compiled by Mr Mike Dunbar, a "Competent Person" who is a Member of Australasian Institute of Mining and Metallurgy (AusIMM). Mr Dunbar is the Managing Director and CEO of Mamba Exploration Limited. He is a full-time employee of Mamba Exploration Limited and holds shares and options in the company. Mr Dunbar has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration 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 Dunbar consents to the inclusion in this announcement of the matters based on his information and in the form and context in which it appears.



#### **ABOUT MAMBA EXPLORATION**



Mamba Exploration is a Western Australian focused exploration Company, with four 100% owned geographically diverse projects which provide year-round access. The projects are highly prospective mineral exploration assets in the Ashburton, Kimberley, Darling Range and Great Southern regions of Western Australia. The projects in the Ashburton and Great Southern are prospective for gold whilst those in the Kimberley and Darling Range are prospective for base metals such as copper, nickel, PGE's and manganese.

Mamba's Board comprises of Directors who have significant experience across sectors including mineral exploration, resource discovery, mine development and corporate finance, commodities trading and mine operations.

The Company's objective is to add significant shareholder wealth through the exploration of its projects and the discovery of economic Mineral Resources.

# JORC Code (2012) Table 1 – Black Hills Project Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> </ul>	<ul> <li>RC drilling was used to produce a 1m bulk sample (~25kg) which was collected in plastic bags. A representative sample was split from the bulk sample. Sampling of the visually mineralized zones was undertaken as a single meter sample from a cone splitter or for zones without visual sulphide mineralisation 4m composite samples were collected from the 25kg bulk samples by sample scoop. The samples submitted for analysis were nominally 3kg in weight.</li> </ul>
	<ul> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> </ul>	<ul> <li>MinAnalytical use a number of certified reference materials for each of the assay methods selected, additional information will be provided when assay results are received.</li> </ul>
	Aspects of the determination of mineralisation that are Material to the Public Report.	<ul> <li>RC samples were assayed by 25g Fire assay methods with an ICP-MS finish for Au, Pt and Pd to a 1ppb detection limit, while the multi element analysis was completed by four acid digest with a ICP-OES finish to various detection limits based on the elements, Ni and Cu the detection limits 1ppm at MinAnalytical in Perth. These methods are industry standard and are internationally recognised.</li> </ul>
	• In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	<ul> <li>Industry standard sampling and logging techniques have been used for these samples. The holes were logged by a suitably qualified geologist from a sieved subsample of the 25kg split was used for the geological logs. Each meter was sieved and rock chips collected in chip trays, each containing 20 metres of chips.</li> </ul>
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).	<ul> <li>Drilling was undertaken using RC. A face sampling RC hammer of approximately 5 ½ inch was used.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul> <li>Sample recovery was generally high.</li> <li>Sample recovery was maximised by the use of face sampling hammers and by maintaining air pressure within the hole, minimising water ingress into the hole.</li> <li>No relationship between sample recovery and grade is known at this stage.</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or</li> </ul>	<ul> <li>All intervals were geologically logged to a level that could be used to support a mineral resource, however at this early stage of exploration, it is unknown if with additional drilling is a Mineral Resource could be estimated.</li> </ul>

	<ul> <li>costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	
Sub- sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>The RC samples were sampled from a rig mounted cyclone with a cone splitter. The bulk splitter rejects were collected in plastic bags and a small subsample collected and sieved for geological logging.</li> <li>The sampling and sub sampling techniques are considered appropriate.</li> <li>Subsamples were either collected directly from the cone splitter (for single metre samples) or scoop sampled from 4 individual single metre plastic bags to create a 4m composite sample. This is considered to be appropriate given the early exploration stage for the project.</li> <li>Sample sizes are considered to be appropriate for the style of mineralisation being sought.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul> <li>RC samples were assayed by 25g Fire assay methods with an ICP-MS finish for Au, Pt and Pd to a 1ppb detection limit, while the multi element analysis was completed by four acid digest with a ICP-OES finish to various detection limits based on the elements, Ni and Cu the detection limits 1ppm at MinAnalytical in Perth. These methods are industry standard and are internationally recognised.</li> <li>Geophysical tools used (magnatometres and EM receivers) are calibrated prior to use on site.</li> <li>For this early stage of exploration no certified reference materials have been inserted into the sample batches, however lab standards and check assays are used by MinAnalytical. These internal lab standards and repeats were within acceptable limits</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Zones of anomalism reported in this release have been identified made by a senior geologist and have been verified by an alternative company geologist</li> <li>For this first pass drilling, geological logs and sampling have been recorded on paper and then entered into the Company's digital system. The data entry has been validated by at least two company geologists.</li> <li>No assay adjustments have been made other than the reporting of 3PGE, which is reported as Au+Pt+Pd. Each individual element are also reported in Table 1.</li> </ul>
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Hand held GPS was used to peg the holes. Down hole surveys have been collected on 5m intervals using a reflex multi shot gyro tool.</li> <li>The grid system used was GDA (zone 50).</li> <li>Topographic control is based on 5m DEM data from the WA Government dataset.</li> </ul>

Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Drilling is currently wide spaced and is not close enough to support a Mineral Resource estimate.</li> <li>Some samples where no visual sulphide mineralization was logged have been 4m composite sampled, while the main areas of interest have been sampled as single metres. The zones of anomalism have been determined based on elevated nickel, copper, sulphur, iron, manganese and chrome grades and based on geological logging of zones of sulphide mineralisation.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>Drilling has been designed to intersect the geophysical anomalies perpendicular to the anomaly.</li> <li>The relationship between downhole intervals and true widths is unknown at this stage.</li> </ul>
Sample security	The measures taken to ensure sample security.	Samples were collected on site to company employees and delivered directly to MinAnalytical for analysis.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews of the sampling techniques have been undertaken.

## Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>The Black Hills project is located within a single Exploration License, E 70/5147. The covers 6 graticular blocks for an area of 17.62 km². The project is located 100km and 120km north-east of Perth. The nearby country town of Bolgart is less than 1km to the east. The town of Toodyay is 30km to the south and the closest large regional centre. Access is granted from multiple directions via sealed road.</li> <li>The Project is covered by three separate farms, the northern farmer has consented to exploration, discussions regarding access to the central and southern farms are ongoing.</li> <li>The project is covered by the Yued (30) native title claim area.</li> <li>Mamba Exploration owns 100% of the tenement.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Ground covered by E 70/5147 has been covered by exploration leases since the 1960s.  The two most meaningful work programs (in relation to the aims of Mamba Exploration) were completed by Otter Exploration (1977) and CRA Exploration (1995). See Section 3.5 of the Mamba Prospectus (dated 14 December 2020) for full details of previous exploration activities on the project.

Criteria	JORC Code explanation	Commentary
		For previous work completed by Mamba Exploration Limited at the Black Hills project refer to Mamba Exploration Limited ASX Release 20/7/2021 "Priority PGE-Ni-Cu Targets Identified at Black Hills"
Geology	Deposit type, geological setting and style of mineralisation.	• The western margin of the Archean Yilgarn Craton is highly prospective for Platinum Group Elements ("PGE") and Nickel (Ni) – Copper (Cu) mineralisation associated with intrusive mafic to ultramafic rocks. The discovery of PGE-Ni-Cu mineralisation on the Julimar Project held by Chalice Gold Mines Limited (see Chalice Gold Mines ASX Announcement 23 March 2020) in 2020, is the first significant PGE-Ni-Cu discovery in the region which previously only had early-stage indications of mineralisation (Yarawindah, Bindi- Bindi). The PGE-Ni-Cu mineralisation hosted by the ultramafic-mafic Gonneville intrusion on Chalice's Julimar Project, is considered to be the most important deposit of PGE's in Australia. Increasingly it is becoming apparent that the prospective ultramafic-mafic intrusions are far more widespread than previously thought throughout the western margin of the Yilgarn Craton. The project area is located within the >3Ga age Western Gneiss Terrane of the Archean Yilgarn Block, which comprises a strongly deformed belt of gneisses, schists, quartzites, Banded Iron Formation, intruded by mafic to ultramafic rocks. The terrane is up to 70km wide, and possibly wider, and is bounded to the west of the Darling Fault and younger Archean rocks to the east. The general geological strike in northwest. The bedrock Archean metasedimentary gneisses, migmatites and intrusive mafic and ultramafic rocks occur in structurally complex settings. Dolerite dykes of Proterozoic Age also occur. Outcrops are rare and the basement geology is largely obscured by lateritic ironstones and deep saprolitic weathering.
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:  a 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	<ul> <li>See Table 2 in the body of the announcement for collar details.</li> <li>No data has been excluded from this release</li> </ul>

Criteria	JORC Code explanation	Commentary
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>Sampling was generally completed as single metres. Some 4m composite sampling was undertaken in the oxide zone and in areas where no sulphides were visually identified. The zones of anomalism have been determined based on elevated nickel, copper, sulphur, iron, manganese and chrome results and based on geological logging of zones of sulphide mineralisation. An arithmetic average of the metal grades has been used to calculate the anomalous intervals and no top cutting of high-grade results was undertaken.</li> <li>No metal equivalents are reported.</li> </ul>
Relationshi p between mineralisati on widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>Drilling has been designed to intersect the geophysical anomalies perpendicular to the anomaly.</li> <li>The relationship between downhole intervals and true widths is unknown at this stage.</li> </ul>
Diagrams	<ul> <li>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.</li> </ul>	Appropriate plans are included in this report.
Balanced reporting	<ul> <li>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.</li> </ul>	All anomalous zones of Ni, Cu and 3PGE are included, intervals not included in table     1 in the body of the report do not contain significant zones of anomalism.
Other substantive exploration data	<ul> <li>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.</li> </ul>	All relevant data is incorporated into the diagrams in the body of the report
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Once land access negotiations are completed, ground EM surveys will be undertaken. Drilling of the geophysical anomalies will be undertaken once land access agreements are registered with DMIRS, PoW's are approved, and heritage surveys completed. Given it is open farmland, this is not expected to cause significant delays. The longest delay in drilling is expected to be due to seasonal rains, which could hamper access to the farmlands.</li> </ul>