Ardea Resources Limited

KNP Highway and Black Range - Nickel Sulphide Drilling Commences

- Drilling of two strong IP chargeability anomalies within the Kalgoorlie Nickel Project has commenced at the Highway and Black Range project areas, north of Kalgoorlie.

- At Highway, the chargeability anomaly is located near the basal contact of the ultramafic lava Walter Williams Formation on the western side of the belt. A single drillhole by CRA in 1973 intersected broad zones of disseminated and blebby sulphides adjacent to this IP anomaly. A 300m angled hole is designed to test the core of the IP target interpreted as a potential **disseminated nickel sulphide system** using a **Mount Keith nickel sulphide model**.

- At Black Range, the chargeability anomaly is associated with strong nickel, copper and platinum group element (**PGE**) anomalism in historic nickel laterite drilling, hosted within a layered mafic complex. A 280m angled hole is designed to test a primary sulphide target using a **Nova/Julimar nickel-PGE exploration model**.

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to report that RC drilling to test for nickel sulphide mineralisation has recently commenced to test two strong Induced Polarisation (IP) chargeability anomalies, at the Company's Highway and Black Range project areas located 110km north and 65km north-west of Kalgoorlie respectively (Figure 1).

Ardea's Managing Director, Andrew Penkethman, said:

*"Ardea remains focussed on developing the Kalgoorlie Nickel Project (**KNP**) to provide sustainable and ethical nickel and Critical Mineral supply for the rapidly expanding lithium-ion battery sector. In tandem with completing priority Definitive Feasibility Study work streams, compelling nickel sulphide and Critical Mineral exploration opportunities that can provide further upside, continue to be evaluated on Ardea's strategic KNP tenement holding.*

The recently defined IP anomalies at Highway and Black Range, occurring in association with strong geochemical anomalies and other geological vectors is very significant. These anomalies provide compelling exploration targets, and it is exciting to see that drilling has now commenced to test them.

Nickel sulphide mineralisation is traditionally treated through a flotation concentrator, but the proposed KNP flow-sheet is amenable to hydrometallurgical processing of sulphides, with multiple benefits for the autoclave operation."

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ASX Symbol
ARL

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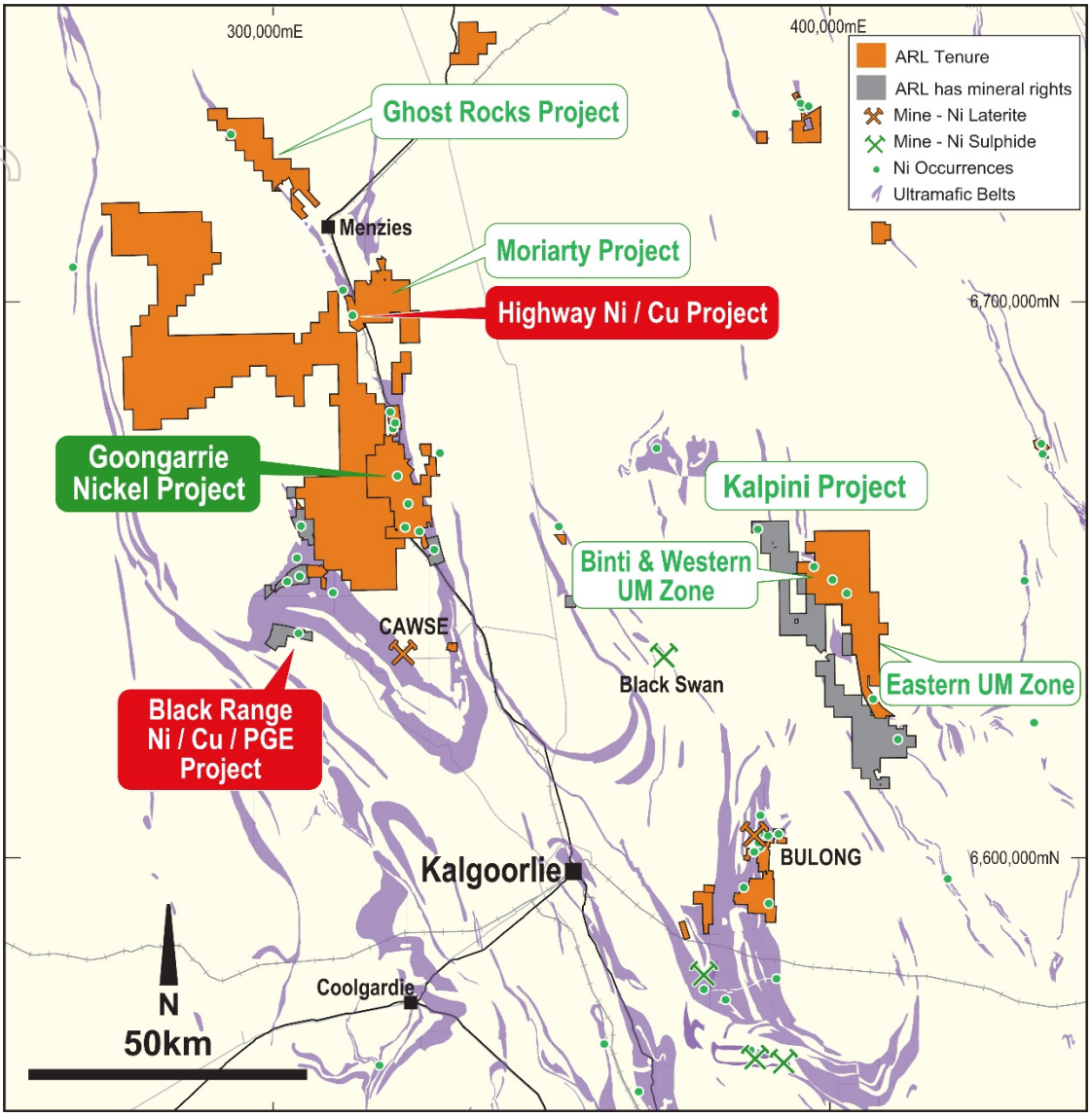
Issued Capital
Fully Paid Ordinary Shares
127,670,582

Directors/Employee Performance Rights
4,236,000

ABN 30 614 289 342

ASX Announcement

Figure 1: Location of the Highway and Black Range project areas with other Ardea KNP prospects near Kalgoorlie, Western Australia. Projection MGA 94 Zone 51.



Highway Project Target

The Highway Project, located 110km north of Kalgoorlie (Figure 1), is within a wholly owned and granted mining lease and covers a thick portion of the ultramafic Walter Williams Formation (**WWF**). Recent IP surveys on four lines identified a strong (to 27mV/V) chargeability anomaly on two of these lines. Drilling is now targeting the strongest part of this anomaly close to where CRA in 1973 intersected disseminated and blebby sulphides within this same basal contact zone of the WWF. Copper (**Cu**) and nickel (**Ni**) are enriched in the nickel laterite drilling above and to the east of the proposed hole, suggesting a possible primary sulphide source for these metals.

Previous tenement holder Heron Resources also identified fine grained disseminated primary sulphides (Ardea ASX release 30 September 2020) further south along the basal contact (Figure 2). The current reverse circulation (**RC**) drilling is targeting the sub-vertical to slightly overturned basal contact of the WWF adjacent to the CRA hole (Figure 3). The target for the drilling is a Mount Keith or Perseverance style disseminated nickel-copper system associated with thick ultramafic flows. Whilst historically the WWF has not been considered prospective for nickel sulphide mineralisation, recent and ongoing reappraisal suggests that such pessimism may have been misplaced. The conjunction of the basal contact with IP anomalism and known nickel sulphides provides for a compelling drill target.

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Figure 2: Aeromagnetic image (total magnetic intensity) for the Highway Project showing the location of the current RC drillhole on the western, basal contact of the WWF. Projection MGA 94 Zone 51.

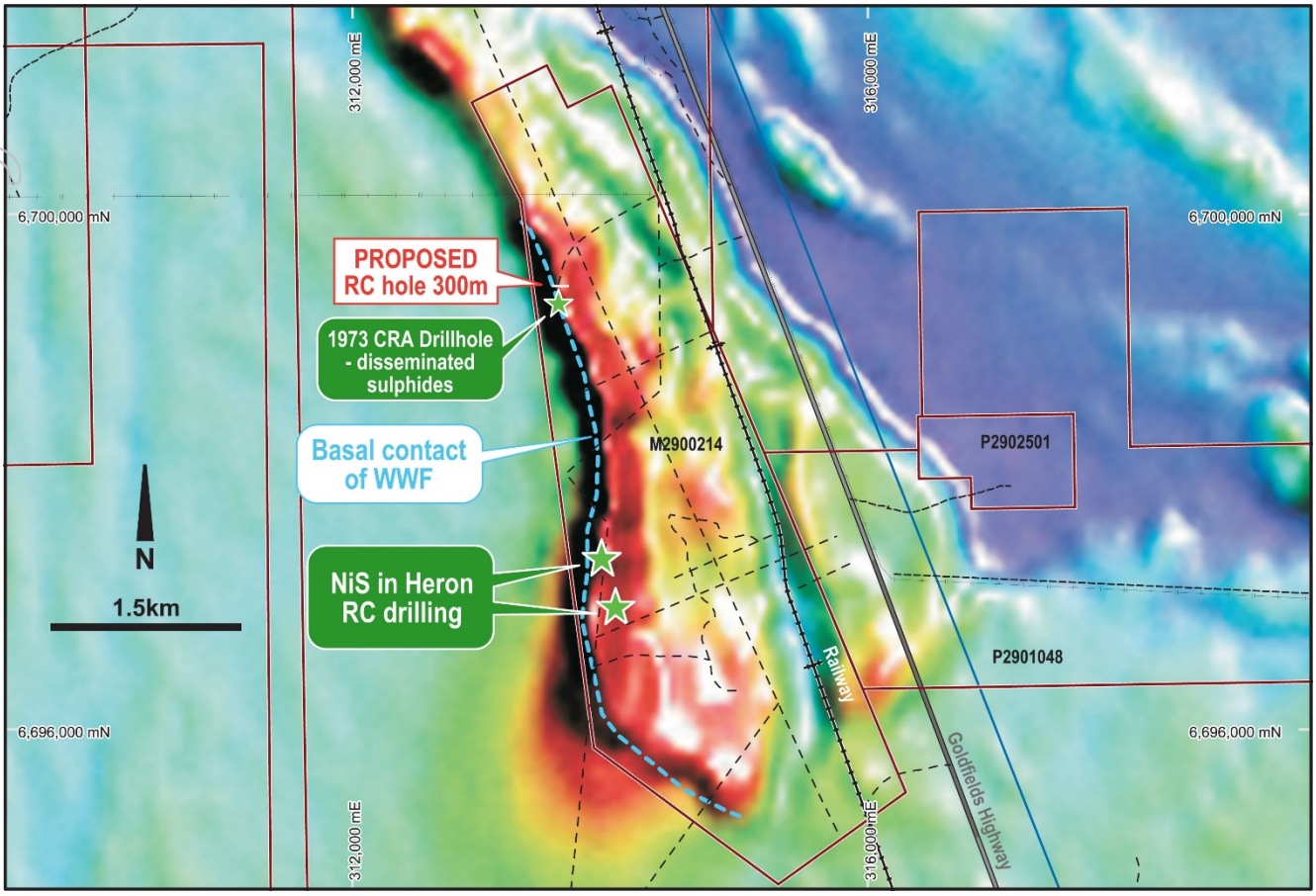
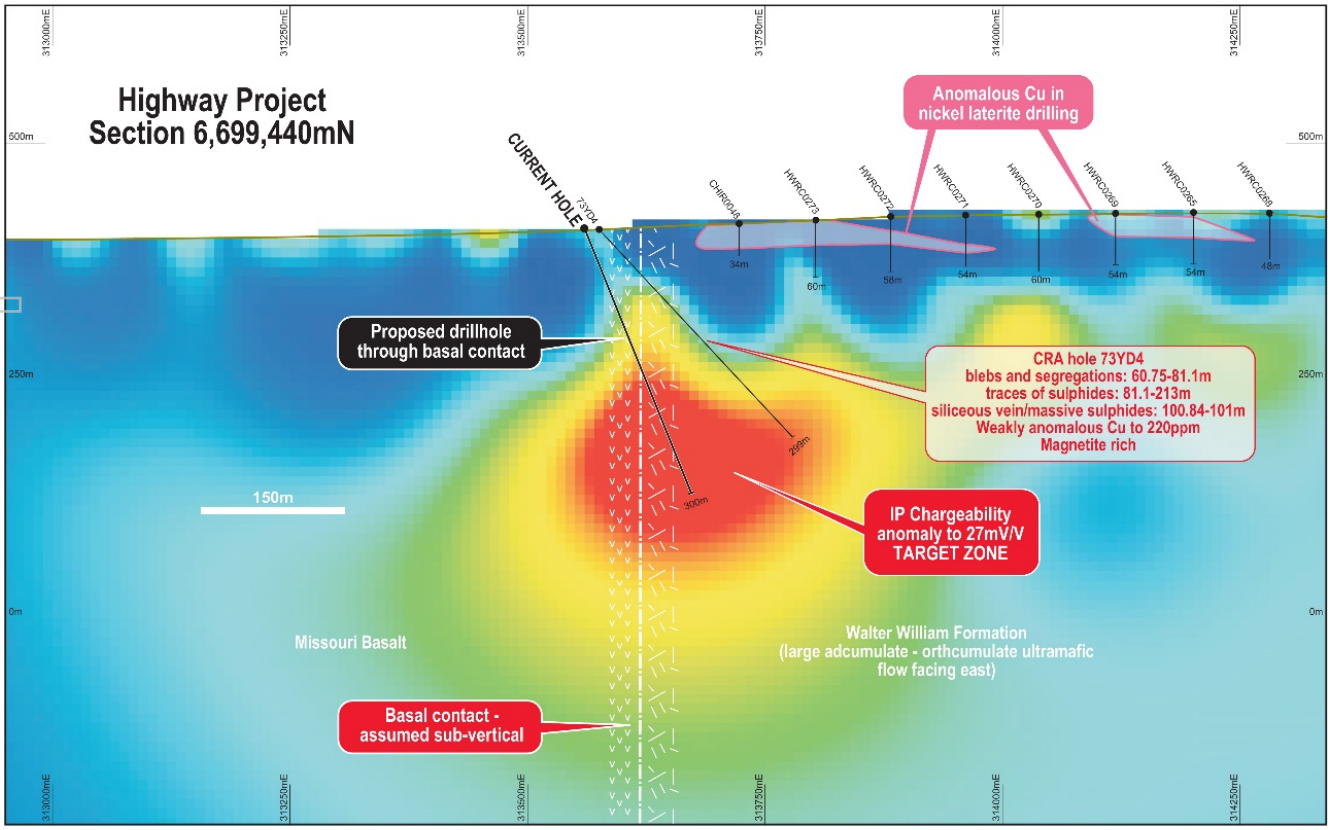


Figure 3: Cross Section looking north showing the location of the current RC hole and 1973 CRA drillhole in relation to the IP chargeability anomaly and basal contact of the WWF.



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Black Range Project Target

The Black Range Prospect is located 65km north-west of Kalgoorlie (Figure 1) and contains a 5 kilometre section of the Ora Banda Sill layered mafic/ultramafic sill enriched in nickel, copper, cobalt (**Co**), scandium (**Sc**) and platinum group element (**PGE**) metals. The Ora Banda Sill is 2.5 kilometres wide in the prospect area and has a distinctive ultramafic base, grading into a pyroxenite zone (target horizon) before passing into a mafic gabbro at the top of the sill (Figure 4).

The IP chargeability anomaly at Black Range is potentially related to a lava feeder zone/pipe within the Ora Banda Sill that is enriched in Ni-Cu-PGE metals. A 280 metre RC drillhole is proposed to test the anomaly at depth (Fig 5).

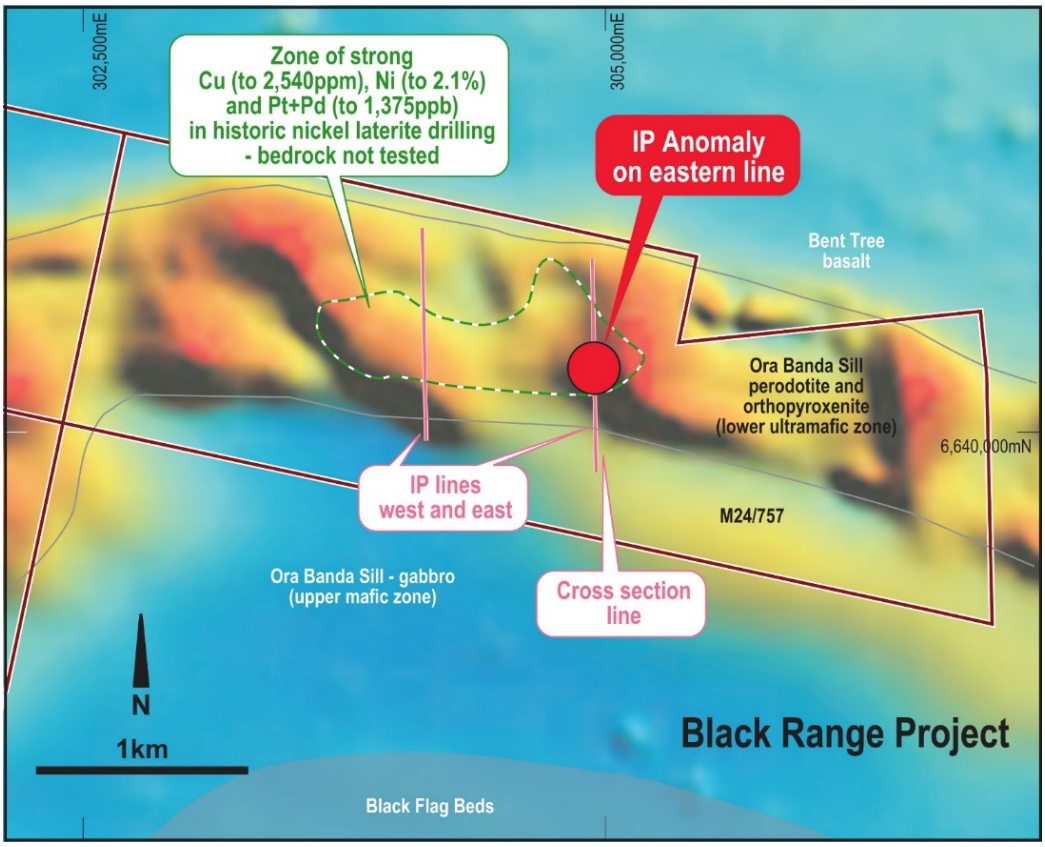


Figure 4: Black Range Prospect, Ardea tenements over Geology and TMI aeromagnetic image showing the outline of the zone enriched in nickel, cobalt, copper, scandium and PGE metals with location of IP lines. Projection MGA 94 Zone 51.

The chargeability anomaly lies in at the top of the ultramafic zone just below the interpreted position of the orthopyroxenite unit (Ardea ASX release 19 April 2021). The target may represent a mineralised conduit or lava pipe "feeder structure" within the sill and hence could be off-set from the orthopyroxenite unit. The IP data on the western line is essentially quiet with a possible chargeability response at the limit of the depth penetration for the survey, 400 metres below surface.

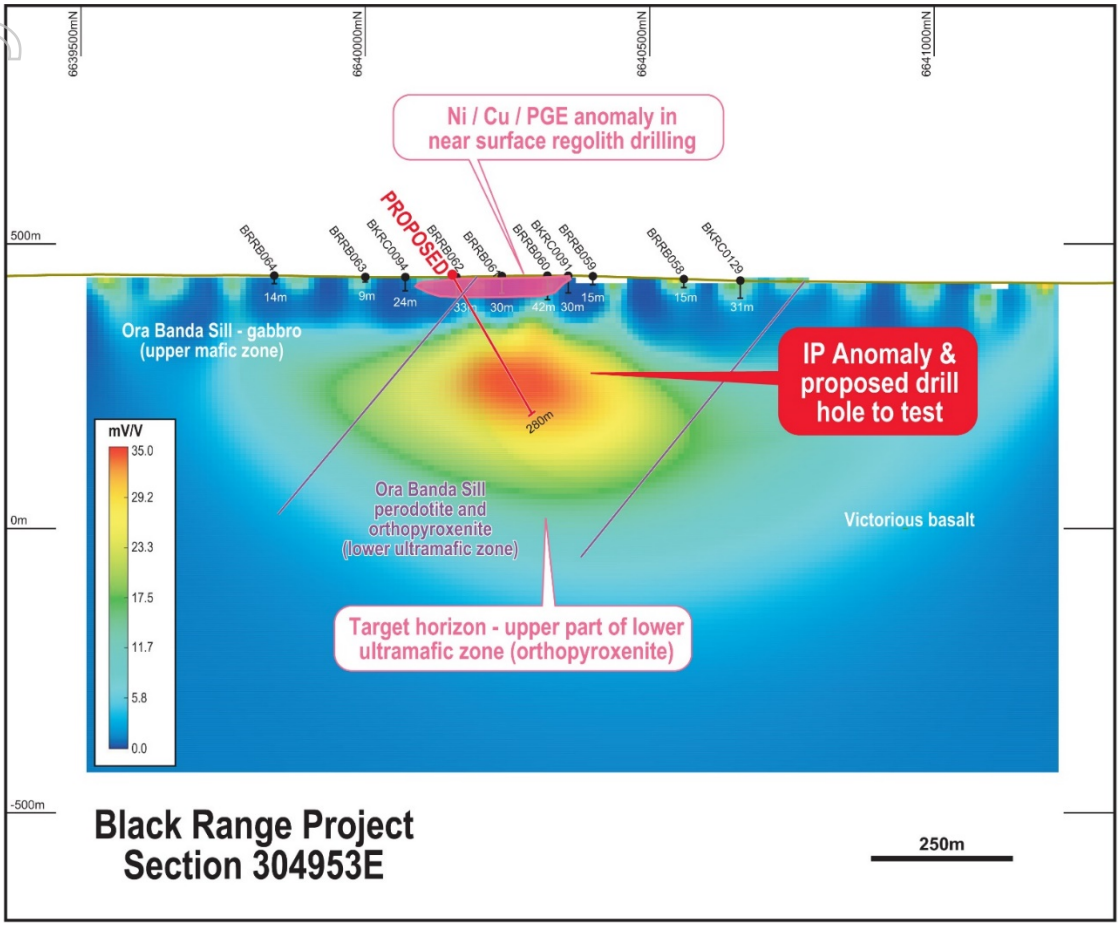
A review by consultant Newexco of historic moving loop electromagnetic (MLEM) data (Heron Resources ASX release 31 December 2011) has also confirmed a clear mid-time, twin-peak inflection that is coincident with the IP anomaly. The combination of the strongly anomalous geochemical results and two independent geophysical surveys (MLEM and IP) has defined a compelling target. To test the target, a 280 metre deep RC drill hole is to be drilled in the next week following on from the Highway drilling.

The Ora Banda Sill is one of a number of differentiated mafic/ultramafic sills in the Archaean greenstone stratigraphy of the Kalgoorlie geological domain. It is the thickest of the sills in the area, reaching a maximum thickness of 2.8 kilometres.

It consists of a southerly facing sequence of basal ultramafic overlain by gabbro and topped with a thin coarse-grained granophyre. The ultramafic zone is made up of lower peridotite overlain by a distinctive orthopyroxenite unit

with a sharp change to the upper gabbro zone. The ultramafic zones have a distinct magnetic-high signature contrasting with the magnetic low of the gabbroic units. As with other layered intrusive systems the PGE mineralisation appears to be focussed within the orthopyroxenite unit.

Figure 5: Black Range cross-section looking west showing IP anomaly (mV/V) within the ultramafic zone of the Ora Banda Sill. The target orthopyroxenite unit is south of the anomaly, however, the anomaly may be related to a separate feeder channel within the sill. Projection MGA 94 Zone 51.



Exploration Strategy

With Ardea's KNP tenement package covering one of the largest areas of ultramafic stratigraphy in Australia, the Company is well positioned to make nickel sulphide and Critical Mineral discoveries. Ardea will continue to rank and prioritise fit-for-purpose exploration for nickel sulphides on its high-quality portfolio of Eastern Goldfields of Western Australia tenements. Any drilling as part of the nickel sulphide programs will also assess nickel-cobalt laterite, Critical Minerals, and gold mineralisation, but the over-riding priority continues to be nickel.

Background and Company Strategy

Ardea's key focus continues to be the development of the KNP, commencing with the Goongarrie Nickel Cobalt Project (**GNCP**) and ongoing Definitive Feasibility Study work streams, to ensure sustainable and ethical nickel-cobalt and scandium production for the rapidly expanding lithium-ion battery supply chain. However, Ardea's strategic tenure in the heart of the Eastern Goldfields of Western Australia is also highly prospective for both nickel sulphide and Critical Minerals with active exploration complementing the development planning of the KNP.

It is important to note that any nickel sulphide discovery, as well as processing as a conventional sulphide flotation concentrate, has the potential to be processed through the High Pressure Acid Leach (HPAL) autoclave planned for Ardea's GNCP and has the added benefit of helping control autoclave oxidising potential and typically improving recoveries. As such, the nickel sulphide exploration strategy complements Ardea's nickel laterite development plans.

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Authorised for lodgement by the Board of Ardea Resources Limited.

For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:

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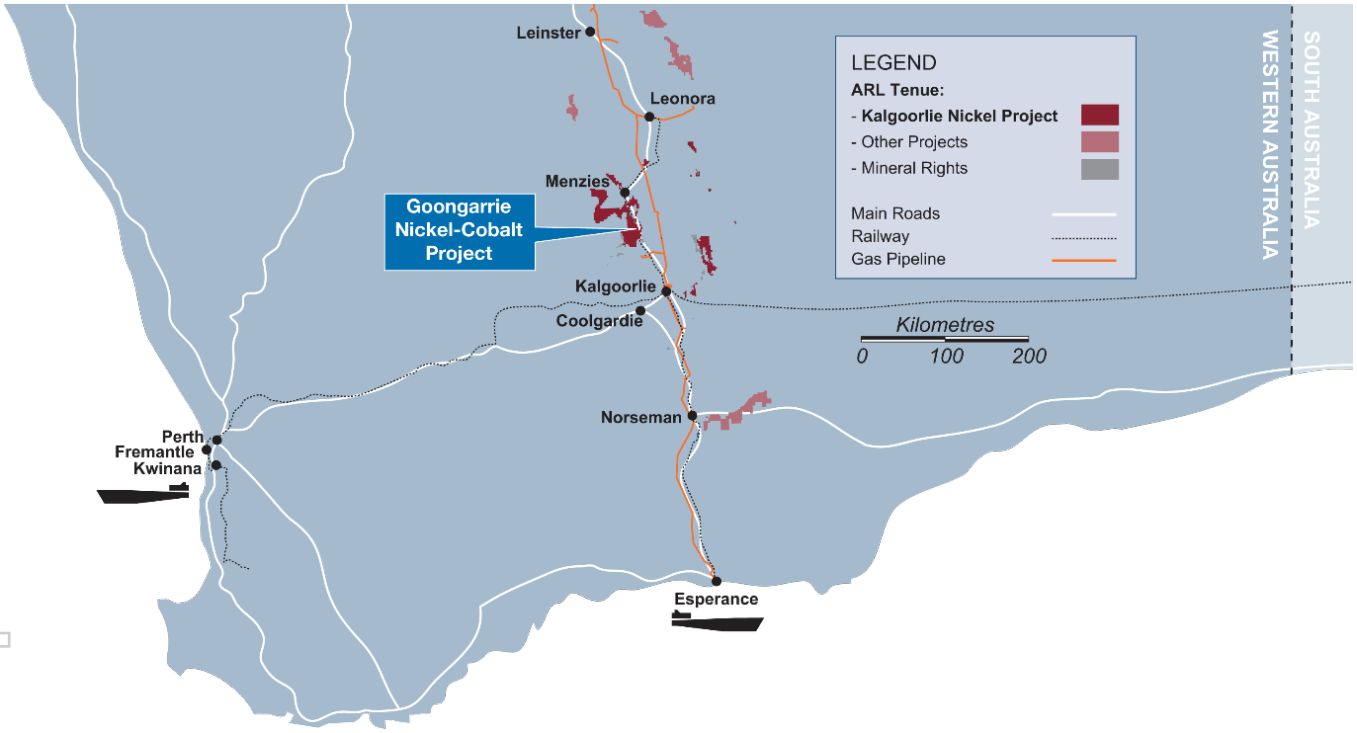
About Ardea Resources

Ardea Resources Limited (ASX:ARL) is an ASX-listed resources company, with a portfolio of 100% controlled West Australian-based projects, focussed on:

- Development of the Kalgoorlie Nickel Project (KNP) and its sub-set the Goongarrie Nickel Cobalt Project (GNCP), a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in the developed world; and
- Advanced-stage exploration at compelling nickel sulphide and gold targets within the KNP Eastern Goldfields world-class nickel-gold province.



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CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This news release contains forward-looking statements and forward-looking information within the meaning of applicable Australian securities laws, which are based on expectations, estimates and projections as of the date of this news release.

This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and amount of funding required to execute the Company's exploration, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information. Forward-looking information is based on the opinions and estimates of management at the date the information is given, and on information available to management at such time.

Forward-looking information involves significant risks, uncertainties, assumptions and other factors that could cause actual results, performance or achievements to differ materially from the results discussed or implied in the forward-looking information. These factors, including, but not limited to, the ability to create and spin-out a gold focussed Company, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.

Although the forward-looking information contained in this news release is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.

Competent Person Statement

The technical information in this report relating to Exploration Results is based on information compiled by Mr David von Perger, who is a Member of the Australian Institute of Mining and Metallurgy (Chartered Professional – Geology). Mr von Perger is an independent geological consultant providing services to Ardea 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. Mr von Perger consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Mr von Perger owns shares in Ardea.

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JORC 2012 Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section applies to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.*	• Sampling is proposed to be undertaken using 4m cone split composite samples. • Drilling has only just commenced – this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work. Additional details can be provided when the drilling and sampling program has been completed.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details.*	• Drilling is being undertaken by Reverse Circulation methods.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• Drilling has only just commenced – this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work.
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.*	• All RC chips are being logged by qualified geologists and recorded in an industry standard database.
Sub-sampling techniques and sample preparation	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• No sampling undertaken as yet – this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work. Additional details can be provided when the drilling and sampling program has been completed.
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.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• No sampling undertaken as yet – this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work. Additional details can be provided when the drilling and sampling program has been completed.

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Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• No sampling undertaken as yet – this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work. Additional details can be provided when the drilling and sampling program has been completed.
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.*	• Hole locations are determined with a handheld GPS unit, considered to be accurate to within 1-5 metres. This level accuracy is considered to be sufficient for this early stage of exploration.
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 drilling is of a reconnaissance nature consisting of single drillholes to test specific geophysical targets. The drill spacing is considered appropriate for this early stage of exploration.
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.*	• No sampling undertaken as yet – this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work.
Sample security	• *The measures taken to ensure sample security.*	• All sampling will be undertaken in a secure manner with assays to be undertaken in Perth, Western Australia at industry recognised laboratories.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews have been undertaken given the early stage of the exploration.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to*	• The project areas location are shown on Figure 1 of this report and described in the body of the report. • At Highway, the tenure is considered to be secure being held under granted Mining Lease M29/214, wholly owned by Ardea Resources Ltd. • At Black Range the tenure is considered to be secure being under granted Mining Lease, M24/757. M24/757 is being transferred 100% into the name of Ardea Resources Ltd (awaiting

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Criteria	JORC Code explanation	Commentary
	operate in the area.	stamp duty assessment) at which point Ardea will own all mineral rights apart from gold. The gold rights are owned by a third party company. • Given the early stage of the exploration no mining specific applications have been made. • An Aboriginal heritage site has been defined at Mt Carnage the peak of which is south of the southern boundary of M24/757. A 200m curtilage zone was emplaced around the base of Mt Carnage and while this zone does not cover the area of the IP anomaly or the proposed drill hole, it could impact on future step out drilling to the south of the IP anomaly. Alternative drilling angles may need to be employed to avoid the curtilage zone.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The project areas have been explored extensively in the past for nickel laterite and nickel laterite resources have been defined. This work has mostly been undertaken in the past by Heron Resources Ltd.
Geology	• *Deposit type, geological setting and style of mineralization.*	• The Company is seeking Archaean mafic and ultramafic hosted Ni/Cu/PGE sulphide and related deposits in the project areas.
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:*	• Drilling has only recently commenced and this ASX release is primarily related to the release of geophysical data, interpretation, and related follow up work.
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.*	• Drilling has only recently commenced and this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work.
Relationship between mineralization 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.*	• Drilling has only recently commenced and this ASX release is primarily related to the release of geophysical data, interpretation and related follow up work.

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Criteria	JORC Code explanation	Commentary
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.*	• Where relevant, a diagram showing the hole positions relevant for the current phase of exploration is included in the release.
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 Results.*	• The reporting is considered to be balanced taking into account the early stage of the exploration.
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.*	• Induced Polarisation (IP) surveys were conducted. The IP surveys were conducted by Moombarriga Geophysics Pty Ltd in March 2021 and used the SearchEx 50kVA transmitter and EMIT SmarTEM receivers. The survey was conducted using a dipole-dipole configuration, with 'a' spacing of 100m. Transmitted signal was 0.125Hz using a 50% duty cycle and achieved currents ranged from 10.5-62.0A. Line length at Black Range was approximately 1.0 kilometre giving a nominal depth of investigation down to 400m below surface in the centre of the lines.
Future work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Ardea is seeking Archaean mafic and ultramafic hosted Ni/Cu/PGE sulphide deposits on its extensive tenement holding in the Eastern Goldfields of Western Australia. • Future work at Highway and Black Range will entail: ○ Completing the drilling and assessing the results. Follow-up drilling as warranted. ○ Additional geophysical surveys may be undertaken if the proposed drilling demonstrates the anomaly is related to sulphide mineralisation.