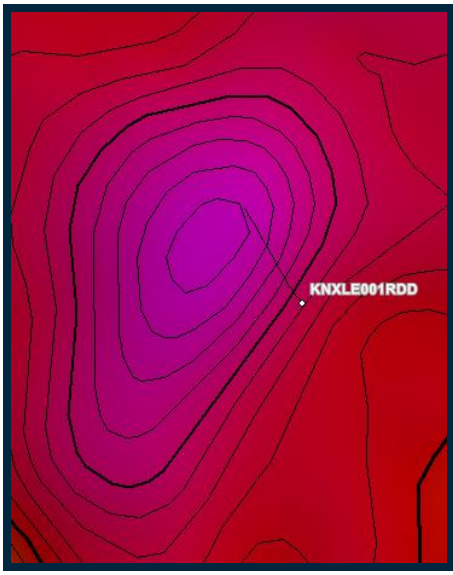
ASTUTEMETALSNL

11 January 2024

STRONG IOCG TARGET REVEALED BY GEOPHYSICAL MODELLING AT GEORGINA PROJECT, NT

The Constrained Inversion target sits directly above broad, low-level copper and uranium mineralisation intersected previously at Leichhardt East



Key Highlights

- **Constrained gravity model reveals a high-density target not tested by the previous Leichhardt East drill-hole KNXLE001RDD**
- **High-density target is consistent with the dense nature of IOCG mineralised rocks, located above elevated IOCG pathfinder metals such as uranium, bismuth, silver and copper in nearby previous drilling[2]**
- **Modelling work is ongoing, aiming to constrain magnetic data and perform further inversions at the previously drilled Leichhardt West and Banks prospects**
- **Target ranking and drill-hole design to be completed following modelling, with drill testing in H2 2024**

Astute Metals NL (ASX: ASE) ("ASE", "Astute" or "the Company") is pleased to advise that it has generated a highly prospective new IOCG target from geophysical modelling completed at the Leichhardt East Prospect, located in the central tenement area of its Georgina IOCG Project, in the Northern Territory.

Using data generated from the Ambient Noise Tomography (ANT) geophysical survey conducted last year, consulting group Mitre Geophysics performed a constrained inversion of previously captured gravity survey data, with a view to removing the effects of the overlying Georgina Basin limestone cover rocks to produce a more accurate model for where prospective gravity (density) anomalies reside in the underlying basement.

The inversion of the residual gravity response was explained by a modelled body, extending over a strike length of approximately 1km, with a density of 3.5 - >5g.cc, which is consistent with that of mineralised rocks from iron-oxide copper-gold (IOCG) deposits such as Carrapateena[1]. Previous Astute drill-hole KNXLE001RDD, which targeted unconstrained gravity and magnetic inversion models, intersected narrow slivers of ironstone which were mineralised with respect to anomalous levels of copper, bismuth, silver and uranium[2]. This updated inversion model sits approximately 300m above the mineralised ironstone and therefore represents a compelling target for drill testing (See Figure 1).

The new constrained gravity model has revealed a compelling, untested, high-density IOCG target, situated directly above previous drilling, supported by elevated key IOCG pathfinder metals such as uranium, bismuth, and copper[2]. The next steps are to complete inversions of gravity and magnetic data at Leichhardt East, and the other previously drilled Leichhardt West and Banks Prospects, conduct target ranking and design dill holes to test this, and any other high-priority targets identified.

Astute Executive Chairman, Tony Leibowitz, said:

"This is a very exciting breakthrough for our exploration team, which is the result of diligent work, innovative thinking and the application of the latest geophysical techniques. The data from the recent ANT survey has proven to be a major step forward, when combined with other available gravity data and evidence from the diamond drill-hole completed previously at Leichhardt East.

"The newly identified IOCG target sits above and adjacent to this previous drill-hole and ticks every box from an exploration perspective. It represents a walk-up drill target for Astute and a potential company-maker that we intend to pursue for our shareholders."

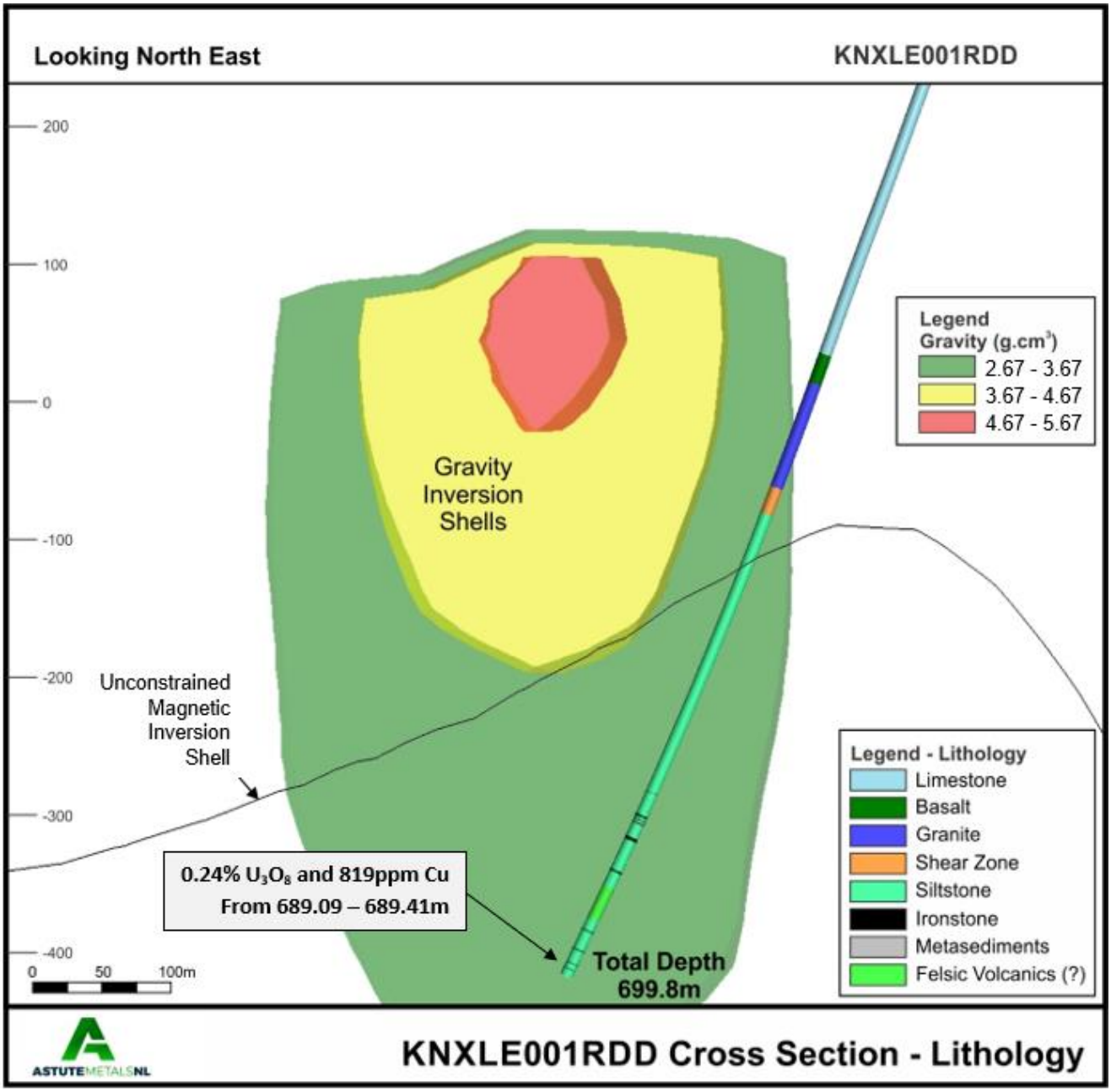


Figure 1. Constrained gravity model density isosurfaces and existing drill-hole at Leichhardt East.

Background

Previous drilling at Leichhardt East targeted partly-coincident magnetic and gravity isosurfaces that were generated by *unconstrained* inversion modelling. The drill-hole intersected prospective host rocks that exhibit alteration and geochemical anomalism that may be associated with an Iron-Oxide-Copper-Gold (IOCG) style mineralising system, including uranium mineralisation in ironstones, with intervals grading 0.24% U_3O_8 from 689.09-689.41m and 0.11% U_3O_8 from 481.1-481.85m, along with associated elevated copper and bismuth[2].

In August 2023, the Company conducted the field component of an Ambient Noise Tomography (ANT) geophysical survey, designed to gain an improved understanding of the sub-surface structure, which, when used to constrain the Company's existing gravity and magnetic survey data, is expected to be a highly powerful tool for the identification of IOCG-style targets for future drill testing[3].

The survey identified a 'low-velocity' near-surface zone which is interpreted to approximate the overlying Georgina Basin limestone. The limestone is a cover unit of rocks that makes exploration challenging due to its effect of masking geophysical signals from the underlying basement rocks, which are prospective for IOCG deposits.

Late in 2023, final data was received for the ANT survey and provided to the Company's geophysical consultants, Mitre Geophysics, with a view to characterising the geophysical effect of the limestone cover rocks, and 'subtracting' these from survey datasets. This would enable the Company, to the extent that it is possible, to target basement geophysical anomalies without the confounding effects of cover rocks.

This work commenced in the Central tenement area, to re-evaluate the Leichhardt East, Leichhardt West and Banks prospects, to establish whether previous drilling had effectively tested the targets, in light of this new information.

The Importance of High-Density Rocks

The results received from the constrained inversion modelling have highlighted the highly prospective nature of the Company's Georgina Basin IOCG Project. One of the key aspects to the results of modelling is that the resultant target generated is of a high density, ranging between 3.5 to over 5g.cc. Most rock-forming minerals have a density/specific gravity of between 2.6 and 3g.cc, while minerals that are significant in the mineralised part of IOCG deposits have significantly higher densities[5], such as iron-oxide minerals magnetite (density of 5.18g.cc), hematite (5.26g.cc) and copper-bearing minerals such as chalcopyrite (4.1-4.3g.cc) and bornite (5.06-5.08g.cc).

As a result of the increased presence of these dense minerals – in particular iron oxide minerals that typically make up 15-60wt% of mineralised rocks[4] – the rocks that make up IOCG deposits are dense themselves. For example, mineralised rocks at Carrapateena, a South Australian IOCG deposit (Measured Mineral Resource of 130Mt at 1.01% copper, 0.42g/t gold and 4g/t silver)[7], owned by BHP, have densities ranging from approximately 3.51 – 4.7g.cc[1].

Nearby Geochemical Anomalism

Located approximately 350m below the modelled dense body of rocks is a zone of ironstones intersected in drill hole KNXLE001RDD, drilled by the Company in late 2022. The ironstones in this hole exhibit elevated levels of pathfinder metals that are observed in IOCG deposits, including uranium (up to 0.24% U_3O_8), bismuth (up to 50.7ppm), silver (up to 1.72g/t) as well as copper grading up to 0.22%[6].

These results are considered highly significant as they suggest that drilling may have intersected rocks peripheral to an IOCG system, indicating a hydrothermal component to the rock packages encountered and illustrating compelling similarity to Tennant Creek IOCG deposits. Full results for this drill-hole are detailed in the 3 April 2023 ASX release listed in the footnotes of this announcement.

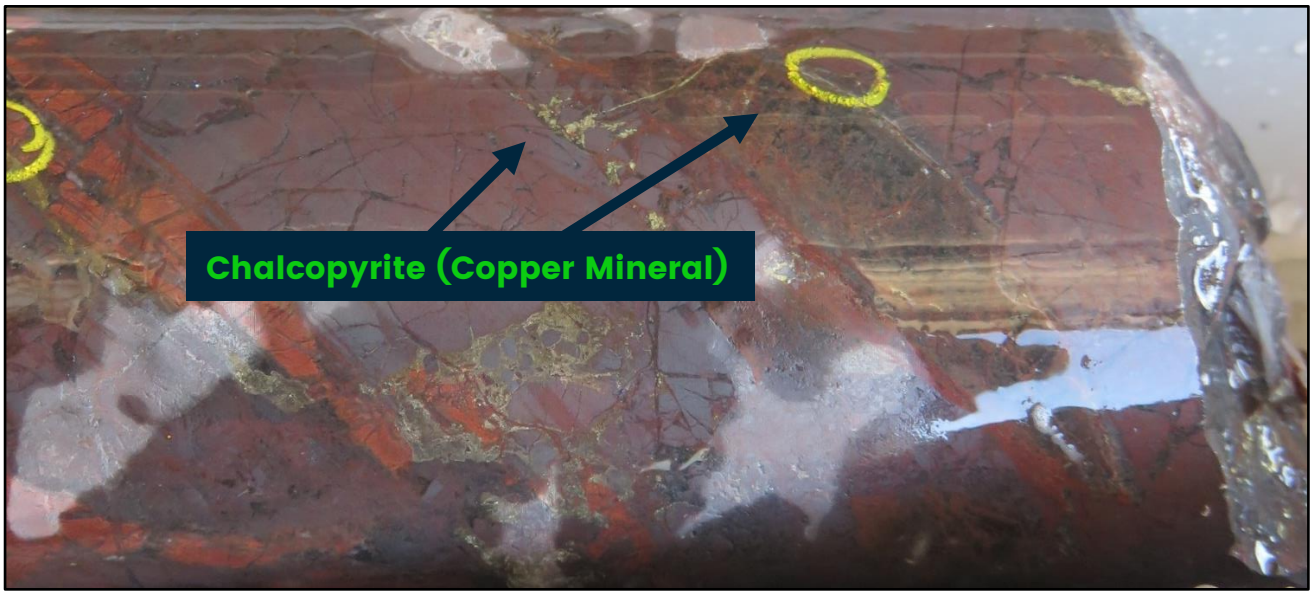


Figure 2. Chalcopyrite (copper-bearing mineral) in hematite-rich ironstone at 689.5m in KNXLE001RDD.

Geophysical Modelling Workflow

A specialised workflow was developed by Mitre Geophysics (Mitre) to bring together gravity, ANT survey and geological inputs to arrive at the final constrained inversion model for Leichhardt East:

1. A low-velocity zone that is interpreted to approximate the Georgina Basin limestone was identified in the ANT survey.
2. The lower contact of the low-velocity zone – a deliverable from the ANT survey – and a topographic surface were used to establish a modelling volume ("Geobody") for the Georgina Basin limestone.

3. The Georgina Basin limestone was assigned a single density of 2.78, based on open file bulk wet density data from drill holes in the East Tennant region (Elkedra7, CKAF0001 and NTGS01/1).
4. The 3D Bouger gravity response of the Georgina Basin limestone Geobody was calculated.
5. A basement-only gravity response was then calculated and resultant anomaly of interest at Leichhardt East was identified.
6. The anomaly of interest was inverted by two methods – a Windisp UBC inversion and an alternative solution using ModelVision for comparison.
7. 3D outputs from the inversion methods were compared and evaluated by a Mitre consultant geophysicist.

The two inversion methods produced modelled solids for the dense body that were in good agreement, which provided a degree of confidence in the robustness of the output.

Next Steps

The new constrained gravity model has revealed a compelling, untested, high-density IOCG target, situated directly above a drill hole with elevated key IOCG pathfinder metals such as uranium, bismuth, and copper[2]. While the results of the constrained inversion modelling of the gravity are mostly complete, the Company will now look to do the same with magnetic data at Leichhardt East. Once complete, further modelling will be undertaken at Leichhardt West and Banks, both of which have also been tested so far by a single exploration drill-hole. Having constrained inversion models for gravity and magnetics for all three prospect areas will provide the Company with the best available information for both ranking the prospects and optimising the likelihood of exploration success in a future drilling campaign at Georgina. The modelling is expected to be completed in the current quarter, with a view to drilling in H2 of 2024.

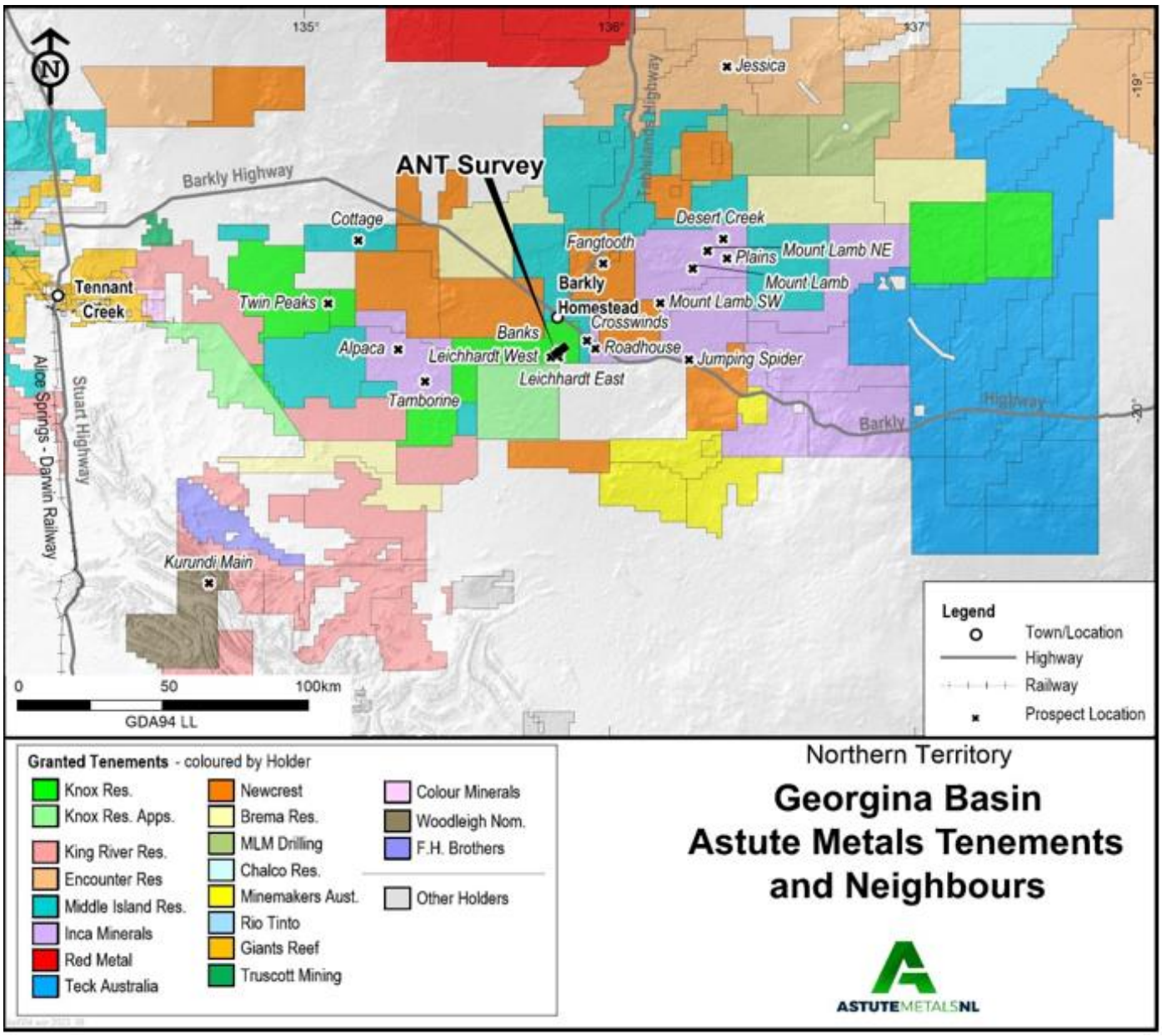


Figure 3. Astute (Knox Resources) tenements (green), neighbouring tenements and location of ANT Survey.

1 Vella, L., Emerson, D., 2009 'Carrapateena: physical properties of a new iron-oxide copper-gold deposit'
2 ASX: ARO 3 April 2023 'Significant polymetallic anomalism intersected at Georgina IOC Project, NT'
3 ASX: ASE 3 August 2023 'Commencement of Geophysics Survey at Georgina IOCG Project'
4 Skirrow, R.G, 2022 'Iron oxide copper-gold (IOCG) deposits – A review (part 1): Settings, mineralogy, ore geochemistry and classification
5 AusIMM, Mineral Densities - https://www.ausimm.com/globalassets/insights-and-resources/minerals-processing-toolbox/mineraldens.pdf
6 ASX: ARO 17 April 2023 'AGES Presentation – Georgina Basin'
7 ASX: BHP 'Annual Report 2023'

Authorisation

This announcement has been authorised for release by the Board of Astute.

More Information

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Competent Person

The information in this report is based on information compiled by Mr Matthew Healy, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM Member number 303597). Mr Healy is a full-time employee of Astute Metals NL and is eligible to participate in a Loan Funded Share incentive plan of the Company. Mr Healy 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 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Healy consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

APPENDIX 1 - 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 specialisedindustry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheldXRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensuresample 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, suchas where there is coarse gold that has inherentsampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	Gravity data collected using a CG-6 Autograv Gravity Meter and ESVE300PRO GNSS Rover Receiver and Base Receiver. Ambient Noise Tomography (ANT) Survey completed using 64 satellite and GPS enabled Fleet Space Technologies Geodes on an approximate 600 x 550m grid. The survey was completed in four phases in August 2023
Drilling techniques	Drill type (eg core, reverse circulation, open-holehammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core isoriented and if so, by what method, etc).	Not applicable.
Drill sample recovery	Method of recording and assessing core andchip sample recoveries and results assessed. Measures taken to maximise sample recoveryand 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/gainof fine/coarse material.	Not applicable.
Logging	Whether core and chip samples have been geologically and geotechnically logged to alevel of detail to support appropriate MineralResource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative innature. Core (or costean, channel, etc) photography. The total length and percentage of the relevantintersections logged.	Not applicable.

APPENDIX 1 - JORC Code, 2012 Edition – Table 1

Criteria	JORC Code explanation	Commentary
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, rotarysplit, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparationtechnique. Quality control procedures adopted for all sub-sampling stages to maximise representivityof samples. Measures taken to ensure that the sampling isrepresentative of the in situ material collected,including for instance results for field duplicate/second-half sampling.	Constrained Geophysical Modelling Process described in announcement body text.
Quality of assay data and laboratory tests	Whether sample sizes are appropriate to thegrain size of the material being sampled. The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial ortotal. For geophysical tools, spectrometers, handheldXRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precisionhave been established.	Not applicable.
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 entryprocedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data.	Not applicable
Location of data points	Accuracy and quality of surveys used to locatedrill 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.	Gravity survey locations and ANT survey locations determined by GPS Topographic survey used in modelling gridded from gravity observation points

APPENDIX 1 - JORC Code, 2012 Edition – Table 1

Criteria	JORC Code explanation	Commentary
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 MineralResource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied.	Not applicable
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.	Not applicable
Sample security	The measures taken to ensure sample security.	Not applicable
Audits or reviews	The results of any audits or reviews of samplingtechniques and data.	Not applicable

APPENDIX 1 - JORC Code, 2012 Edition – Table 1

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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.	Tenements held in 80% Astute subsidiary Knox Resources Pty Ltd. Remaining 20% interest held by Greenvale Energy Ltd Drilling conducted on granted exploration tenement EL33375 Landholder access agreement in place.
Exploration done by other parties	Acknowledgment and appraisal of exploration byother parties.	Previous exploration conducted by Greenvale Mining, comprising airborne magnetic and ground gravity surveying, desktop studies and exploration drilling. Previous Greenvale exploration referenced in this announcement from the following ASX releases: ASX: GRV 29 June 2022 'First Diamond hole at the Banks Target intersects IOCG-style Alteration' ASX: GRV 27 July 2022 'Diamond hole at Leichhardt confirms IOCG potential at Georgina'
Geology	Deposit type, geological setting and style of mineralisation.	The principal target deposit style is iron-oxide-copper-gold (IOCG). IOCG deposits are typically characterized by associated magnetic and gravity responses due the prevalence of dense and often magnetic iron oxide minerals as a substantial portion of the deposit footprint mineralogical constitution. IOCG deposits are known in the Tennant Creek region and recent Geoscience Australia prospectivity analysis indicates that basement rocks east of Tennant Creek, the location of the Company tenements, are prospective for IOCG deposits.
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.	Referenced in originating ASX releases: ASX: GRV 29 June 2022 'First Diamond hole at the Banks Target intersects IOCG-style Alteration' ASX: GRV 27 July 2022 'Diamond hole at Leichhardt confirms IOCG potential at Georgina' ASX: ARO 3 April 2023 'Significant polymetallic anomalism intersected at Georgina IOCG project, NT'

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
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 shownin detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not applicable
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').	Not applicable
Diagrams	Appropriate maps and sections (with scales) andtabulations 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.	Included in ASX announcement
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.	This release describes all relevant information
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysicalsurvey 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.	This release describes all relevant information
Further work	The nature and scale of planned further work (egtests for lateral extensions or depth extensions orlarge-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.	Results will be used to design exploration drill holes for permitting, and drill testing in H2 2024