ASX: AHN

Issued Capital
870,467,558 shares
75,000,000 @ $0.020 options
352,655,853 @ $0.018 options

Athena Resources Limited
ACN 113 758 900

Directors
Ed Edwards
Hau Wan Wai
Peter Newcomb

Company Secretary
Ed Edwards

About Athena Resources

AHN is an Australian ASX listed explorer and developer of high-grade iron ore assets in Western Australia.

The Company is focused on its Byro Project, strategically located in the Mid-West region 410km from the Port of Geraldton.

The Byro Iron Ore Project has potential to mine and supply premium grade, low impurity magnetite (>70% Iron Content) for the production of green steel, a fast-growing global market opportunity. The Byro Project also contains exciting base metal potential.

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MINERAL RESOURCE ESTIMATE

Byro FE1 Magnetite Project

Athena Resources Limited is pleased to announce the completion of the Mineral Resource Estimate (MRE), for the FE1 Ore Body prepared by independent international mining consultant Entech Mining Pty Ltd.

Highlights

- **Mineral Resource upgraded from Inferred to Indicated.**
- **Whole rock resource increased from 22.8m tonnes (reported in 2012) to 29.3m tonnes.**
- **Contained Fe increased by a total of 24%.**
- **Davis Tube Recovery (DTR) results maintain previous high grade of 70.7%Fe.**
- **Superior grade and purity suitable for high value specialised steel (including 'Green Steel'), and other industrial applications.**
- **The average dip of the ore body has been revised from 45 degrees to 35 degrees resulting in favourable potential for an increase of tonnes of ore available per vertical metre.**
- **Entech assessed the resource as meeting the criteria for Reasonable Prospects for Eventual Economic Extraction.**
- **No further geological drilling is required to take the upcoming FE1 Pre-Feasibility Study to a Definitive Feasibility Study.**

Athena Resources Limited ("the Company") are delighted to release the Indicated Mineral Resource Estimate (MRE) to meet 2012 JORC guidelines for the unique Byro FE1 magnetite project prepared by Entech Mining Pty Ltd. The MRE is a keystone achievement for the development of the FE1 project with no further geological drilling required to take the project to mining. The full Material information summary as required under ASX Listing Rule 5.8 and JORC Code (2012) reporting guidelines is attached in Appendix A. The Mineral Resource Statement is as follows:

Mineral Resource Statement

The Mineral Resource Statement for the Byro FE1 magnetite open pit Mineral Resource Estimate (MRE) was prepared in January 2023 and is reported according to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code') 2012 edition.

The MRE includes 29 reverse circulation (RC) drill holes completed during 2010 to 2011. A further four RC drill holes were added in 2022 along with one diamond drill hole (DD), and 10 drill holes with RC pre-collars and diamond core tails. The depth from surface to the current vertical limit of the Mineral Resources is approximately 200 m.

In the opinion of Entech, the Mineral Resource evaluation reported herein is a reasonable representation of the global open pit magnetite Mineral Resources within the deposit, based on sampling drill data available as at 13 December 2022.

The Indicated and Inferred Mineral Resources comprise fresh rock material. The Mineral Resource Statement is presented in Table 1 for whole rock mineralisation and in Table 2 for magnetite.

Table 1 Byro Open Pit Whole Rock Mineral Resource within mineralised domains interpreted at 10% Fe cut-off

Mineral Resource Category	Weathering	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	TiO2 (%)	LOI (%)	Density
Indicated	Fresh	24.0	25.1	49.3	5.48	0.052	0.079	0.32	-0.059	3.27
Inferred	Fresh	5.3	22.7	50.6	6.56	0.048	0.085	0.37	0.023	3.21
Total		**29.3**	**24.7**	**49.6**	**5.68**	**0.051**	**0.080**	**0.33**	**-0.044**	**3.26**

No cut-off grade used in the report
Totals may not be able to be reproduced due to the effects of rounding

Table 2 Byro Open Pit Magnetite Mineral Resource within mineralised domains interpreted at 20% DTR cut-off

Mineral Resource Category	Weathering	Tonnes (Mt)	DTR (%)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	LOI (%)	Density
Indicated	Fresh	17.7	33.6	70.7	1.23	0.32	0.003	0.021	-3.20	3.30
Inferred	Fresh	3.3	32.3	70.8	0.95	0.34	0.002	0.023	-3.17	3.26
Total		**21.0**	**33.4**	**70.7**	**1.18**	**0.32**	**0.003**	**0.021**	**-3.19**	**3.29**

No cut-off grade used in the report
Totals may not be able to be reproduced due to the effects of rounding
The estimated Magnetite Mineral Resource is contained within the whole rock Mineral Resource, and they are not cumulative.

Data from a total of 6,790 m of drilling from 33 RC drill holes and 11 RC drill holes with diamond core tails were available for the MRE. The database to 30 November 2022 comprised 2,353 samples with head grade assays and 373 samples with recovery and concentrate assays

This MRE includes Inferred Mineral Resources which are unable to have economic considerations applied to them, nor is there certainty that further sampling will enable them to be converted to Measured or Indicated Mineral Resources.

Competent Person's Statement

The information in the report to which this statement is attached that relates to the Estimation and Reporting of Mineral Resources at the Byro FE1 magnetite deposit is based on information compiled by Mr Alan Miller, BSc, a Competent Person who is a current Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Miller, Senior Geologist at Entech Pty Ltd, is an independent consultant to Athena Resources Ltd (Athena) with sufficient experience relevant to the style of mineralisation and deposit type under consideration and to the activities 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 Miller consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

Entech undertook a site visit to the Byro FE1 deposit on 20 to 21 June 2022 while the DD drilling campaign, to support the 2023 MRE update, was in progress. During the visit, Entech personnel inspected mineralised intersections in drill core and observed drilling, logging, sampling, QAQC and metadata collection operations.

End of Mineral Resource Statement

Athena Resources have reviewed the preliminary findings of the MRE and the resulting statement of estimation. The full Byro FE1 Mineral Resource Estimation Report will be available following further review over the next three weeks. The Company is now revising the economic model and mining parameters including pit model optimisation based on the new MRE to complete the Byro FE1 project Pre-Feasibility Study. The positive elements of the MRE include increase of overall tonnes of ore, maintaining a DTR grade above 70% Fe, increasing the depth of the ore horizon and improving the potential tonnes per vertical meter throughout conceptual mine development.

Tonnes

Drilling coverage has allowed a modelled area of approximately 800 m strike length with a main mineralised zone width of approximately 250 m. The mineralised zone is interpreted to extend to 200 m depth from surface. Volume model parameters included primary cell sizes of 20 mE, 50 mN and 10 m RL (vertical) for easy correlation to drill, blast and bench parameters.

The MRE estimated ore tonnes increased the previous inferred resource by 29% in whole rock ore and 16% in concentrate tonnes.

Most of the additional high grade ore tonnes included in the indicated MRE model result from incremental extensions in depth in the central and eastern portion of the ore body and are contained within the existing inferred pit model parameters. A portion of additional ore within the west of the modelled area is west and below the previous inferred model and will require adjustment to the pit design and optimisation.

Grade and Dilution

Routine 4 m composite intervals were used in primary sampling for DTR analysis throughout the infill program compared to 10 m composite intervals used in the Inferred resource estimate. Sub celling was utilised to ensure domain boundaries were honoured to a minimum 2.5 mE x 6.25 mN x 2.5 mRL. These parameters are sufficient to account for zones of internal dilution not identifiable within the Inferred resource estimate. The Inferred resource estimated a concentrate grade 70.7% Fe, the MRE estimated concentrate grade of 70.7% Fe, (DTR). The result confirms broad and continuous ore development with only minor zones of internal dilution.

Dip

A re-evaluation of the hanging wall, near surface average dip of the ore body has resulted in a change from 45 degrees to a shallower dip of 35 degrees. This is favourable in terms of strip ratio because more ore will be mined earlier in the development phase with the potential for greater tonnes of ore per vertical meter mined throughout development.

Next steps

Following the imminent publication of a Pre-Feasibility Study the Company is looking forward to taking the next step of a broader Definitive Feasibility Study. This will include resource definition of a selection of neighbouring high grade satellite projects, (Byro South, Whistlejack and the Mt Narryer projects), released to the ASX in December 2011[1], December 2014[2], and October 2016[3] with the intension to support the Byro FE1 project.

The Byro South, Whistlejack and the Mt Narryer projects have had moderate drilling and metallurgical studies, drilling to date at the projects supports aspects of the forward-looking statement above. The quantity and grade announced on the ASX platform for Byro South, Whistlejack and the Mt Narryer projects are conceptual in nature. There has been insufficient exploration to define a mineral resource for each of the projects. Further exploration is warranted to improve understanding and reduce uncertainty.

[1] ASX Release – Drilling Update, Byro South (14 December 2011)
[2] ASX Release – Byro Iron Ore Project, Mt Narryer (15 December 2014)
[3] ASX Release – Byro Iron Ore Project, Mt Narryer Whistlejack (19 October 2016)

Athena Resources Limited (ASX:AHN), which is based in Perth was listed on the ASX in 2006. Athena owns a 100% interest in the Byro Project through its subsidiaries Complex Exploration and Byro Exploration where it is exploring for iron ore, copper, nickel, and PGE's.

This announcement is Authorised by the Board

Ed Edwards
Executive Director
17 January 2023

CAUTIONARY NOTES AND DISCLOSURES

Disclosures

All data and Information of material nature referred to within this Report with reference to the Byro FE1 ore body have previously been reported on the ASX platform to meet the guidelines of the relevant JORC compliance reporting format at the time of data acquisition.

Cautionary Notes and Forward Looking Statements

This announcement contains certain statements that may constitute "forward looking statements". Such statements are only predictions and are subject to inherent risks and uncertainties, which could cause actual values, results, performance achievements to differ materially from those expressed, implied or projected in any forward looking statements.

The Byro South, Whistlejack and the Mt Narryer ore bodies have had extensive drilling and metallurgical studies, drilling to date at the ore bodies supports aspects of the forward looking statement above. The quantity and grade reported for Byro South, Whistlejack and the Mt Narryer ore bodies are conceptual in nature. There has been insufficient exploration to define a mineral resource for each of the ore bodies. Further exploration is warranted to improve understanding and reduce uncertainty.

JORC Code Compliance Statement

Some of the information contained in this announcement is historic data that have not been updated to meet the 2012 JORC Code guidelines. Some information referred to in the announcement was prepared and first disclosed under the JORC Code 2004 edition. It has not been updated since to comply with the JORC Code 2012 edition on the basis that the information has not materially changed since it was last reported.

Competent Persons Disclosure

Mr Kelly is an employee of Athena Resources and currently holds securities in the company.

Competent Person Statement

The information included in the report was compiled by Mr Liam Kelly, an employee of Athena Resources Limited. Mr Kelly has had over twenty years' experience as a geologist in mining and exploration and is a Member of the Australasian Institute of Mining and Metallurgy, (306501). Mr Kelly has sufficient relevant experience in the styles of mineralisation and deposit styles under consideration to qualify as a Competent Person as defined in "The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition)". The historical information included is compliant with the relevant JORC Code, 2004 Edition, and new information announced post that version of the JORC Code is compliant with the JORC Code 2012 Edition. Mr Kelly consents to the inclusion of the information in the report in the context and format in which it appears.

INTERESTS IN MINING TENEMENTS

Athena Resources Limited 100%	Tenement Type
Byro Exploration	E – Exploration License
E09/1507	
E09/1552	
E09/1637	
E09/1781	
E09/1938	
Byro Project Mining	M - Mining Lease
M09/166	
M09/168	

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply 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.*	• Drill core and cuttings were lithologicaly and geotechnically logged and measured for magnetic susceptibility. Solid core was measured and core recovery was recorded. All core runs where possible were ORI marked and an orientation line applied to the core. The measurement tool used for Magnetic susceptibility was a handheld KT-10 with serial number # 8791
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Multiple magnetic susceptibility readings were taken over lithological units/intervals with the average reading noted from scanning mode
	• *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Reverse Circulation drilling, (RC) was used to obtain 2m composite samples from which 5 kg samples were taken for assay per 2-meter interval' • Sampling from solid core did not overlap lithological boundaries. • Although the nature of RC drilling includes reduced inherent contamination from previous intervals it is an appropriate drilling method to determine basic lithology and to complete pre-collars for diamond tails.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, 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 is oriented and if so, by what method, etc).*	• Reverse Circulation Drilling, (RC) was used to pre-collar holes for diamond tails. • Pre-collars were drilled through the regolith to interpreted depths above the ore body upper contact with the Diamond tails coring through the ore body and up to 10m into the footwall.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Original samples recovered from RC drill cuttings at 2m intervals • Collection of RC cuttings both chips and fines were retrieved from a cyclone splitter • No bias was observed between recovery and sample quality or loss or gain. • Solid core was measured, and core recovery was recorded. All core runs where possible were ORI marked and an orientation line applied to the core.

Criteria	JORC Code explanation	Commentary
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Original RC drill chips were geologically logged as well as recording geotechnical features observable in chip over the full depth of the holes by a qualified geologist. • RC Sample piles and chip trays were photographed. • All RC intercepts were logged to an accuracy of 1m intervals. • HQ diameter core have been geologically and geotechnically logged using standard techniques to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • All core was photographed • Further intersections are still being calculated and will be finalised on completion of QA-QC process on assays.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	• HQ diamond core has been quarter cut for assay and DTR work. Remainder in storage for metallurgy.
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Original RC sample splits were retrieved directly from dry rotary cyclone for assay
	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• Samples were collected directly from cuttings and core, and are representative of the interval. • Samples are suitable for application of best practice XRF and DTR analysis as per ALS Laboratories •
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	• Industry standard sampling preparation procedures were used such as Blanks, Standards and Repeat assays. Lab results will be reviewed and checked for deviation using lab certified references and in house analysis.
	• *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.*	• 5kg splits were collected directly from cyclone using industry standard procedures and sent directly to lab. • Core was cut representing lithological boundaries and ore variation. • Blanks, Standards and Repeat assays have been included at set intervals throughout sampling.
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Original average RC drill sample size retrieved was 5kg, average chip size is 2-20mm. Sample sizes taken are large enough to be representative of the whole rock constituents.

Criteria	JORC Code explanation	Commentary
		• Diamond quarter core samples ranged from minimum interval 100mm to maximum interval of 2m and are appropriate to the grain size.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• All assays were completed using Xray Florescence (XRF) for an industry standard extended iron ore suite for 24 elements. • The nominal DTR procedure used the following conditions: • Stroke Frequency 60/minute • Stroke length – 38mm • Magnetic field strength – 3000 gauss • Tube Angle – 45 degrees • Tube Diameter – 25mm • Water flow rate – 540ml/min • Washing time 10 minutes or until the water runs clear • Concentrate collected and assayed • The tailings sample not collected
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Initial inspection and logging by onsite Geologist • Holes have been twinned to interpret variability. • Samples and assays verified using standard QA QC methods • All primary data from drilling is recorded in the Company data base. • All Assays completed • QA-QC completed on data contained in this announcement. • QA-QC underway on remaining results • Significant Intersections Reported by qualified company personnel • Documentation and QA QC review completed prior to final entry into database.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• GPS +/- 10m Drill hole locations were measured with Garmin hand held GPS. Accuracy is within +/-5m • MGA_GDA94 Zone 50 • Topographic surface recorded with handheld Garmin • Continuous down hole surveys were completed with a down hole north seeking gyro camera Axis/Reflex.

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 Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Initial sample intervals were routinely 2m or less dependent on geology and mineralisation and are appropriate for the mineral resource estimation being considered. • DTR composites were combined from sequential initial sample intervals • DTR composites form up to 5m intervals.
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.*	• This report refers to testing down dip lithology with vertical hole orientations at -60° dip. • This report makes no interpretation or reference to the shape or size of the structure.
	• *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.*	• No orientation-based sampling bias has been identified in this data at this point
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody is being maintained from sample site to lab
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No reviews of data management systems have been carried out

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 tenement referred to in this report, M09/166 is 100% Athena owned and operated within native title determined claim WAD 6033/98, made on behalf of the Wajarri Yamatji People.
	• *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The tenement is in good standing and no known impediments exist. • See tenement listing attached.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historic exploration within the greater project area largely confined to south of a line extending from Imagi Well to the Byro East intrusion (Melun Bore). The earliest work with any bearing on Athena's activities is that of Electrolic Zinc Co (1969) exploring for chromatite at Imagi Well, followed closely by Jododex Australia (1970-1974) at Byro East. Much of the exploration of a more regional nature is of limited use either because of the vagaries of the accuracy of positional information and the limited range of elements analysed. More recent surveys pertinent to Athena's current investigations include that of Redback Mining (1996-2002), Yilgarn Mining Limited (2003-2008) and Mithril (2007, JV with Yilgarn) at Byro East, and Western Mining Corporation (1976-1979) and Precious Metals Australia at Imagi Well. Newcrest Mining carried out a limited reconnaissance RAB drilling programme for platinum just to the east of Byro homestead (1998-1990).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Upper amphibolite to granulite metamorphic facies with mafic to ultramafic intrusive. Granite and migmatite are common

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.*
		• Refer to body of text for collar location, elevation, dip, azi, and EoH for holes drilled;

	• *If the exclusion of this information is justified on the basis that the*	• No information has been excluded

Criteria	JORC Code explanation	Commentary
	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.	
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.*	• No weighting, min max, ave, truncation were used in this report. • Whole rock feed assay grades reported from above a 10%Fe cut-off. • DTR concentrate assay grades reported from above a 65%Fe cut-off.
	• *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.*	• No metal equivalent are referred to in this report
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No metal equivalent are referred to in this report
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*	• There is no relationship to the geometry of mineralisation or drill hole angle.
	• *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').*	• There is no relationship to the width or depth extent of the body only down hole length.
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.*	• All relevant data is tabulated within the body of the 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 report contains all meaningful results to date for whole rock feed assays grades above a 10%Fe cut-off. • This report contains all meaningful results to date for DTR concentrate assay grades above a 65%Fe cut-off. • Further assays are pending.

Criteria	JORC Code explanation	Commentary
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.*	• This report contains all meaningful results to the completion of drilling. • This report contains all meaningful results to date for whole rock feed assays grades above a 10%Fe cut-off. • This report contains all meaningful results to date for DTR concentrate assay grades above a 65%Fe cut-off. • Further assays are pending.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Further metallurgical work will be undertaken to obtain definitive and conclusive data to be incorporated into the exploration database. If warranted further drilling will be undertaken to gain better understanding of the body shape, size and characteristic.
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Planned drilling information is not complete. • Future drilling is commercially sensitive and is not included in this report.

Section 3 Estimation and Reporting of Minerals Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	• The database has been audited by Entech for validation errors and physical comparison of drill hole core photography against geological and assay data undertaken for 44 holes underpinning the Mineral Resource. • Athena's database to 30 November 2022 comprised 2 353 samples with head grade assays and 373 samples with recovery and concentrate assays. • The data collected on site is loaded into an Access database under the control of the Exploration and Operations Manager. • The loading procedures and other validation steps include numerous validation checks on the data. These include value range checks and contextual cross-checks between lithology and degree of weathering logged, magnetic susceptibility, head grades, DT concentrate grades and DT mass recoveries. Resolution of validation issues may include relogging, resampling, repeated DT tests and/or re-assay • On loading the original data for modelling, Entech performed additional checks that validated the internal integrity of the data set provided by Athena. • During the site visit in June 2021, the Competent Person conducted an additional check of the database against known drill holes being drilled, logged and sampled.

	• *Data validation procedures used.*	• Entech completed various validation checks using built-in validation tools in Vulcan™ and data queries in MS Access such as overlapping samples, duplicate entries, missing data, sample length exceeding hole length, unusual assay values and a review of below detection limit samples. A visual examination of the data was also completed to check for erroneous downhole surveys.
		• The data validation process identified no major drill hole data issues that would materially affect the MRE outcomes.
		• Entech's database checks included the following:
		  • Checking for duplicate drill hole names and duplicate coordinates in the collar table.
		  • Checking for missing drill holes in the collar, survey, assay and geology tables based on drill hole names.
		  • Checking for survey inconsistencies including dips and azimuths <0°, dips >90°, azimuths >360° and negative depth values.

Criteria	JORC Code explanation	Commentary
		• Checking for inconsistencies in the 'From' and 'To' fields of the assay and geology tables. The inconsistency checks included the identification of negative values, overlapping intervals, duplicate intervals, gaps and intervals where the 'From' value is greater than the 'To' value.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	• Entech undertook a site visit to the Byro deposit on 20 to 21 June 2022 while a DD drilling campaign to support the 2023 MRE update was in progress. During the visit, Entech personnel inspected mineralised intersections in drill core and observed drilling, logging, sampling, QAQC and metadata collection operations.
	• *If no site visits have been undertaken indicate why this is the case.*	• Refer to previous statement.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	• Geological interpretations based on lithology, head grade and DT data were completed by Athena geologists. 3D (wireframe) geological modelling was carried out by Entech and reviewed by Athena. • Whole rock mineralisation was modelled at a cut-off grade of 10% head Fe to produce the mineralisation envelope. Three main domains were interpreted striking north-south and dipping about 35º to the west. • Within these domains the magnetic domains were interpreted at a cut-off grade of 20% DTR. • The mineralisation is offset by a north-south striking fault that dips about 80º to the east. • A steep dipping dolerite dyke striking about 50º crosscuts the mineralised domains and post-dates the mineralisation. • The weathering profile was modelled based on geology logging of drill holes. • The current drill hole spacing provides an acceptable degree of confidence in the interpretation and continuity of grade and geology and the definition of the boundary between weathered and fresh mineralisation. • The assay data that was cross-referenced with available core photography to provide confidence in the mineralisation. • Data from a total of 6 790 m of drilling from 33 RC drill holes and 11 RC drill holes with diamond core tails were available for the MRE. • Entech considers confidence is moderate to high in the geological interpretation and continuity of the mineralisation.

Criteria	JORC Code explanation	Commentary
	• Nature of the data used and of any assumptions made.	• Assumptions with respect to mineralisation continuity (plunge, strike and dip) within the Mineral Resource were drawn directly from: • Drill hole lithological logging • Drill hole core photography (where available) • Interpreted north–south trending major fault • Variably spaced resource definition drilling, nominally 100 m × 50 m centres • Historical resource and open file documentation/records/files.
	• The effect, if any, of alternative interpretations on Mineral Resource estimation.	• Entech considers that any alternate interpretations would be unlikely to result in significant differences to mineralisation domains spatially and/or volumetrically. This conclusion was based on undertaking grade-based probabilistic volume modelling (numerical modelling).
	• The use of geology in guiding and controlling Mineral Resource estimation.	• The geological sequence, magnetic recovery and major structural fault defined the geospatial framework for numerical modelling.
	• The factors affecting continuity both of grade and geology.	• Drill hole coverage for geological and grade domain interpretations averages 100 m × 50 m. Cross-cutting dolerite dyke and north-south trending fault locally affect continuity however the mineralisation is still open at depth. The lateral boundaries of the deposit have not been completely defined.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The Byro deposit comprises massive magnetite mineralisation is bound within a 850 m × 350 m area and 200 m depth extent. Across-strike widths vary from 50 m to <150 m. • The MRE for magnetite on which this Table 1 is based has the following extents: • Above 100 mRL • From 430 900 mE to 431 200 mE • From 7 109 800 mN to 7 110 700 mN.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	• Mineralisation is defined by zones identified from downhole lithological and geochemical data. Whole rock mineralisation is identified as having >10% head Fe and fresh magnetite mineralisation has >20% DTR. All other material is identified as waste. • Domain intercepts were flagged and implicitly modelled in Vulcan™ software. • Interpretation was a collaborative process with Athena geologists to ensure Entech's modelling represented observations and understanding of geological and mineralisation controls.

Criteria	JORC Code explanation	Commentary

		• Domain interpretations used all available RC and DD drill hole data. All interpreted intervals were snapped to sample intervals prior to the construction of implicitly modelled 3D solids.
		• All drill hole samples and block model blocks were coded for mineralisation, magnetite and oxidation domains.
		• Head grade drilling samples were composited to 2 m lengths honouring lode domain boundaries. DTR drilling samples were composited to 4 m lengths honouring lode domain boundaries.
		• Composites were reviewed for statistical outliers and no top-caps were applied.
		• Exploratory data analysis (EDA), variogram modelling and estimation validation was completed in Supervisor V8.8.
		• Linear estimation techniques were considered suitable due to the style, and commodity, of deposit, available data density and geological knowledge.
		• Variography analyses for head grades were completed on composites grouped by whole rock mineralisation domains. Variography analyses for DTR and concentrate grades were completed on composites grouped by magnetite mineralisation domains.
		• Search neighbourhoods broadly reflected the direction of maximum continuity within the plane of mineralisation, ranges, and anisotropy ratios from the variogram models. Neighbourhood parameters were optimised by validation of interpolation outcomes.
		• Estimations for DT concentrate grades were weighted appropriately by DTR to reflect the relationship between DTR and concentrate assays. Weighting was completed using the accumulation (DTR × DT assay) and then back calculating DT concentrate assays by dividing by the relevant estimated DTR values. The accumulated grades were represented by *_c_acc where * is the concentrate element.
		• All estimation was completed within respective mineralisation domains as outlined in previous sections:
		  • Fe, SiO_2, Al_2O_3, CaO, P, MgO, MnO, S, TiO_2, Na_2O, K_2O, LOI and V in whole rock domains.
		  • Fe_c_acc, SiO_2_c_acc, Al_2O_3_c_acc, CaO_c_acc, P_c_acc, MgO_c_acc, MnO_c_acc, S, TiO_2_c_acc, Na_2O_c_acc, K_2O_c_acc, LOI_c_acc and V_c_acc in magnetite domains.

Criteria	JORC Code explanation	Commentary
		• The maximum distance of extrapolation from data points was approximately half the drill hole data spacing. Using this approach, the maximum distance of classified blocks estimated from known data points was ~50 m.
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*	• The resource estimate grades were validated globally comparing statistics by domains between blocks and samples. Visual inspection and swath plots were used for local validations. The overall results are considered acceptable and adequate to this stage of estimation of the deposit. • The last publicly reported MRE was the 2012 Byro Resource, prepared by AMC Consultants Pty Ltd under the guidelines of the JORC Code, reported Inferred Magnetite Mineral Resources of 18.1 Mt at 35.2% DTR, 70.7% Fe concentrate and Inferred Whole Rock resource of 22.8 Mt at 25.6% Fe head. • The project has not been mined historically or via artisanal methods and therefore no historical production records exist for comparison purposes.
	• *The assumptions made regarding recovery of by-products.*	• No assumptions were made with respect to by-product recovery.
	• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).*	• No significant levels of deleterious elements are present in the resource • No assumptions were made within the MRE with respect to deleterious variables or by-products.
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*	• Vulcan® software was used for the block modelling. The parent block size used is 20 m (x) by 50 m (y) by 10 m (z), i.e. not less than ½ to ¼ of the drill hole spacing in the x (east) and y (north) directions. The sub-block size used to improve resolution at mineralisation boundaries is 2.5 m (x) by 6.25 m (y) by 2.5 m (z) • A three-pass estimation strategy was used, whereby search ranges reflected variogram maximum modelled continuity and a minimum of 5, maximum of 20 composites was used. The second search double the search range. The third pass doubled the second range search and used a minimum of 2 and maximum of 40 composites. • The majority of blocks within mineralisation and magnetite domains were estimated in the first two passes. No blocks in these domains remained unestimated.
	• *Any assumptions behind modelling of selective mining units.*	• No specific assumptions are made regarding selective mining units (SMU) except to say that the 10 m block height is a likely actual mining bench height.

Criteria	JORC Code explanation	Commentary
	• *Any assumptions about correlation between variables.*	• The correlation between variables was considered during variography and estimation. Although the variograms are modelled individually for each variable, the ranges of the structures are kept similar so as to preserve metal balance and block grade assays total close to 100%.
	• *Description of how the geological interpretation was used to control the resource estimates.*	• Three whole rock domains were defined for estimation of head grades based on head Fe <10%. • Three magnetite domains were defined for estimation of DTR and concentrate grades based on DTR >20%.
	• *Discussion of basis for using or not using grade cutting or capping.*	• Review of composites did not identify any statistical outliers and no top-caps were applied.
	• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Global and local validation of all the head and concentrate grades and DTR estimated outcomes was undertaken with statistical analysis, swath plots and visual comparison (cross and long sections) against input data. • Global comparison of composite mean against estimated mean (by domain and variable) highlighted minimal variation.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• The tonnages were estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The resource model is constrained by assumptions about economic cut-off grades. The magnetite mineralisation is confined by a 20% DTR cut-off and the whole rock mineralisation by a 10% Fe head cut-off grade.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The block model has been built using a parent cell size of 20 m (x) by 50 m (y) by 10 m (z), primarily determined by data availability. • No other mining selectivity or other economic assumptions have been made in the block model. It is considered at this stage that the open pit mining bench height is likely to be 10 m or close, as per the model primary block height • The MRE extends nominally 200 m below the topographic surface. Entech considers material at this depth, and at the grades estimated, would fall under the definition of RPEEE in an open pit mining framework. • No mining dilution or cost factors were applied to the MRE.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining*	• It is assumed that the metallurgical domains are primarily governed by the position of the magnetite and waste boundaries.

Criteria	JORC Code explanation	Commentary
	reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• It is assumed that the expected metallurgical recovery and concentrate grades can be inferred from DTR test results. • Batch and pilot plant testwork on bulk samples has been undertaken in 2011. • No factors or assumptions were made within the MRE with respect to other deleterious variables or by-products.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• No environmental factors were applied to the Mineral Resources or resource tabulations.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	• This MRE contains dry bulk density data which was collected on drill core from 11 holes completed in 2022. • For samples without measured density data the dry bulk density values used in the resource model were assigned using linear regressions (of bulk density vs. head Fe %) for fresh and weathered rocks. • The density sample locations provide a representative density profile between mineralised and weathering domains and depth profile within the MRE.
	• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.*	• Density measurements were collected and measured using an industry-accepted water immersion density determination method for each sample. • No factors or assumptions for void spaces were made within the MRE. There is very little evidence of void spaces in the magnetite drill core.
	• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Within the mineralised domains, 579 samples have a measured density value, and 111 host rock samples have a measured density value.

Criteria	JORC Code explanation	Commentary
		• Within the fresh material, evaluation was undertaken within mineralised and host rock with no definitive variation in regression outcomes. Thus, one regression formula for fresh material was applied across all mineralisation and weathering domains. • Within the mineralised domains there are 709 samples with a regressed density value and 842 host rock samples. • The density regression used is SG = 0.0242 × Fe head + 2.662. The regression has a correlation co-efficient of 0.91 between measured density and head Fe.

Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*	• The open pit magnetite deposit contains Indicated and Inferred Mineral Resources.
		• Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).
		• The classification of Mineral Resources was completed by Entech based on the geological complexity, number of drill samples, drill hole spacing and sample distribution, data quality and estimation quality for grades and DTR. The Competent Person is satisfied that the result appropriately reflects his view of the deposit,
		• The classification is confined to the mineralised and magnetite domains
		• **Indicated** Mineral Resources were defined where a moderate level of geological confidence in geometry, continuity, and grade was demonstrated, and were identified as areas where:
		  • Blocks were well supported by drill hole data, with drilling averaging a nominal 50 m × 50 m or less between drill holes
		  • Blocks were interpolated in the first or second estimation pass
		  • Estimation quality, slope of regression above 0.7.
		• **Inferred** Mineral Resources were defined where a lower level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where:
		  • Drill spacing was averaging a nominal 100 m or less
		  • Estimation quality, slope of regression above 0.2.
		• Mineralisation within the model which is outside the mineralised and magnetite domains remained unclassified.

Criteria	JORC Code explanation	Commentary
	• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	• Consideration has been given to all factors material to Mineral Resource outcomes, including but not limited to confidence in volume and grade delineation, continuity and preferential orientation mineralisation; quality of data underpinning Mineral Resources, nominal drill hole spacing and estimation quality (conditional bias slope, number of samples, distance to informing samples).
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The delineation of Indicated and Inferred Mineral Resources appropriately reflects the Competent Person's view on continuity and risk at the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Internal audits and peer review were undertaken by Entech with a focus on independent resource tabulation, block model validation, verification of technical inputs, and approaches to domaining, interpolation and classification.
Discussion of relative accuracy / confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	• Local variances to the tonnage, grade and metal distribution are expected with further definition drilling. It is the opinion of the Competent Person that these variances will not significantly affect the economic extraction of the deposit and the application of the Indicated and Inferred classification extents appropriately convey this risk. • The MRE is considered fit for the purpose of pre-feasibility level studies, and economic evaluation.
	• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	• The Mineral Resource Statement relates to global tonnage and grade estimates. • No formal confidence intervals nor recoverable resources were undertaken or derived.
	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The project has not undergone historical, recent or artisanal mining and therefore no historical production records are available for comparison.

APPENDIX A

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13 January 2023

Liam Kelly
Exploration and Operations Manager
Athena Resources Ltd

LETTER OF CONSENT – BYRO FE1 MAGNETITE DEPOSIT

OPEN PIT MINERAL RESOURCE ESTIMATE

Dear Mr Kelly

The following report summarises material outcomes with respect to the open pit Mineral Resource Estimate for the Byro FE1 Magnetite deposit, prepared by Entech Pty Ltd during January 2023 and reported in accordance with JORC Code (2012) guidelines. The Material Summary, JORC Code Table 1, sign-off and consent form included in this letter enable Athena Resources Ltd to achieve compliance with the Australian Securities Exchange (ASX) Listing Rules regarding announcements of Mineral Resources to the market.

Should you have any questions relating to this report please contact the undersigned.

Regards

Entech Pty Ltd

Alan Miller
Senior Geologist
BSc MAusIMM (CP)

MATERIAL SUMMARY

BYRO FE1 OPEN PIT MINERAL RESOURCE ESTIMATE

Material information summary as required under ASX Listing Rule 5.8 and JORC Code (2012) reporting guidelines.

Mineral Resource Statement

The Mineral Resource Statement for the Byro FE1 magnetite open pit Mineral Resource Estimate (MRE) was prepared in January 2023 and is reported according to the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the 'JORC Code') 2012 edition.

The MRE includes 29 reverse circulation (RC) drill holes completed during 2010 to 2011. A further four RC drill holes were added in 2022 along with one diamond drill hole (DD), and 10 drill holes with RC pre-collars and diamond core tails. The depth from surface to the current vertical limit of the Mineral Resources is approximately 200 m.

In the opinion of Entech, the Mineral Resource evaluation reported herein is a reasonable representation of the global open pit magnetite Mineral Resources within the deposit, based on sampling drill data available as at 13 December 2022.

The Indicated and Inferred Mineral Resources comprise fresh rock material. The Mineral Resource Statement is presented in Table 1 for whole rock mineralisation and in Table 2 for magnetite.

Table 1 Byro FE1 Open Pit Whole Rock Mineral Resource within mineralised domains interpreted at 10% Fe cut-off

Mineral Resource Category	Weathering	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	TiO2 (%)	LOI (%)	Density
Indicated	Fresh	24.0	25.1	49.3	5.48	0.052	0.079	0.32	-0.059	3.27
Inferred	Fresh	5.3	22.7	50.6	6.56	0.048	0.085	0.37	0.023	3.21
Total		**29.3**	**24.7**	**49.6**	**5.68**	**0.051**	**0.080**	**0.33**	**-0.044**	**3.26**

No cut-off grade used in the report

Totals may not be able to be reproduced due to the effects of rounding

Table 2 Byro FE1 Open Pit Magnetite Mineral Resource within mineralised domains interpreted at 20% DTR cut-off

Mineral Resource Category	Weathering	Tonnes (Mt)	DTR (%)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	LOI (%)	Density
Indicated	Fresh	17.7	33.6	70.7	1.23	0.32	0.003	0.021	-3.20	3.30
Inferred	Fresh	3.3	32.3	70.8	0.95	0.34	0.002	0.023	-3.17	3.26
Total		**21.0**	**33.4**	**70.7**	**1.18**	**0.32**	**0.003**	**0.021**	**-3.19**	**3.29**

No cut-off grade used in the report

Totals may not be able to be reproduced due to the effects of rounding

The estimated Magnetite Mineral Resource is contained within the whole rock Mineral Resource, and they are not cumulative.

Data from a total of 6 790 m of drilling from 33 RC drill holes and 11 RC drill holes with diamond core tails were available for the MRE. The database to 30 November 2022 comprised 2 353 samples with head grade assays and 373 samples with recovery and concentrate assays

This MRE includes Inferred Mineral Resources which are unable to have economic considerations applied to them, nor is there certainty that further sampling will enable them to be converted to Measured or Indicated Mineral Resources.

Competent Person's Statement

The information in the report to which this statement is attached that relates to the Estimation and Reporting of Mineral Resources at the Byro FE1 magnetite deposit is based on information compiled by Mr Alan Miller, BSc, a Competent Person who is a current Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Miller, Senior Geologist at Entech Pty Ltd, is an independent consultant to Athena Resources Ltd (Athena) with sufficient experience relevant to the style of mineralisation and deposit type under consideration and to the activities 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 Miller consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

Entech undertook a site visit to the Byro FE1 deposit on 20 to 21 June 2022 while the DD drilling campaign, to support the 2023 MRE update, was in progress. During the visit, Entech personnel inspected mineralised intersections in drill core and observed drilling, logging, sampling, QAQC and metadata collection operations.

Geology and Geological Interpretation

Elongate occurrences of quartz-magnetite rock are abundantly scattered throughout the Archean migmatitic Narryer Terrane gneisses in the Byro and Narryer project areas and are a source of magnetite ores. The occurrences were originally interpreted to be highly metamorphosed sheared resisters of BIF within the migmatite. They generally strike northeast and dip steeply northwest, but show association around mafic-ultramafic bodies. The lenses are spatially associated with discontinuous rafts of mafic layered intrusives, quartzite and thin layers of schistose talc ultramafics – the latter possibly being part of the dismembered Manfred Complex. Traces of meta-BIF and quartzite, as taken from outcrops presented on the 250 k geological map of Williams and Myers (1997) are now believed to be related to early mafic layered intrusive events, augmented by aeromagnetic interpretations and drill data of Athena.

The quartz-magnetite rafts are metamorphosed to upper amphibolite-granulite facies. They have coarse granoblasic textures with moderate foliation, and grain sizes ranging from 0.5 mm to 5 mm - features which facilitate clean separation of the constituent grains during grinding. Ferro-silicate minerals (eg - hypersthene, grunerite) that generally plague most Archaean BIFs are generally absent.

In essence they are essentially bi-mineralic rocks. They outcrop conspicuously in areas of exposure, but much of their extent is covered by alluvium, colluvium and laterite. They invariably have sharp high-amplitude aeromagnetic responses.

Geological interpretations based on lithology, head grade and DT data were completed by Athena geologists. 3D (wireframe) geological modelling was carried out by Entech and reviewed by Athena.

Whole rock mineralisation was modelled at a cut-off grade of 10% head Fe to produce the mineralisation envelope (Figure **1**). Three main domains were interpreted striking north-south and dipping about 35^{o} to the west. Within these domains the magnetic domains were interpreted at a cut-off grade of 20% DTR (Figure **2**).

The mineralisation is offset by a north-south striking fault that dips about 80^{o} to the east. A steep dipping dolerite dyke striking about 50^{o} crosscuts the mineralised domains and post-dates the mineralisation. The weathering profile was modelled based on geology logging of drill holes.

The current drill hole spacing provides an acceptable degree of confidence in the interpretation and continuity of grade and geology and the definition of the boundary between weathered and fresh mineralisation. The assay data that was cross-referenced with available core photography to provide confidence in the mineralisation.

Data from a total of 6 790 m of drilling from 33 RC drill holes and 11 RC drill holes with diamond core tails were available for the MRE.

Entech considers confidence is moderate to high in the geological interpretation and continuity of the mineralisation.

Assumptions with respect to mineralisation continuity (plunge, strike and dip) within the Mineral Resource were drawn directly from:

- Drill hole lithological logging
- Drill hole core photography of all diamond and RC core and chip trays
- Interpreted north–south trending major fault
- Variably spaced resource definition drilling, nominally 100 m × 50 m centres
- Historical resource and open file documentation/records/files.

Entech considers that any alternate interpretations would be unlikely to result in significant differences to mineralisation domains spatially and/or volumetrically. This conclusion was based on undertaking grade-based probabilistic volume modelling (numerical modelling)

Drill hole coverage for geological and grade domain interpretations averages 100 m × 50 m. Cross-cutting dolerite dyke and north-south trending fault locally affect continuity however the

mineralisation is still open at depth. The lateral boundaries of the deposit have not been completely defined

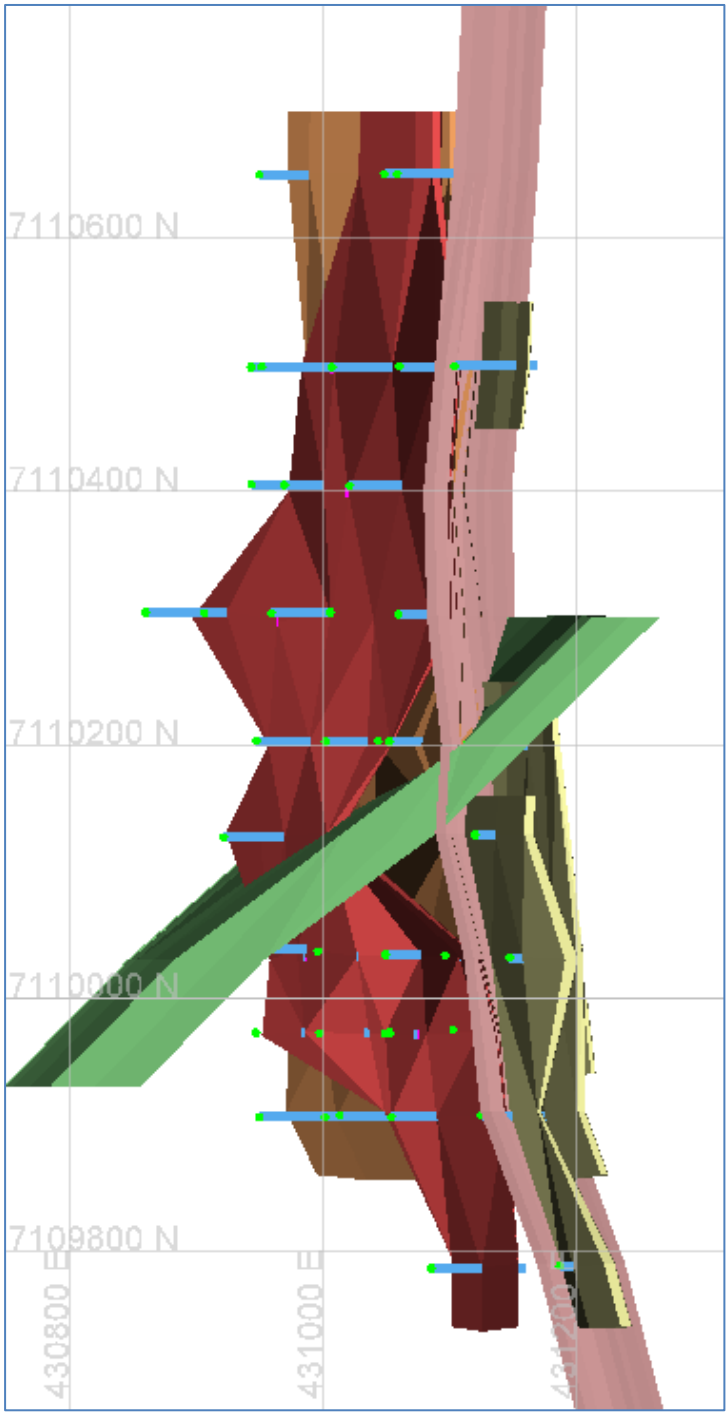

Figure 1 **Plan view of Byro FE1 deposit showing mineralised whole rock domains, dolerite and fault.**

Note: Mineralised domains (as interpreted) do not represent Mineral Resource classification extents.

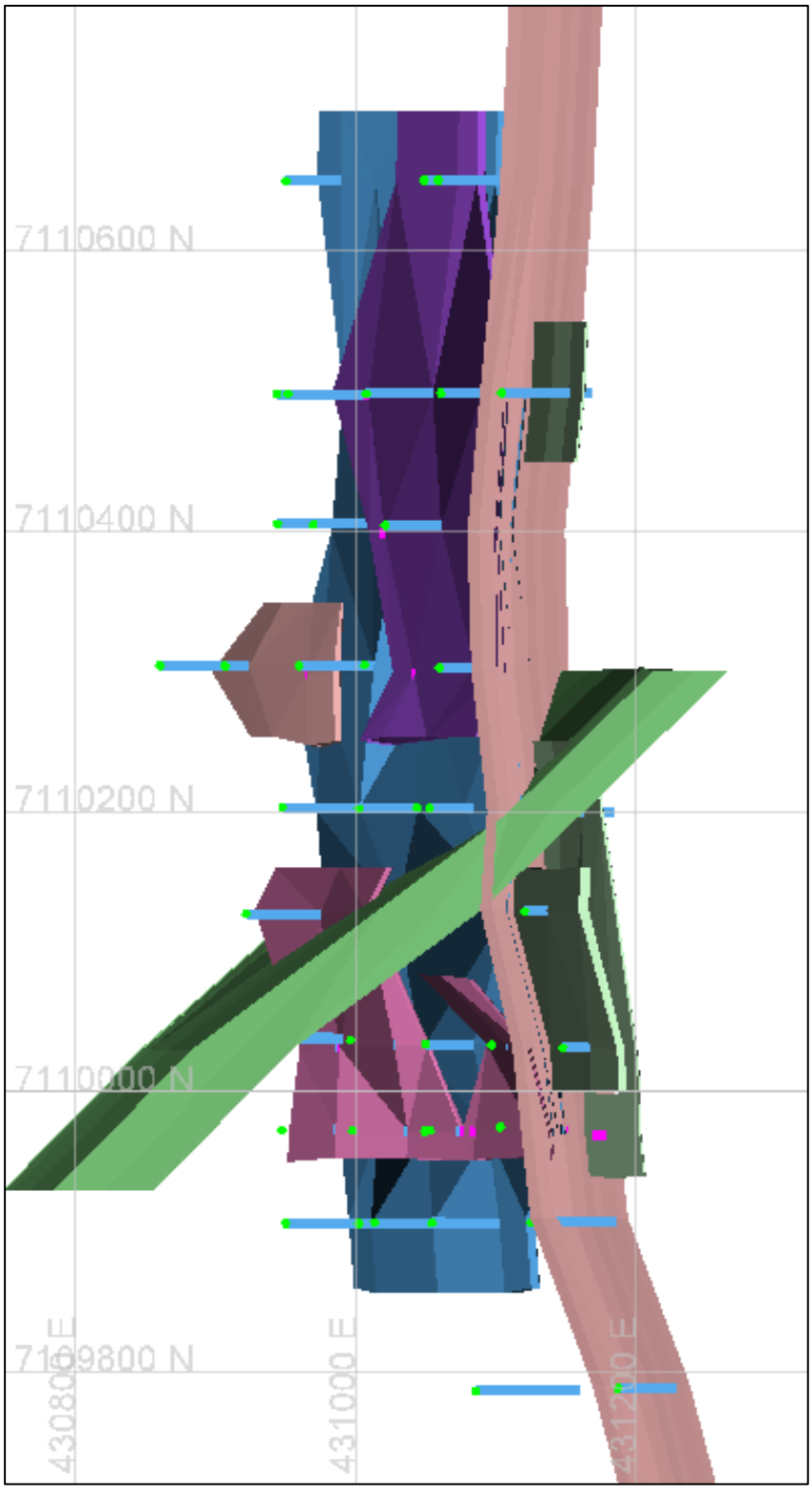

Figure 2 Plan view of Byro FE1 deposit showing magnetite domains, dolerite and fault.

Note: Mineralised domains (as interpreted) do not represent Mineral Resource classification extents.

Estimation Methodology

Mineralisation is defined by zones identified from downhole lithological and geochemical data. Whole rock mineralisation is identified as having >10% head Fe and fresh magnetite mineralisation has >20% DTR. All other material is identified as waste. Domain intercepts were flagged and implicitly modelled in Vulcan™ software.

Interpretation was a collaborative process with Athena geologists to ensure Entech's modelling represented observations and understanding of geological and mineralisation controls. Domain interpretations used all available RC and DD drill hole data. All interpreted intervals were snapped to sample intervals prior to the construction of implicitly modelled 3D solids.

All drill hole samples, and block model blocks were coded for mineralisation, magnetite, and oxidation domains.

Head grade drilling samples were composited to 2 m lengths honouring lode domain boundaries. DTR drilling samples were composited to 4 m lengths honouring lode domain boundaries. Composites were reviewed for statistical outliers and no top-caps were applied.

Exploratory data analysis (EDA), variogram modelling and estimation validation was completed in Supervisor V8.8.

Variography analyses for head grades were completed on composites grouped by whole rock mineralisation domains. Variography analyses for DTR and concentrate grades were completed on composites grouped by magnetite mineralisation domains. Search neighbourhoods broadly reflected the direction of maximum continuity within the plane of mineralisation, ranges, and anisotropy ratios from the variogram models. Neighbourhood parameters were optimised by validation of interpolation outcomes.

Linear estimation techniques were considered suitable due to the style, and commodity, of deposit, available data density and geological knowledge. Estimations for DT concentrate grades were weighted appropriately by DTR to reflect the relationship between DTR and concentrate assays. Weighting was completed using the accumulation (DTR × DT assay) and then back calculating DT concentrate assays by dividing by the relevant estimated DTR values. The accumulated grades were represented by *_c_acc where * is the concentrate element.

All estimation was completed within respective mineralisation domains as outlined in previous sections:

- Fe, SiO_2, Al_2O_3, CaO, P, MgO, MnO, S, TiO_2, Na_2O, K_2O, LOI and V in whole rock domains.
- Fe_c_acc, SiO_2_c_acc, Al_2O_3_c_acc, CaO_c_acc, P_c_acc, MgO_c_acc, MnO_c_acc, S, TiO_2_c_acc, Na_2O_c_acc, K_2O_c_acc, LOI_c_acc and V_c_acc in magnetite domains.

The maximum distance of extrapolation from data points was approximately half the drill hole data

spacing. Using this approach, the maximum distance of classified blocks estimated from known data points was ~50 m.

The resource estimate grades were validated globally comparing statistics by domains between blocks and samples. Visual inspection and swath plots were used for local validations. The overall results are considered acceptable and adequate to this stage of estimation of the deposit.

The last publicly reported MRE was the 2012 Byro FE1 Resource, prepared by AMC Consultants Pty Ltd under the guidelines of the JORC Code, reported Inferred Magnetite Mineral Resources of 18.1 Mt at 35.2% DTR, 70.7% Fe concentrate and Inferred Whole Rock resource of 22.8 Mt at 25.6% Fe head.

The project has not been mined historically or via artisanal methods and therefore no historical production records exist for comparison purposes. No assumptions were made with respect to by-product recovery. No significant levels of deleterious elements are present in the resource and no assumptions were made within the MRE with respect to deleterious variables or by-products

Vulcan® software was used for the block modelling. The parent block size used is 20 m (x) by 50 m (y) by 10 m (z), i.e. not less than ½ to ¼ of the drill hole spacing in the x (east) and y (north) directions. The sub-block size used to improve resolution at mineralisation boundaries is 2.5 m (x) by 6.25 m (y) by 2.5 m (z)

A three-pass estimation strategy was used, whereby search ranges reflected variogram maximum modelled continuity and a minimum of 5, maximum of 20 composites was used. The second search double the search range. The third pass doubled the second range search and used a minimum of 2 and maximum of 40 composites. The majority of blocks within mineralisation and magnetite domains were estimated in the first two passes. No blocks in these domains remained unestimated

No specific assumptions are made regarding selective mining units (SMU) except to say that the 10 m block height is a likely actual mining bench height.

The correlation between variables was considered during variography and estimation. Although the variograms are modelled individually for each variable, the ranges of the structures are kept similar so as to preserve metal balance and block grade assays total close to 100%.

Three whole rock domains were defined for estimation of head grades based on head Fe <10%. Three magnetite domains were defined for estimation of DTR and concentrate grades based on DTR >20%.

Global and local validation of all the head and concentrate grades and DTR estimated outcomes was undertaken with statistical analysis, swath plots and visual comparison (cross and long sections) against input data. A cross-section comparison of block model and drill hole grades for DTR is shown in Figure 3. Global comparison of composite mean against estimated mean (by domain and variable) highlighted minimal variation

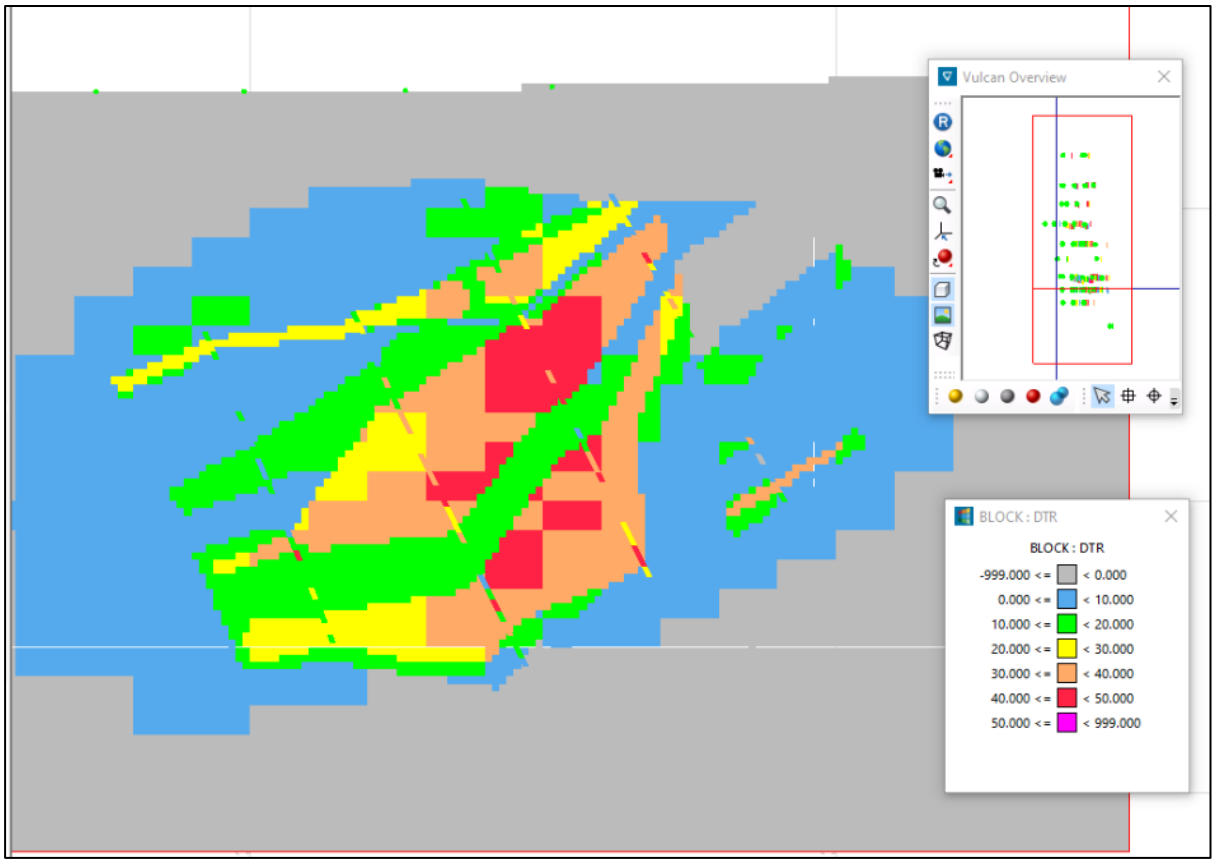

Figure 3 **Cross Section 7 109 970 mN comparing DTR for block model with drill holes.**

Classification Criteria

The open pit magnetite deposit contains Indicated and Inferred Mineral Resources. Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

The classification of Mineral Resources was completed by Entech based on the geological complexity, number of drill samples, drill hole spacing and sample distribution, data quality and estimation quality for grades and DTR. The Competent Person is satisfied that the result appropriately reflects his view of the deposit. The classification is confined to the mineralised and magnetite domains

Indicated Mineral Resources were defined where a moderate level of geological confidence in geometry, continuity, and grade was demonstrated, and were identified as areas where:

- Blocks were well supported by drill hole data, with drilling averaging a nominal 50 m × 50 m or less between drill holes
- Blocks were interpolated in the first or second estimation pass
- Estimation quality, slope of regression above 0.7.

Inferred Mineral Resources were defined where a lower level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where:

- Drill spacing was averaging a nominal 100 m or less
- Estimation quality, slope of regression above 0.2.

Mineralisation within the model which is outside the mineralised and magnetite domains remained unclassified.

Consideration has been given to all factors material to Mineral Resource outcomes, including but not limited to confidence in volume and grade delineation, continuity and preferential orientation mineralisation; quality of data underpinning Mineral Resources, nominal drill hole spacing and estimation quality (conditional bias slope, number of samples, distance to informing samples). The delineation of Indicated and Inferred Mineral Resources appropriately reflects the Competent Person's view on continuity and risk at the deposit

Cut-off Grade

The resource model is constrained by assumptions about economic cut-off grades. No cut-off grade is used for reporting the MRE as the magnetite mineralisation is confined during the domaining process by a 20% DTR cut-off and the whole rock mineralisation by a 10% Fe head cut-off grade.

Bulk Density

This MRE contains dry bulk density data which was collected on drill core from 11 holes completed in 2022. The density sample locations provide a representative density profile between mineralised and weathering domains and depth profile within the MRE.

Density measurements were collected and measured using an industry-accepted water immersion density determination method for each sample. No factors or assumptions for void spaces were made within the MRE. There is very little evidence of void spaces in the magnetite drill core.

Within the mineralised domains, 579 samples have a measured density value, and 111 host rock samples have a measured density value.

For samples without measured density data the dry bulk density values used in the resource model were assigned using linear regressions (of bulk density vs. head Fe %) for fresh and weathered rocks. Within the fresh material, evaluation was undertaken within mineralised and host rock with no definitive variation in regression outcomes. Thus, one regression formula for fresh material was applied across all mineralisation and weathering domains.

Within the mineralised domains there are 709 samples with a regressed density value and 842 host rock samples.

The density regression used is SG = 0.0242 × Fe head + 2.662. The regression has a correlation co-

efficient of 0.91 between measured density and head Fe.

Project History and Historical Mineral Resources

Athena Resources began its tenure on the Byro tenements in 2009 flying the Byro project area with 100 m line spacing aeromagnetics, followed by detailed 50 m and 25 m line-spaced surveys. Surface sampling and geological mapping combined with the aeromagnetic data defined up to 10 discrete magnetite occurrences, from which Athena Resources identified the best occurrences for further appraisal and drilling. This included drilling the Byro FE1 ore body with 11 RC drill holes in 2010 followed by further 18 RC drill holes and one DD hole in 2011, sufficient to estimate an Inferred Mineral Resource to JORC (2004) guidelines, released in the ASX in November 2011[1].

While developing an Exploration Target Estimate to JORC (2012) guidelines on the remaining satellite magnetite occurrences, announced 11 August 2014, the Company proceeded to undertake extensive ore characterisation and ore process engineering for two of the projects identified including the Byro FE1 project. Further metallurgy was undertaken to refine products for markets suited to the Byro FE1 ore type followed by development and implementation of a program to update the Byro FE1 JORC (2004) Inferred Mineral Resource to meet JORC (2012) guidelines. This resulted in drilling a further four RC drill holes along with one DD, and 10 drill holes with RC pre-collars and diamond core tails sufficient to support a reclassification of the Byro FE1 project.

Assessment of Reasonable Prospects for Eventual Economic Extraction

Entech assessed the Byro FE1 MRE, as reported, as meeting the criterion for RPEEE based on the following considerations.

Mining

The Byro FE1 MRE extends from the topographic surface to approximately 200 m below surface. Entech considers material at this depth, and at the grades estimated, would fall under the definition of RPEEE in an open pit mining framework.

Variances to the tonnage, grade and metal of the Mineral Resources are expected with further definition drilling. The Mineral Resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

It is the Competent Person's opinion that the proposed open pit mining methods and cut-off grades applied satisfy the requirements for RPEEE.

Metallurgy

It is assumed that the metallurgical domains are primarily governed by the position of the magnetite and waste boundaries. Also, the expected metallurgical recovery and concentrate grades can be

[1] *AXS Release - Preliminary JORC Resource for Byro FE1 Deposit 28 November 201.*

inferred from DTR test results.

Batch and pilot plant testwork on bulk samples has been undertaken in 2011 and 2018.[2]

No factors or assumptions were made within the MRE with respect to other deleterious variables or by-products.

END.

[2] *Metallurgy report – ALS AMMTEC Metallurgical Results (02 August 201)1, Byro Iron Ore High Grade Magnetite (16 April 2018).*

COMPETENT PERSON'S CONSENT FORM

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and clause 9 of the 2012 JORC Code (Written Consent Statement)

Report Description

Report: Byro FE1 Magnetite Project, WA. Resource Update

Releasing Company: Athena Resources Limited

Deposit Name: Byro FE1 Magnetite Deposit

Date: 13 January 2023

Statement

I, Alan Miller, confirm that I am the Competent Person (Estimation and Reporting of Mineral Resources) for the Report, and:

- I have read and understood the requirements of the 2012 edition of the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC Code, 2012 edition).
- I am a Competent Person as defined by the JORC Code, 2012 edition, having five years' experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Member of the Australasian Institute of Mining and Metallurgy.
- I have reviewed the Report to which this Consent Statement applies.
- I am a consultant working for Entech Pty Ltd and have been engaged by Athena Resources Limited to prepare the documentation for the Byro FE1 Mineral Resource Estimate on which the Report is based, for the period ending 13th January 2023.

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Mineral Resources.

CONSENT

I consent to the release of the Report and this Consent Statement by the directors of:

Athena Resources Limited.

13 January 2023

Signature of Competent Person | Date

Professional Membership: AusIMM

Membership Number: MAusIMM (CP) (204697)

Jill Irvin (MAIG 3035)

Signature of Witness | West Perth, Western Australia

Additional Deposits covered by the Report for which the Competent Person signing this form is accepting responsibility:

NONE.....
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Additional Reports related to the deposit for which the Competent Person signing this form is accepting responsibility:

NONE.....
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13 January 2023

Signature of Competent Person | Date

Professional Membership: AusIMM

Membership Number: MAusIMM (CP) (204697)

Jill Irvin (MAIG 3035)

Signature of Witness | West Perth, Western Australia